# Schema documentation for spase-2_2_1.xsd

**February 28, 2012**

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<td>Element FaxNumber</td>
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<td>Simple Type enumAvailability</td>
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<td>Simple Type enumAccessRights</td>
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<td>Simple Type enumRenderingAxis</td>
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</table>
Schema documentation for spase-2_2_1.xsd

Namespace: "http://www.spase-group.org/data/schema"

Schema(s)

Main schema spase-2_2_1.xsd

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>attribute form default: unqualified</td>
</tr>
<tr>
<td></td>
<td>element form default: qualified</td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>

Element(s)

Element spase

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagram</td>
<td><img src="" alt="Diagram" /></td>
</tr>
</tbody>
</table>
Type | Spase
---|---
Properties | content: complex
Model | Version, ResourceEntity+
Children | ResourceEntity, Version
Attributes | QName | Type | Fixed | Default | Use
---|---|---|---|---|---
lang | xsd:string | | | en | optional
Source | `<xsd:element name="Spase" type="Spase"/>`
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Version**

Namespace | http://www.spase-group.org/data/schema
---|---
Annotations | Indicates the release identifier. When used to indicate the release of the SPASE data model, it is in the form Major.Minor.Fix where Major: A significant change in the architecture of the model or rewrite of the implementation. This includes major changes in design or implementation language. This number starts at 0 (zero). Minor: An addition of terms or features that require changes in documentation/external API. This number starts at 0 (zero). Fix: Any change that doesn't require documentation/external API changes. This number starts at 0 (zero).
Diagram | ![Diagram](version.png)
Type | enumVersion
Properties | content: simple
Facets | enumeration 2.2.1
Used by | Complex Type Spase
Source | `<xsd:element name="Version" type="enumVersion"/>
<xsd:annotation>  
<xsd:documentation xml:lang="en">Indicates the release identifier. When used to indicate the release of the SPASE data model, it is in the form Major.Minor.Fix where Major: A significant change in the architecture of the model or rewrite of the implementation. This includes major changes in design or implementation language. This number starts at 0 (zero). Minor: An addition of terms or features that require changes in documentation/external API. This number starts at 0 (zero). Fix: Any change that doesn't require documentation/external API changes. This number starts at 0 (zero).</xsd:documentation>
</xsd:annotation>`
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element ResourceEntity**

Namespace | http://www.spase-group.org/data/schema
Properties

abstract: true

Substitution Group

- Catalog
- DisplayData
- NumericalData
- Document
- Granule
- Instrument
- Observatory
- Person
- Registry
- Repository
- Service
- Annotation

Used by

Complex Type  Spase

Source

<xs:element name="ResourceEntity" abstract="true"/>

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element Catalog

Namespace

http://www.spase-group.org/data/schema
Type: Catalog

Properties:
- content: complex

Substitution Group Affiliation:
- ResourceEntity

Model:
- ResourceID, ResourceHeader, AccessInformation+, ProviderResourceName{0,1}, ProviderVersion{0,1}, InstrumentID*, PhenomenonType+, TimeSpan{0,1}, Caveats{0,1}, Keyword*, InputResourceID*, Parameter*, Extension*

Children:

Instance:
```xml
<Catalog>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
  <AccessInformation>(1,unbounded)</AccessInformation>
  <ProviderResourceName>(0,1)</ProviderResourceName>
  <ProviderVersion>(0,1)</ProviderVersion>
  <InstrumentID>(0,unbounded)</InstrumentID>
  <PhenomenonType>(1,unbounded)</PhenomenonType>
  <TimeSpan>(0,1)</TimeSpan>
  <Caveats>(0,1)</Caveats>
  <Keyword>(0,unbounded)</Keyword>
  <InputResourceID>(0,unbounded)</InputResourceID>
  <Parameter>(0,unbounded)</Parameter>
  <Extension>(0,unbounded)</Extension>
</Catalog>
```

Source:
```xml
<xsd:element name="Catalog" type="Catalog" substitutionGroup="ResourceEntity"/>
```
## Element ResourceID

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>A Resource ID is a URI that has the form &quot;scheme://authority/path&quot; where &quot;scheme&quot; is &quot;spase&quot; for those resources administered through the SPASE framework, &quot;authority&quot; is the unique identifier for the resource provider registered within the SPASE framework and &quot;path&quot; is the unique identifier of the resource within the context of the &quot;authority&quot;. The resource ID must be unique within the SPASE framework.</td>
</tr>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types: Annotation, Catalog, DisplayData, Document, Granule, Instrument, NumericalData, Observatory, Person, Registry, Repository, Service</td>
</tr>
</tbody>
</table>

### Source

```
<xsd:element name="ResourceID" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A Resource ID is a URI that has the form "scheme://authority/path" where "scheme" is "spase" for those resources administered through the SPASE framework, "authority" is the unique identifier for the resource provider registered within the SPASE framework and "path" is the unique identifier of the resource within the context of the "authority". The resource ID must be unique within the SPASE framework.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

## Element ResourceHeader

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagram</td>
<td></td>
</tr>
</tbody>
</table>

### Type

ResourceHeader

### Properties

content: complex
Schema documentation for spase-2_2_1.xsd

Used by
Complex Types: Annotation, Catalog, DisplayData, Document, Instrument, NumericalData, Observatory, Registry, Repository, Service

Model
ResourceName, AlternateName*, ReleaseDate, ExpirationDate{0,1}, Description, Acknowledgement{0,1}, Contact+, InformationURL*, Association*, PriorID*

Children
Acknowledgement, AlternateName, Association, Contact, Description, ExpirationDate, InformationURL, PriorID, ReleaseDate, ResourceName

Instance
<ResourceHeader>
<ResourceName>{1,1}</ResourceName>
<AlternateName>{0,unbounded}</AlternateName>
<ReleaseDate>{1,1}</ReleaseDate>
<ExpirationDate>{0,1}</ExpirationDate>
<Description>{1,1}</Description>
<Acknowledgement>{0,1}</Acknowledgement>
<Contact>{1,unbounded}</Contact>
<InformationURL>{0,unbounded}</InformationURL>
<Association>{0,unbounded}</Association>
<PriorID>{0,unbounded}</PriorID>
</ResourceHeader>

Source
<xsd:element name="ResourceHeader" type="ResourceHeader"/>

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element ResourceName

Namespace
http://www.spase-group.org/data/schema

Annotations
A short textual description of a resource which may be useful when read by a person.

Diagram

Type
xsd:string

Properties
content: simple

Used by
Complex Type ResourceHeader

Source
<xsd:element name="ResourceName" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A short textual description of a resource which may be useful when read by a person.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element AlternateName

Namespace
http://www.spase-group.org/data/schema

Annotations
An alternative or shortened name used to refer to a resource. This includes acronyms, expanded names or a synonym for a resource.

Diagram

Type
xsd:string

Properties
content: simple

Used by
Complex Type ResourceHeader

Source
<xsd:element name="AlternateName" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An alternative or shortened name used to refer to a resource. This includes acronyms, expanded names or a synonym for a resource.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element ReleaseDate

Namespace
http://www.spase-group.org/data/schema
### Element ReleaseDate

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
The date and time when a resource is made available. The availability of a resource coincides with the release of a resource description. If the Release Date is specified as a future date then it indicates that resource should not be made available until that time. However, this is only advisory and in practice the Release Date should be the actual date the resource description was published.

**Diagram**

```
<table>
<thead>
<tr>
<th>ReleaseDate</th>
</tr>
</thead>
<tbody>
<tr>
<td>xsd:dateTime</td>
</tr>
</tbody>
</table>
```

**Type**  
xsd:dateTime

**Properties**  
content: simple

**Used by**  
Complex Types: Granule, Person, ResourceHeader

**Source**

```
<xsd:element name="ReleaseDate" type="xsd:dateTime">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The date and time when a resource is made available. The availability of a resource coincides with the release of a resource description. If the Release Date is specified as a future date then it indicates that resource should not be made available until that time. However, this is only advisory and in practice the Release Date should be the actual date the resource description was published.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**  
file:///C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element ExpirationDate

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
The date and time when a resource is no longer available. If the Expiration Date is specified then it indicates that resource should not be made available after that time. However, this is only advisory and in practice a resource description should be unpublished to eliminate access to a resource.

**Diagram**

```
<table>
<thead>
<tr>
<th>ExpirationDate</th>
</tr>
</thead>
<tbody>
<tr>
<td>xsd:dateTime</td>
</tr>
</tbody>
</table>
```

**Type**  
xsd:dateTime

**Properties**  
content: simple

**Used by**  
Complex Types: Granule, ResourceHeader

**Source**

```
<xsd:element name="ExpirationDate" type="xsd:dateTime">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The date and time when a resource is no longer available. If the Expiration Date is specified then it indicates that resource should not be made available after that time. However, this is only advisory and in practice a resource description should be unpublished to eliminate access to a resource.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**  
file:///C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Description

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
A narrative explanation with detail appropriate for the item it describes. For example a description of data resource should include discussions of the main quantities in the resource, possible uses and search terms. A description should also include whether any corrections (i.e., geometry, inertial) have been applied to the resource.

**Diagram**

```
<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xsd:string</td>
</tr>
</tbody>
</table>
```

**Schema location**  
file:///C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
**Element Description**

Namespace: http://www.spase-group.org/data/schema

Annotations:
The individual, group or organization which should be acknowledged when the data is used in or contributes to a presentation or publication.

Diagram:

Type: xsd:string
Properties: content: simple
Used by: Complex Types, AccessURL, InformationURL, Parameter, ResourceHeader

Source:

```xml
<xsd:element name="Description" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A narrative explanation with detail appropriate for the item it describes. For example a description of data resource should include discussions of the main quantities in the resource, possible uses and search terms. A description should also include whether any corrections (i.e, geometry, inertial) have been applied to the resource.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element Acknowledgement**

Namespace: http://www.spase-group.org/data/schema

Annotations:
The individual, group or organization which should be acknowledged when the data is used in or contributes to a presentation or publication.

Diagram:

Type: xsd:string
Properties: content: simple
Used by: Complex Types, AccessInformation, ResourceHeader

Source:

```xml
<xsd:element name="Acknowledgement" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The individual, group or organization which should be acknowledged when the data is used in or contributes to a presentation or publication.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element Contact**

Namespace: http://www.spase-group.org/data/schema

Diagram:

Type: Contact
Properties: content: complex
Used by: Complex Type, ResourceHeader

Model:
PersonID, Role+

Children:
PersonID, Role

Instance:

```xml
<Contact>
    <PersonID>(1,1)</PersonID>
    <Role>1,unbounded</Role>
</Contact>
```

Source:

```xml
<xsd:element name="Contact" type="Contact"/>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element PersonID**

Namespace: http://www.spase-group.org/data/schema
## Annotations

The identifier assigned to a Person description.

## Type

```
<xsd:element name="PersonID" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The identifier assigned to a Person description.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

## Source

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Role

<table>
<thead>
<tr>
<th>Facets</th>
<th>Type</th>
<th>Properties</th>
<th>Content</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>ArchiveSpecialist</td>
<td>simple</td>
<td></td>
<td>An individual who is an expert on a collection of resources and may also be knowledgeable of the phenomenon and related physics represented by the resources. This includes librarians, curators, archive scientists and other experts.</td>
</tr>
<tr>
<td>enumeration</td>
<td>CoInvestigator</td>
<td>simple</td>
<td></td>
<td>An individual who is a scientific peer and major participant in an investigation.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Contributor</td>
<td>simple</td>
<td></td>
<td>An entity responsible for making contributions to the content of the resource.</td>
</tr>
<tr>
<td>enumeration</td>
<td>DataProducer</td>
<td>simple</td>
<td></td>
<td>An individual who generated the resource and is familiar with its provenance.</td>
</tr>
<tr>
<td>enumeration</td>
<td>DeputyPI</td>
<td>simple</td>
<td></td>
<td>An individual who is an administrative or scientific leader for an investigation operating under the supervision of a Principal Investigator.</td>
</tr>
<tr>
<td>enumeration</td>
<td>FormerPI</td>
<td>simple</td>
<td></td>
<td>An individual who had served as the administrative and scientific lead for an investigation, but no longer assumes that role.</td>
</tr>
<tr>
<td>enumeration</td>
<td>GeneralContact</td>
<td>simple</td>
<td></td>
<td>An individual who can provide information on a range of subjects or who can direct you to a domain expert.</td>
</tr>
<tr>
<td>enumeration</td>
<td>MetadataContact</td>
<td>simple</td>
<td></td>
<td>An individual who can affect a change in the metadata describing a resource.</td>
</tr>
<tr>
<td>enumeration</td>
<td>PrincipalInvestigator</td>
<td>simple</td>
<td></td>
<td>An individual who is the administrative and scientific lead for an investigation.</td>
</tr>
<tr>
<td>enumeration</td>
<td>ProjectScientist</td>
<td>simple</td>
<td></td>
<td>An individual who is an expert in the phenomenon and related physics explored by the project. A project scientist may also have a managerial role within the project.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Publisher</td>
<td>simple</td>
<td></td>
<td>An individual, organization, institution or government department responsible for the production and dissemination of a document.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Scientist</td>
<td>simple</td>
<td></td>
<td>An individual who is an expert in the phenomenon</td>
</tr>
</tbody>
</table>
and related physics represented by the resource.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TeamLeader</td>
<td>An individual who is the designated leader of an investigation.</td>
</tr>
<tr>
<td>TeamMember</td>
<td>An individual who is a major participant in an investigation.</td>
</tr>
<tr>
<td>TechnicalContact</td>
<td>An individual who can provide specific information with regard to the resource or supporting software</td>
</tr>
</tbody>
</table>

**Used by**

<table>
<thead>
<tr>
<th>Complex Type</th>
<th>Contact</th>
</tr>
</thead>
</table>

**Source**

```
<xs:element name="Role" type="enumRole">
  <xs:annotation>
    <xs:documentation xml:lang="en">The assigned or assumed function or position of an individual.</xs:documentation>
  </xs:annotation>
</xs:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element InformationURL**

**Namespace**

http://www.spase-group.org/data/schema

**Diagram**

![Diagram of InformationURL]

**Type**

InformationURL

**Properties**

| content: | complex |

**Used by**

Complex Type ResourceHeader

**Model**

Name{0,1}, URL, Description{0,1}, Language{0,1}

**Children**

Description, Language, Name, URL

**Instance**

```
<InformationURL>
  <Name>{0,1}</Name>
  <URL>{1,1}</URL>
  <Description>{0,1}</Description>
  <Language>{0,1}</Language>
</InformationURL>
```

**Source**

```
<xs:element name="InformationURL" type="InformationURL"/>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element Name**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

A language unit by which a person or thing is known.

**Diagram**

![Diagram of Name]

**Type**

xsd:string

**Properties**

| content: | simple |

**Used by**

Complex Types AccessURL, Element, InformationURL, Parameter

**Source**

```
<xs:element name="Name" type="xsd:string">
  <xs:annotation>
    <xs:documentation>
      A language unit by which a person or thing is known.
    </xs:documentation>
  </xs:annotation>
</xs:element>
```
A language unit by which a person or thing is known.

**Element URL**

Namespace: http://www.spase-group.org/data/schema

Annotations: Uniform Resource Locator (URL) is the global address of documents and other resources on the World Wide Web. The first part of the address indicates what protocol to use, and the second part specifies the IP address or the domain name where the resource is located followed by the pathname of the resource. A URL is specified in the form protocol://server.domain.name:port/pathname. Example protocols are HTTP or FTP, server domain name is the Internet name.

Type: xsd:string

Properties: content: simple

Used by: Complex Types AccessURL, InformationURL, Source

Source:

```xml
<xsd:element name="URL" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Uniform Resource Locator (URL) is the global address of documents and other resources on the World Wide Web. The first part of the address indicates what protocol to use, and the second part specifies the IP address or the domain name where the resource is located followed by the pathname of the resource. A URL is specified in the form protocol://server.domain.name:port/pathname. Example protocols are HTTP or FTP, server domain name is the Internet name.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Element Language**

Namespace: http://www.spase-group.org/data/schema

Annotations: The two character indicator of language selected from the ISO 630-1 codes for the representation of names of languages.

Type: xsd:string

Properties: content: simple

Used by: Complex Types AccessURL, InformationURL

Source:

```xml
<xsd:element name="Language" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The two character indicator of language selected from the ISO 630-1 codes for the representation of names of languages.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Element Association**

Namespace: http://www.spase-group.org/data/schema

Source:

```xml
<xsd:element name="Association">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">This is a complex type for representing the association between two things, e.g., a source and an instrument, a target and a type of observation, etc.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```
### Schema documentation for spase-2_2_1.xsd

#### Diagram

![Diagram](attachment:image.png)

<table>
<thead>
<tr>
<th>Type</th>
<th>Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type ResourceHeader</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>AssociationID{0,1}, AssociationType{0,1}, Note{0,1}</th>
</tr>
</thead>
</table>

| Children | AssociationID, AssociationType, Note |

| Instance | `<Association>  
  <AssociationID>{0,1}</AssociationID>  
  <AssociationType>{0,1}</AssociationType>  
  <Note>{0,1}</Note>  
</Association>` |

| Source | `<xsd:element name="Association" type="Association"/>` |

| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

#### Element AssociationID

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The resource identifier for a resource with which this resource is closely associated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagram</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td><code>xsd:string</code></td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type Association</td>
</tr>
</tbody>
</table>

| Source | `<xsd:element name="AssociationID" type="xsd:string">  
  <xsd:annotation>  
  <xsd:documentation xml:lang="en">The resource identifier for a resource with which this resource is closely associated.<</xsd:documentation>  
</xsd:annotation>  
</xsd:element>` |

| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

#### Element AssociationType

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>A characterization of the role or purpose of an associated resource.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagram</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td><code>enumAssociationType</code></td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>ChildEventOf</td>
</tr>
<tr>
<td>enumeration</td>
<td>DerivedFrom</td>
</tr>
<tr>
<td>enumeration</td>
<td>ObservedBy</td>
</tr>
<tr>
<td>enumeration</td>
<td>Other</td>
</tr>
</tbody>
</table>
context of its usage may be described in related text.

| enumeration | PartOf | A portion of a larger resource. |
| enumeration | RevisionOf | A modified version of a resource instance. |

Used by
Complex Type: Association

Source
```xml
<xs:element name="AssociationType" type="enumAssociationType">
  <xs:annotation>
    <xs:documentation xml:lang="en">A characterization of the role or purpose of an associated resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Note**

Namespace: http://www.spase-group.org/data/schema

Annotations: Information which is useful or important for the understanding of a value or parameter.

Diagram
![Diagram](image)

Type: xsd:string

Properties: content: simple

Used by
Complex Types: Association, ObservationExtent, OperatingSpan, Person, TimeSpan

Source
```xml
<xs:element name="Note" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">Information which is useful or important for the understanding of a value or parameter.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element PriorID**

Namespace: http://www.spase-group.org/data/schema

Annotations: The resource identifier for a resource that is superseded or replaced by a resource.

Diagram
![Diagram](image)

Type: xsd:string

Properties: content: simple

Used by
Complex Types: Granule, ResourceHeader

Source
```xml
<xs:element name="PriorID" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The resource identifier for a resource that is superseded or replaced by a resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element AccessInformation**

Namespace: http://www.spase-group.org/data/schema
**Schema documentation for spase-2_2_1.xsd**

**Diagram**

```
<AccessInformation>
  <RepositoryID>{1,1}</RepositoryID>
  <Availability>{0,1}</Availability>
  <AccessRights>{0,1}</AccessRights>
  <AccessURL>{1,unbounded}</AccessURL>
  <Format>{1,1}</Format>
  <Encoding>{0,1}</Encoding>
  <DataExtent>{0,1}</DataExtent>
  <Acknowledgement>{0,1}</Acknowledgement>
</AccessInformation>
```

**Element RepositoryID**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: The identifier of a Repository resource.

**Element Availability**

- **Namespace**: http://www.spase-group.org/data/schema
## Annotation

**Diagram**

![Diagram of availability](image)

**Type**

enumAvailability

**Properties**

content: simple

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offline</td>
<td>Not directly accessible electronically. This includes resources which may to be moved to an on-line status in response to a given request.</td>
</tr>
<tr>
<td>Online</td>
<td>Directly accessible electronically.</td>
</tr>
</tbody>
</table>

**Used by**

Complex Type: AccessInformation

**Source**

```xml
<xsd:element name="Availability" type="enumAvailability">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An indication of the method or service which may be used to access the resource.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

## AccessRights

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

Permissions granted or denied by the host of a product to allow other users to access and use the resource.

**Diagram**

![Diagram of access rights](image)

**Type**

enumAccessRights

**Properties**

content: simple

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Access is granted to everyone.</td>
</tr>
<tr>
<td>Restricted</td>
<td>Access to the product is regulated and requires some form of identification.</td>
</tr>
</tbody>
</table>

**Used by**

Complex Type: AccessInformation

**Source**

```xml
<xsd:element name="AccessRights" type="enumAccessRights">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Permissions granted or denied by the host of a product to allow other users to access and use the resource.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

## AccessURL

**Namespace**

http://www.spase-group.org/data/schema

**Diagram**

![Diagram of access URL](image)

**Type**

AccessURL
### Properties

| content:            | complex |

### Used by

| Complex Types         | AccessInformation, Registry, Repository, Service |

### Model

| Name{0,1} , URL , Description{0,1} , Language{0,1} |

### Children

| Description, Language, Name , URL |

### Instance

```
<AccessURL>
  <Name>{0,1}</Name>
  <URL>{1,1}</URL>
  <Description>{0,1}</Description>
  <Language>{0,1}</Language>
</AccessURL>
```

### Source

```
<xsd:element name="AccessURL" type="AccessURL"/>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Format

#### Namespace

http://www.spase-group.org/data/schema

#### Annotations

The organization of data according to preset specifications. The value is selected from a list of accepted names for known, well documented formats.

#### Diagram

![Diagram](image)

#### Type

enumFormat

#### Properties

| content:            | simple |

#### Facets

<table>
<thead>
<tr>
<th>enumeration</th>
<th>AVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Audio Video Interleave (AVI) a digital format for movies that conforms to the Microsoft Windows Resource Interchange File Format (RIFF).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>Binary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A direct representation of the bits which may be stored in memory on a computer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>CDF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Common Data Format (CDF). A binary storage format developed at Goddard Space Flight Center (GSFC).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>CEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Cluster Exchange Format (CEF) is a self-documenting ASCII format designed for the exchange of data. There are two versions of CEF which are not totally compatible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>CEF1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Cluster Exchange Format (CEF), version 1, is a self-documenting ASCII format designed for the exchange of data. The metadata contains information compatible with the ISTP recommendations for CDF.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>CEF2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Cluster Exchange Format (CEF), version 2, is a self-documenting ASCII format designed for the exchange of data and introduced for Cluster Active Archive. Compared to version 1, the metadata description of vectors and tensors is different.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>Excel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A Microsoft spreadsheet format used to hold a variety of data in tables which can include calculations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>FITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Flexible Image Transport System (FITS) is a digital format primarily designed to store scientific data sets consisting of multi-dimensional arrays (1-D spectra, 2-D images or 3-D data cubes) and 2-dimensional tables containing rows and columns of data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>enumeration</th>
<th>GIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Graphic Interchange Format (GIF) first introduced in 1987 by CompuServe. GIF uses LZW compression</td>
</tr>
</tbody>
</table>
and images are limited to 256 colours.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDF</td>
<td>Hierarchical Data Format</td>
</tr>
<tr>
<td>HDF4</td>
<td>Hierarchical Data Format, Version 4</td>
</tr>
<tr>
<td>HDF5</td>
<td>Hierarchical Data Format, Version 5</td>
</tr>
<tr>
<td>HTML</td>
<td>A text file containing structured information represented in the HyperText Mark-up Language (HTML). See <a href="http://www.w3.org/MarkUp/">http://www.w3.org/MarkUp/</a></td>
</tr>
<tr>
<td>Hardcopy</td>
<td>A permanent reproduction, or copy in the form of a physical object, of any media suitable for direct use by a person.</td>
</tr>
<tr>
<td>Hardcopy.Film</td>
<td>An image recording medium on which usually a &quot;negative&quot; analog image is registered. A &quot;positive&quot; image can be recovered or reproduced from film, which is usually made of flexible materials for ease of storage and transportation.</td>
</tr>
<tr>
<td>Hardcopy.Microfiche</td>
<td>A sheet of microfilm on which many pages of material have been photographed; a magnification system is used to read the material.</td>
</tr>
<tr>
<td>Hardcopy.Microfilm</td>
<td>Film rolls on which materials are photographed at greatly reduced size; a magnification system is used to read the material.</td>
</tr>
<tr>
<td>Hardcopy.Photograph</td>
<td>An image (positive or negative) registered on a piece of photo-sensitive paper</td>
</tr>
<tr>
<td>Hardcopy.PhotographicPlate</td>
<td>A rigid (typically glass) medium that functions like film. Its rigidity is for guarding against image distortion due to medium deformation (caused by heat and humidity). Photographic plates are often used for astronomical photography.</td>
</tr>
<tr>
<td>Hardcopy.Print</td>
<td>A sheet of any written or printed material which may include notes or graphics. Multiple printed pages may be bound into a manuscript or book.</td>
</tr>
<tr>
<td>IDFS</td>
<td>Instrument Data File Set (IDFS) is a set of files written in a prescribed format which contain data, timing data, and meta-data. IDFS was developed at Southwest Research Institute (SwRI).</td>
</tr>
<tr>
<td>IDL</td>
<td>Interactive Data Language (IDL) save set. IDL is a proprietary format.</td>
</tr>
<tr>
<td>JPEG</td>
<td>A binary format for still images defined by the Joint Photographic Experts Group</td>
</tr>
<tr>
<td>MATLAB_4</td>
<td>MATLAB Workspace save set, version 4. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</td>
</tr>
<tr>
<td>MATLAB_6</td>
<td>MATLAB Workspace save set, version 6. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</td>
</tr>
<tr>
<td>MATLAB_7</td>
<td>MATLAB Workspace save set, version 7. MAT-files are double-precision, binary, MATLAB format files. Version 7 includes data compression and Unicode encoding. MATLAB is a proprietary product of The MathWorks.</td>
</tr>
</tbody>
</table>
| MPEG        | A digital format for movies defined by the
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetCDF</td>
<td>Unidata Program Center's Network Common Data Form (NetCDF). A self-describing portable data format for array-oriented data access. See <a href="http://my.unidata.ucar.edu/content/software/netcdf">http://my.unidata.ucar.edu/content/software/netcdf</a></td>
</tr>
<tr>
<td>PDF</td>
<td>A document expressed in the Portable Document Format (PDF) as defined by Adobe.</td>
</tr>
<tr>
<td>PNG</td>
<td>A digital format for still images. Portable Network Graphics (PNG)</td>
</tr>
<tr>
<td>Postscript</td>
<td>A page description programming language created by Adobe Systems Inc. that is a device-independent industry standard for representing text and graphics.</td>
</tr>
<tr>
<td>QuickTime</td>
<td>A format for digital movies, as defined by Apple Computer. See <a href="http://developer.apple.com/quicktime/">http://developer.apple.com/quicktime/</a></td>
</tr>
<tr>
<td>TIFF</td>
<td>A binary format for still pictures. Tagged Image Format File (TIFF). Originally developed by Aldus and now controlled by Adobe.</td>
</tr>
<tr>
<td>Text</td>
<td>A sequence of characters which may have an imposed structure or organization.</td>
</tr>
<tr>
<td>Text.ASCII</td>
<td>A sequence of characters that adheres to American Standard Code for Information Interchange (ASCII) which is an 7-bit character-coding scheme.</td>
</tr>
<tr>
<td>Text.Unicode</td>
<td>Text in multi-byte Unicode format.</td>
</tr>
<tr>
<td>VOTable</td>
<td>A proposed IVOA standard designed as a flexible storage and exchange format for tabular data.</td>
</tr>
<tr>
<td>XML</td>
<td>eXtensible Mark-up Language (XML). A structured format for representing information. See <a href="http://www.w3.org/XML/">http://www.w3.org/XML/</a></td>
</tr>
</tbody>
</table>

**Source**

```
xsd:element name="Format" type="enumFormat">
xsd:annotation>
xsd:documentation xml:lang="en">The organization of data according to preset specifications. The value is selected from a list of accepted names for known, well documented formats.</xsd:documentation>
</xsd:annotation>
</xsd:element>
```

**Schema location**

file:/C:/Projects/spase-java/model-tools/bin/spase-2_2_1.xsd

**Element Encoding**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

A set of unambiguous rules that establishes the representation of information within a file.
### Schema documentation for spase-2_2_1.xsd

#### Diagram

**Diagram**

[Diagram of Encoding](#)

#### Type

**enumEncoding**

#### Properties

**content:**  
**simple**

#### Facets

**enumeration**  
**ASCII**  
A sequence of characters that adheres to American Standard Code for Information Interchange (ASCII) which is an 7-bit character-coding scheme.

**enumeration**  
**BZIP2**  

**enumeration**  
**Base64**  
A data encoding scheme whereby binary-encoded data is converted to printable ASCII characters. It is defined as a MIME content transfer encoding for use in Internet e-mail. The only characters used are the upper- and lower-case Roman alphabet characters (A-Z, a-z), the numerals (0-9), and the "+" and "/" symbols, with the "=" symbol as a special suffix (padding) code.

**enumeration**  
**GZIP**  

**enumeration**  
**None**  
A lack or absence of anything.

**enumeration**  
**S3_BUCKET**  
A container of objects that comply with the Amazon Simple Storage Service (S3) specifications. A bucket has a unique, user-assigned key (name). A bucket can contain any number of objects with an aggregate size of 5 gigabytes. A bucket may be accompanied by up to 2 kilobytes of metadata.

**enumeration**  
**TAR**  
A file format used to collate collections of files into one larger file, for distribution or archiving, while preserving file system information such as user and group permissions, dates, and directory structures. The format was standardized by POSIX.1-1988 and later POSIX.1-2001.

**enumeration**  
**Unicode**  
Text in multi-byte Unicode format.

**enumeration**  
**ZIP**  
An open standard for compression which is a variation of the LZW method and was originally used in the PKZIP utility.

#### Used by

**Complex Type**  
**AccessInformation**

#### Source

```xml
<xs:element name="Encoding" type="enumEncoding">
  <xs:annotation>
    <xs:documentation xml:lang="en">A set of unambiguous rules that establishes the representation of information within a file.</xs:documentation>
  </xs:annotation>
</xs:element>
```

#### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element**  
**DataExtent**

#### Namespace

http://www.spase-group.org/data/schema
**Diagram**

**Type** DataExtent

**Properties**
- content: complex

**Used by**
- Complex Types AccessInformation, Source

**Model**
- Quantity, Units[0,1], Per[0,1]

**Children**
- Per, Quantity, Units

**Instance**
```xml
<DataExtent>
  <Quantity>{1,1}</Quantity>
  <Units>{0,1}</Units>
  <Per>{0,1}</Per>
</DataExtent>
```

**Source**
```xml
<xsd:element name="DataExtent" type="DataExtent"/>
```

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element Quantity**

**Namespace**
- http://www.spase-group.org/data/schema

**Annotations**
- A value that describes a characteristic of a system.

**Diagram**

**Type** xsd:double

**Properties**
- content: simple

**Used by**
- Complex Type DataExtent

**Source**
```xml
<xsd:element name="Quantity" type="xsd:double">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A value that describes a characteristic of a system.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element Units**

**Namespace**
- http://www.spase-group.org/data/schema

**Annotations**
- A description of the standardized measurement increments in which a value is specified. The description is represented as a mathematical phrase. Units should be represented by widely accepted representation. For example, units should conform to the International System of Units (SI) which is maintained by BIPM (Bureau International des Poids et Mesures) see <http://www.bipm.fr/> when appropriate or use tokens like "Re" to represent units of the Radius of the Earth. Within a phrase the circumflex (^) is used to indicate a power, a star (*) is used to indicate multiplication and a slash (/) division. Symbols for base units can be found at: <http://www.bipm.fr/en/si/si_brochure/chapter2/2-1/#symbols> and those for common derived units can be found at: <http://www.bipm.fr/en/si/derived_units/2-2-2.html>

---

23
Diagram

Type xsd:string
Properties content: simple
Used by Complex Types AzimuthalAngleRange, DataExtent, Element, EnergyRange, FrequencyRange, Parameter, PolarAngleRange, WavelengthRange

Source

Element Per

Namespace http://www.spase-group.org/data/schema
Annotations The time interval over which a characterization applies. For example, the number of bytes generated each day.

Type xsd:duration
Properties content: simple
Used by Complex Type DataExtent

Source

Element ProviderResourceName

Namespace http://www.spase-group.org/data/schema
Annotations A short textual description of a resource used by the provider which may be used to identify a resource.

Type xsd:string
Properties content: simple
Used by Complex Types Catalog, DisplayData, NumericalData

Source
**Element ProviderVersion**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Describes the release or edition of the product used by the provider. The formation rule may vary between providers. It is intended to aid in queries to the provider regarding the product.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram of ProviderVersion" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types: Catalog, DisplayData, NumericalData</td>
</tr>
</tbody>
</table>
| Source | `<xsd:element name="ProviderVersion" type="xsd:string">
<xsd:annotation>
<xsd:documentation xml:lang="en">Describes the release or edition of the product used by the provider. The formation rule may vary between providers. It is intended to aid in queries to the provider regarding the product.</xsd:documentation>
</xsd:annotation>
</xsd:element>` |
| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

**Element InstrumentID**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The identifier of an Instrument resource.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram of InstrumentID" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types: Catalog, DisplayData, NumericalData</td>
</tr>
</tbody>
</table>
| Source | `<xsd:element name="InstrumentID" type="xsd:string">
<xsd:annotation>
<xsd:documentation xml:lang="en">The identifier of an Instrument resource.</xsd:documentation>
</xsd:annotation>
</xsd:element>` |
| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

**Element PhenomenonType**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The characteristics or categorization of an event type.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram of PhenomenonType" /></td>
</tr>
<tr>
<td>Type</td>
<td>enumPhenomenonType</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Facets</td>
<td>enumeration ActiveRegion</td>
</tr>
<tr>
<td></td>
<td>A localized, transient volume of the solar atmosphere in which PLAGES, SUNSPOTS, FACULAE, FLARES, etc. may be observed.</td>
</tr>
<tr>
<td></td>
<td>enumeration Aurora</td>
</tr>
<tr>
<td></td>
<td>An atmospheric phenomenon consisting of bands of light caused by charged solar particles following the earth's magnetic lines of force.</td>
</tr>
<tr>
<td></td>
<td>enumeration BowShockCrossing</td>
</tr>
<tr>
<td></td>
<td>A crossing of the boundary between the undisturbed (except for foreshock effects) solar wind and the shocked, decelerated solar wind of the magnetosheath.</td>
</tr>
</tbody>
</table>
| Source | `<xsd:element name="PhenomenonType" type="enumPhenomenonType">
<xsd:annotation>
<xsd:documentation xml:lang="en">The characteristics or categorization of an event type.</xsd:documentation>
</xsd:annotation>
</xsd:element>` |
<p>| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |</p>
<table>
<thead>
<tr>
<th>enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoronalHole</td>
<td>An extended region of the corona, exceptionally low in density and associated with unipolar photospheric regions. A coronal hole can be an &quot;open&quot; magnetic field in the corona and (perhaps) inner heliosphere which has a faster than average outflow (wind); A region of lower than &quot;quiet&quot; ion and electron density in the corona; or a region of lower peak electron temperature in the corona than in the &quot;quiet&quot; corona.</td>
</tr>
<tr>
<td>CoronalMassEjection</td>
<td>A solar event (CME) that involves a burst of plasma ejected into the interplanetary medium. CME's may be observed remotely relatively near the sun or in situ in the interplanetary medium. The latter type of observations are often referred to as Interplanetary CME's (ICME's).</td>
</tr>
<tr>
<td>EITWave</td>
<td>A wave in the corona of the Sun which produce shock waves on the Sun's chromosphere (Moreton Waves). EIT Waves are produced by large solar flare and expand outward at about 1,000 km/s. It usually appears as a slowly moving diffuse arc of brightening in H-alpha, and may travel for several hundred thousand km.</td>
</tr>
<tr>
<td>EnergeticSolarParticleEvent</td>
<td>An enhancement of interplanetary fluxes of energetic ions accelerated by interplanetary shocks and/or solar flares.</td>
</tr>
<tr>
<td>ForbushDecrease</td>
<td>A rapid decrease in the observed galactic cosmic ray intensity following the passage of an outwardly convecting interplanetary magnetic field disturbance, such as those associated with large CME's, that sweep some galactic cosmic rays away from Earth.</td>
</tr>
<tr>
<td>GeomagneticStorm</td>
<td>A magnetospheric disturbance typically defined by variations in the horizontal component of the Earth's surface magnetic field. The variation typically starts with a field enhancement associated with a solar wind pressure pulse and continues with a field depression associated with an enhancement of the diamagnetic magnetospheric ring current.</td>
</tr>
<tr>
<td>InterplanetaryShock</td>
<td>A shock propagating generally anti-sunward through the slower solar wind, often seen in front of CME-associated plasma clouds.</td>
</tr>
<tr>
<td>MagneticCloud</td>
<td>A transient event observed in the solar wind characterized as a region of enhanced magnetic field strength, smooth rotation of the magnetic field vector and low proton density and temperature.</td>
</tr>
<tr>
<td>MagnetopauseCrossing</td>
<td>A crossing of the interface between the shocked solar wind in the magnetosheath and the magnetic field and plasma in the magnetosphere.</td>
</tr>
<tr>
<td>RadioBurst</td>
<td>Emissions of the sun in radio wavelengths from centimeters to dekameters, under both quiet and disturbed conditions. Radio Bursts can be &quot;Type I&quot; consisting of many short, narrow-band bursts in the metric range (300</td>
</tr>
</tbody>
</table>
Type II consisting of narrow-band emission that begins in the meter range (300 MHz) and sweeps slowly (tens of minutes) toward dekameter wavelengths (10 MHz); Type III consisting of narrow-band bursts that sweep rapidly (seconds) from decimeter to dekameter wavelengths (500 – 0.5 MHz); and Type IV consisting of a smooth continuum of broad-band bursts primarily in the meter range (300 – 30 MHz).

- **Type II** consisting of narrow-band emission that begins in the meter range (300 MHz) and sweeps slowly (tens of minutes) toward dekameter wavelengths (10 MHz).
- **Type III** consisting of narrow-band bursts that sweep rapidly (seconds) from decimeter to dekameter wavelengths (500 – 0.5 MHz).
- **Type IV** consisting of a smooth continuum of broad-band bursts primarily in the meter range (300 – 30 MHz).

### SolarFlare

**Definition:** An explosive event in the Sun’s atmosphere which produces electromagnetic radiation across the electromagnetic spectrum at multiple wavelengths from long-wave radio to the shortest gamma rays.

### SolarWindExtreme

**Definition:** Intervals of unusually large or small values of solar wind attributes such as flow speed and ion density.

### StreamInteractionRegion

**Definition:** The region (SIR) where two solar wind streams, typically having differing characteristics and solar sources, abut up against (and possibly partially interpenetrate) each other.

### Substorm

**Definition:** A process by which plasma in the magnetotail becomes energized at a fast rate.

---

#### Element `TimeSpan`

**Namespace:** http://www.spase-group.org/data/schema

**Diagram:**

![TimeSpan Diagram](image)

**Type:** `TimeSpan`

**Properties:**
- `content`: `complex`

**Used by:**
- Complex Types: Annotation, Catalog

**Model:**
- `StartDate`, `StopDateEntity`, `Note`*

**Children:**
- `Note`, `StartDate`, `StopDateEntity`

**Instance:**

```xml
<TimeSpan>
  <StartDate>(1,1)</StartDate>
  <StopDateEntity>(1,1)</StopDateEntity>
  <Note>(0,unbounded)</Note>
</TimeSpan>
```

**Source:**

```xml
<xsd:element name="TimeSpan" type="TimeSpan"/>
```

**Schema location:** file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
**Element StartDate**

Namespace: http://www.spase-group.org/data/schema

Annotations: The specification of a starting point in time.

Type: xsd:dateTime

Properties: content: simple

Used by: Complex Types: Granule, OperatingSpan, TimeSpan

Source:
```xml
<xsd:element name="StartDate" type="xsd:dateTime">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The specification of a starting point in time.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element StopDateEntity**

Namespace: http://www.spase-group.org/data/schema

Diagram

Properties: abstract: true

Substitution Group:
- RelativeStopDate
- StopDate

Used by: Complex Type: TimeSpan

Source:
```xml
<xsd:element name="StopDateEntity" abstract="true"/>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Caveats**

Namespace: http://www.spase-group.org/data/schema

Annotations: Information which may be important in the avoidance of the misuse of the resource, for instance instrument maladies, corruption or contamination.

Type: xsd:string

Properties: content: simple

Used by: Complex Types: Catalog, DisplayData, Instrument, NumericalData, Parameter

Source:
```xml
<xsd:element name="Caveats" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Information which may be important in the avoidance of the misuse of the resource, for instance instrument maladies, corruption or contamination.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Keyword**

Namespace: http://www.spase-group.org/data/schema
Annotations | A word or phrase that is relevant to the resource but does not exist in other documentary information.
---|---
Diagram | ![Diagram](image)
Type | xsd:string
Properties | content: simple
Used by | Complex Types: Catalog, DisplayData, Document, NumericalData
Source | `<xsd:element name="Keyword" type="xsd:string">
<xsd:annotation>
  <xsd:documentation xml:lang="en">A word or phrase that is relevant to the resource but does not exist in other documentary information.</xsd:documentation>
</xsd:annotation>
</xsd:element>`
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element InputResourceID**

Namespace | http://www.spase-group.org/data/schema
Annotations | The resource identifier for a resource which was used to generate this resource.
Diagram | ![Diagram](image)
Type | xsd:string
Properties | content: simple
Used by | Complex Types: Catalog, DisplayData, Document, NumericalData
Source | `<xsd:element name="InputResourceID" type="xsd:string">
<xsd:annotation>
  <xsd:documentation xml:lang="en">The resource identifier for a resource which was used to generate this resource.</xsd:documentation>
</xsd:annotation>
</xsd:element>`
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Parameter**

Namespace | http://www.spase-group.org/data/schema
Type: Parameter

Properties:
- content: complex

Used by:
- Complex Types
- Catalog, DisplayData, NumericalData

Model:
- Name, Set*, ParameterKey\((0,1)\), Description\((0,1)\), Caveats\((0,1)\), Cadence\((0,1)\), Units\((0,1)\), UnitsConversion\((0,1)\), CoordinateSystem\((0,1)\), RenderingHints*, Structure\((0,1)\), ValidMin\((0,1)\), ValidMax\((0,1)\), FillValue\((0,1)\), ParameterEntity

Children:
- Cadence, Caveats, CoordinateSystem, Description, FillValue, Name, ParameterEntity, ParameterKey, RenderingHints, Set, Structure, Units, UnitsConversion, ValidMax, ValidMin

Instance:
```xml
<Parameter>
  <Name>{1,1}</Name>
  <Set>{0,unbounded}</Set>
  <ParameterKey>{0,1}</ParameterKey>
  <Description>{0,1}</Description>
  <Caveats>{0,1}</Caveats>
  <Cadence>{0,1}</Cadence>
  <Units>{0,1}</Units>
  <UnitsConversion>{0,1}</UnitsConversion>
  <CoordinateSystem>{0,1}</CoordinateSystem>
  <RenderingHints>{0,unbounded}</RenderingHints>
  <Structure>{0,1}</Structure>
  <ValidMin>{0,1}</ValidMin>
  <ValidMax>{0,1}</ValidMax>
  <FillValue>{0,1}</FillValue>
  <ParameterEntity>{1,1}</ParameterEntity>
</Parameter>
```
**Element Set**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>A collection of items for a particular purpose.</td>
</tr>
</tbody>
</table>
| Diagram | ![Set Diagram](image)

Type: xsd:string

Properties: content: simple

Used by: Complex Type Parameter

Source: `<xsd:element name="Set" type="xsd:string"/>
<xsd:annotation>
<xsd:documentation xml:lang="en">A collection of items for a particular purpose.</xsd:documentation>
</xsd:annotation>
</xsd:element>`

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element ParameterKey**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The name or identifier which can be used to access the parameter in the resource. The associated value is dependent on the service used to access the resource.</td>
</tr>
</tbody>
</table>
| Diagram | ![ParameterKey Diagram](image)

Type: xsd:string

Properties: content: simple

Used by: Complex Types Element, Parameter

Source: `<xsd:element name="ParameterKey" type="xsd:string"/>
<xsd:annotation>
<xsd:documentation xml:lang="en">The name or identifier which can be used to access the parameter in the resource. The associated value is dependent on the service used to access the resource.</xsd:documentation>
</xsd:annotation>
</xsd:element>`

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Cadence**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The time interval between the start of successive measurements.</td>
</tr>
</tbody>
</table>
| Diagram | ![Cadence Diagram](image)

Type: xsd:duration

Properties: content: simple

Used by: Complex Types Parameter, TemporalDescription

Source: `<xsd:element name="Cadence" type="xsd:duration"/>
<xsd:annotation>
<xsd:documentation xml:lang="en">The time interval between the start of successive measurements.</xsd:documentation>
</xsd:annotation>
</xsd:element>`

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Element UnitsConversion

Namespace http://www.spase-group.org/data/schema

Annotations The multiplicative factor for converting a unit into International System of Units (SI) units. The factor is expressed in the form "number > x", where "number" is a numerical value and "x" is the appropriate SI units. The basic SI units are Enumerated: m (meter), N (newton), kg (kilogram), Pa (pascal), s (second), Hz (hertz), A (ampere), V (volt), K (kelvin), W (watt), rad (radian), J (joule), sr (steradian), C (coulomb), T (tesla), ohm (ohm), mho (mho or seimens), H (henry), and F (farad). Two useful units which are not SI units are: degree (angle), and unitless (no units). An example is: "1.0E-5>T" which converts the units, presumable nT, to tesla. Another example is: "1.0e+3>m/s" which converts a velocity expressed in kilometers per second to meters per second.

Diagram

Type xsd:string

Properties content: simple

Used by Complex Types Element, Parameter

Source

<xs:element name="UnitsConversion" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The multiplicative factor for converting a unit into International System of Units (SI) units. The factor is expressed in the form "number > x", where "number" is a numerical value and "x" is the appropriate SI units. The basic SI units are Enumerated: m (meter), N (newton), kg (kilogram), Pa (pascal), s (second), Hz (hertz), A (ampere), V (volt), K (kelvin), W (watt), rad (radian), J (joule), sr (steradian), C (coulomb), T (tesla), ohm (ohm), mho (mho or seimens), H (henry), and F (farad). Two useful units which are not SI units are: degree (angle), and unitless (no units). An example is: "1.0E-5>T" which converts the units, presumable nT, to tesla. Another example is: "1.0e+3>m/s" which converts a velocity expressed in kilometers per second to meters per second.</xs:documentation>
  </xs:annotation>
</xs:element>

Element CoordinateSystem

Namespace http://www.spase-group.org/data/schema

Diagram

Type CoordinateSystem

Properties content: complex

Used by Complex Type Parameter

Model CoordinateRepresentation{0,1} , CoordinateSystemName{0,1}

Children CoordinateRepresentation, CoordinateSystemName

Instance

<CoordinateSystem>
  <CoordinateRepresentation>{0,1}</CoordinateRepresentation>
  <CoordinateSystemName>{0,1}</CoordinateSystemName>
</CoordinateSystem>

Source

<xs:element name="CoordinateSystem" type="CoordinateSystem"/>

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Element CoordinateRepresentation

Namespace: http://www.spase-group.org/data/schema

Annotations: The method or form for specifying a given point or vector in a given coordinate system.

Diagram:

Type: enumCoordinateRepresentation

Properties:
- content: simple

Facets:
- enumeration Cartesian: A representation in which a position vector or a measured vector (e.g., field or flow) is specified by its components along the base axes of the coordinate system.
- enumeration Cylindrical: A coordinate representation of a position vector or measured vector (field or flow) by its k-component, the magnitude of its projection into the i-j plane, and the azimuthal angle of the i-j plane projection.
- enumeration Spherical: A coordinate representation of a position vector or of a measured vector by its magnitude and two direction angles. The angles are relative to the base axes of the coordinate system used. Typically the angles are phi [azimuth angle, =arctan (j/i)] and theta, where theta may be a polar angle, arctan ([SQRT(i^2+j^2)]/k), or an elevation angle, arctan [k/SQRT (i^2+j^2)].

Used by:
- Complex Type: CoordinateSystem

Source:
<xsd:element name="CoordinateRepresentation" type="enumCoordinateRepresentation">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The method or form for specifying a given point or vector in a given coordinate system.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element CoordinateSystemName

Namespace: http://www.spase-group.org/data/schema

Annotations: Identifies the coordinate system in which the position, direction or observation has been expressed.

Diagram:

Type: enumCoordinateSystemName

Properties:
- content: simple

Facets:
- enumeration CGM: Corrected Geomagnetic - A coordinate system from a spatial point with GEO radial distance and geomagnetic latitude and longitude, follow the epoch-appropriate IGRF/DGRF model field vector through to the point where the field line crosses the geomagnetic dipole equatorial plane. Then trace the dipole magnetic field vector Earthward from that point on the equatorial plane, in the same hemisphere as the original point, until the initial radial distance is reached. Designate the dipole latitude and longitude at that point as the CGM latitude.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrington</td>
<td>A coordinate system which is centered at the Sun and is &quot;fixed&quot; with respect to the synodic rotation rate; the mean synodic value is about 27.2733 days. The Astronomical Almanac gives a value for Carrington longitude of 349.03 degrees at 0000 UT on 1 January 1995.</td>
</tr>
<tr>
<td>DM</td>
<td>Dipole Meridian - A coordinate system centered at the observation point. Z axis is parallel to the Earth's dipole axis, positive northward. X is in the plane defined by Z and the line linking the observation point with the Earth's center. Y is positive eastward. See <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a></td>
</tr>
<tr>
<td>GEI</td>
<td>Geocentric Equatorial Inertial - A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis points towards the first point of Aries (from the Earth towards the Sun at the vernal equinox). See Russell, 1971.</td>
</tr>
<tr>
<td>GEO</td>
<td>Geographic - geocentric corotating - A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis lies in Greenwich meridian, positive towards Greenwich. See Russell, 1971.</td>
</tr>
<tr>
<td>GSE</td>
<td>Geocentric Solar Ecliptic - A coordinate system where the X axis is from Earth to Sun. Z axis is normal to the ecliptic, positive northward. See Russell, 1971.</td>
</tr>
<tr>
<td>GSEQ</td>
<td>Geocentric Solar Equatorial - A coordinate system where the X axis is from Earth to Sun. Y axis is parallel to solar equatorial plane. Z axis is positive northward. See Russell, 1971.</td>
</tr>
<tr>
<td>GSM</td>
<td>Geocentric Solar Magnetospheric - A coordinate system where the X axis is from Earth to Sun, Z axis is northward in a plane containing the X axis and the geomagnetic dipole axis. See Russell, 1971.</td>
</tr>
<tr>
<td>HAE</td>
<td>Heliocentric Aries Ecliptic - A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as SE below. See Hapgood, 1992.</td>
</tr>
<tr>
<td>HCC</td>
<td>Heliocentric Cartesian - A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west.</td>
</tr>
</tbody>
</table>
Standard representation for this system is via the point's x and y values, expressed either as physical distances or as fractions of the solar disk radius.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCI</td>
<td>Heliographic Carrington Inertial.</td>
</tr>
<tr>
<td>HCR</td>
<td>Heliocentric Radial - A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Standard representation for this system is via the point's distance rho from the Z axis [\rho = \sqrt{x^2 + y^2}] and its phase angle psi measured counterclockwise from the +Y axis [\psi = \arctan \left(-\frac{y}{x}\right)].</td>
</tr>
<tr>
<td>HEE</td>
<td>Heliocentric Earth Ecliptic - A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis points from Sun to Earth. See Hapgood, 1992.</td>
</tr>
<tr>
<td>HEEQ</td>
<td>Heliocentric Earth Equatorial - A coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X axis is generally Earthward in the plane defined by the Z axis and the Sun-Earth direction. See Hapgood, 1992.</td>
</tr>
<tr>
<td>HG</td>
<td>Heliographic - A heliocentric rotating coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X, Y axes rotate with a 25.38 day period. The zero longitude (X axis) is defined as the longitude that passed through the ascending node of the solar equator on the ecliptic plane on 1 January, 1854 at 12 UT. See <a href="http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html">http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html</a>.</td>
</tr>
<tr>
<td>HGI</td>
<td>Heliographic Inertial - A heliocentric coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X axis is along the intersection line between solar equatorial and ecliptic planes. The X axis was positive at SE longitude of 74.367 deg on Jan 1, 1900. (See SB below.) See <a href="http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html">http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html</a>.</td>
</tr>
<tr>
<td>HPC</td>
<td>Helioprojective Cartesian = A 3-D orthonormal (left-handed) coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points from the observer to the center of the solar disk. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Given as the distance between the observer and the center of the solar disk, the standard representation of an ((x, y)) point on the solar...</td>
</tr>
<tr>
<td>Schema documentation for spase-2.2.1.xsd</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>HPR</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>J2000</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>LGM</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>MAG</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>MFA</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>RTN</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>SC</strong></td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>SE</strong></td>
</tr>
</tbody>
</table>

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plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as HAE above. See <http://nssdc.gsfc.nasa.gov/space/helios/coord_des.html>

**enumeration SM**  
Solar Magnetic - A geocentric coordinate system where the Z axis is northward along Earth’s dipole axis, X axis is in plane of Z axis and Earth-Sun line, positive sunward. See Russell, 1971.

**enumeration SR**  
Spin Reference - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X and Y rotate with the spacecraft. See <http://cdpp.cnes.fr/00428.pdf>

**enumeration SR2**  
Spin Reference 2 - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X is in the plane defined by Z and the spacecraft-Sun line, positive sunward. See <http://cdpp.cnes.fr/00428.pdf>

**enumeration SSE**  
Spacecraft Solar Ecliptic - A coordinate system used for deep space spacecraft, for example Helios. X axis from spacecraft to Sun. Z axis normal to ecliptic plane, positive northward. Note: Angle between normals to ecliptic and to Helios orbit plane ~ 0.25 deg.

**enumeration SSE_L**  
Selenocentric Solar Ecliptic. The X axis points from the center of the Earth’s moon to the sun, the Z axis is normal to the ecliptic plane, positive northward. And the Y axis completes the right-handed set of axes.

**enumeration SpacecraftOrbitPlane**  
A coordinate system where X lies in the plane normal to and in the direction of motion of the spacecraft, Z is normal to this plane and Y completes the triad in a right-handed coordinate system.

**enumeration WGS84**  
The World Geodetic System (WGS) defines a reference frame for the earth, for use in geodesy and navigation. The WGS84 uses the zero meridian as defined by the Bureau International de l’Heure.

---

**Used by**  
Complex Types: CoordinateSystem, Location

**Source**  
<xsd:element name="CoordinateSystemName" type="enumCoordinateSystemName">  
<xsd:annotation>  
<xsd:documentation xml:lang="en">Identifies the coordinate system in which the position, direction or observation has been expressed. </xsd:documentation>  
</xsd:annotation>  
</xsd:element>

**Schema location**  
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element RenderingHints**

**Namespace**  
http://www.spase-group.org/data/schema
**Element DisplayType**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
The general styling or type of plot that is suitable for the variable.

**Diagram**

**Type**
enumDisplayType

**Properties**
content: simple

**Facets**

- **enumeration** Image
  A two-dimensional representation of data with values at each element of the array related to an intensity or a color.

- **enumeration** Plasmagram
  The characterization of signal strengths in active sounding measurements as a function of virtual range or signal delay time and sounding frequency. A Plasmagram is also referred to as an Ionogram.

- **enumeration** Spectrogram
  The characterization of signal strengths as a function of frequency (or energy) and time.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>StackPlot</td>
<td>A representation of data showing multiple sets of observations on a single plot, possibly offsetting each plot by some uniform amount.</td>
</tr>
<tr>
<td>TimeSeries</td>
<td>A representation of data showing a set of observations taken at different points in time and charted as a time series.</td>
</tr>
<tr>
<td>WaveForm</td>
<td>Spatial or temporal variations of wave amplitude over wave-period timescales.</td>
</tr>
</tbody>
</table>

**Element AxisLabel**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: A short character string (approximately 10 characters, but preferably 6 characters - more only if absolutely required for clarity) which can be used to label a y-axis for a plot or to provide a heading for a data listing.
- **Type**: xsd:string
- **Properties**: content: simple
- **Source**: `<xsd:element name="AxisLabel" type="xsd:string">  
  <xsd:annotation>  
  <xsd:documentation xml:lang="en">A short character string (approximately 10 characters, but preferably 6 characters - more only if absolutely required for clarity) which can be used to label a y-axis for a plot or to provide a heading for a data listing.</xsd:documentation>  
  </xsd:annotation>  
</xsd:element>`
- **Schema location**: file:///C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element RenderingAxis**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: A reference component of a plot or rendering of data. A plot typically is a 2-dimensional rendering with a horizontal and vertical axis. A third dimension can be introduced with a color coding of the rendered data.
- **Type**: enumRenderingAxis
- **Properties**: content: simple
- **Facets**:  
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ColorBar</td>
<td>A spectrum or set of colors used to represent data values.</td>
</tr>
<tr>
<td>Horizontal</td>
<td>Parallel to or in the plane of the horizon or a base line.</td>
</tr>
<tr>
<td>Vertical</td>
<td>Perpendicular to the plane of the horizon or a base line.</td>
</tr>
</tbody>
</table>
- **Source**: `<xsd:element name="RenderingAxis" type="enumRenderingAxis">  
  <xsd:annotation>  
  <xsd:documentation xml:lang="en">A reference component of a plot or rendering of data. A plot typically is a 2-dimensional rendering with a horizontal and vertical axis. A third dimension can be introduced with a color coding of the rendered data.</xsd:documentation>  
  </xsd:annotation>  
</xsd:element>`
- **Schema location**: file:///C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Source

```xml
<xsd:element name="RenderingAxis" type="enumRenderingAxis">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A reference component of a plot or rendering of
data. A plot typically is a 2-dimensional rendering with a horizontal and vertical
axis. A third dimension can be introduced with a color coding of the rendered data.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Index**

Namespace: http://www.spase-group.org/data/schema

Annotations: The location of an item in an array or vector. An index can be multivalued to represent the location in a multidimensional object. The index of the first item is "1". A value of "0" is a wild card for all elements at the location in an array. A value of "-1" is a reference to the dimension at the location in the array. A "-1" is used when describing the attributes of the dimension, whereas "0" or a positive integer is used to describe attributes of individual elements.

Diagram

```
index
  ▼
  □ typeSequence
```

Type: typeSequence

Properties: content: simple

Used by: Complex Types, Element, RenderingHints

Source

```xml
<xsd:element name="Index" type="typeSequence">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The location of an item in an array or vector. An index can be multivalued to represent the location in a multidimensional object. The index of the first item is "1". A value of "0" is a wild card for all elements at the location in an array. A value of "-1" is a reference to the dimension at the location in the array. A "-1" is used when describing the attributes of the dimension, whereas "0" or a positive integer is used to describe attributes of individual elements.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element ValueFormat**

Namespace: http://www.spase-group.org/data/schema

Annotations: A string defining the output format used when extracting data values out to a file or screen. The magnitude and the number of significant figures needed should be carefully considered. The output format string can be in either Fortran or C syntax.

Diagram

```
ValueFormat
  ▼
  □ xsd:string
```

Type: xsd:string

Properties: content: simple

Used by: Complex Type, RenderingHints

Source

```xml
<xsd:element name="ValueFormat" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A string defining the output format used when extracting data values out to a file or screen. The magnitude and the number of significant figures needed should be carefully considered. The output format string can be in either Fortran or C syntax.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Element **ScaleMin**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: The minimum value that the variable is expected to attain. Used, for example, by automated plotting software.
- **Diagram**
- **Type**: xsd:double
- **Properties**: content: simple
- **Used by**: Complex Type RenderingHints
- **Source**

```xml
<xsd:element name="ScaleMin" type="xsd:double">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The minimum value that the variable is expected to attain. Used, for example, by automated plotting software.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

**Schema location**: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element **ScaleMax**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: The maximum value that the variable is expected to attain. Used, for example, by automated plotting software.
- **Diagram**
- **Type**: xsd:double
- **Properties**: content: simple
- **Used by**: Complex Type RenderingHints
- **Source**

```xml
<xsd:element name="ScaleMax" type="xsd:double">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The maximum value that the variable is expected to attain. Used, for example, by automated plotting software.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

**Schema location**: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element **ScaleType**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: The scaling to apply to an axis. If this attribute is not present, linear scale should be assumed.
- **Diagram**
- **Type**: enumScaleType
- **Properties**: content: simple
- **Facets**
  - enumeration: LinearScale
  - enumeration: LogScale
    - Intervals which are equally spaced.
    - Intervals which are spaced proportionally to the logarithms of the values being represented.
- **Used by**: Complex Type RenderingHints
- **Source**

```xml
<xsd:element name="ScaleType" type="enumScaleType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The scaling to apply to an axis. If this attribute is not present, linear scale should be assumed.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

**Schema location**: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
### Element Structure

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Type**
- Structure

**Properties**
- content: complex

**Used by**
- Complex Type
- Parameter

**Model**
- Size{0,1}, Description{0,1}, Element*

**Children**
- Description, Element, Size

**Instance**
```xml
<Structure>
  <Size>{0,1}</Size>
  <Description>{0,1}</Description>
  <Element>{0,unbounded}</Element>
</Structure>
```

**Source**
- `<xsd:element name="Structure" type="Structure"/>
```

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Size

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The number of elements in each dimension of a multi-dimensional array. A scalar has a size of 1. A multi-dimensional vector will have a size for each dimension. Note that the number of elements in the size of an N-dimensional array conveys the array's dimensionality while the product of those numbers conveys the total number of elements in the array. When size is used to describe a tensor it is the number of elements in the tensor. As such it has a limited set of values. A tensor of rank 1 has a size of 3, rank 2 a size of 9, rank 3 a size of 27 and rank n a size of 3^n.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>typeSequence</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type</td>
</tr>
</tbody>
</table>
| Source    | `<xsd:element name="Size" type="typeSequence">
```

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Element

| Namespace | http://www.spase-group.org/data/schema |
Diagram

Type Element

Properties content: complex

Used by Complex Type Structure

Model Name , Qualifier* , Index , ParameterKey{0,1} , Units{0,1} , UnitsConversion{0,1} , ValidMin{0,1} , ValidMax{0,1} , FillValue{0,1}

Children FillValue , Index , Name , ParameterKey , Qualifier , Units , UnitsConversion , ValidMax , ValidMin

Instance
<Element>
  <Name>{1,1}</Name>
  <Qualifier>{0,unbounded}</Qualifier>
  <Index>{1,1}</Index>
  <ParameterKey>{0,1}</ParameterKey>
  <Units>{0,1}</Units>
  <UnitsConversion>{0,1}</UnitsConversion>
  <ValidMin>{0,1}</ValidMin>
  <ValidMax>{0,1}</ValidMax>
  <FillValue>{0,1}</FillValue>
</Element>

Source <xsd:element name="Element" type="Element"/>

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element Qualifier

Namespace http://www.spase-group.org/data/schema

Annotations Characterizes the refinement to apply to a type or attribute of a quantity.

Diagram

Type enumQualifier

Properties content: simple

Facets

<table>
<thead>
<tr>
<th>Facet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Anisotropy</td>
</tr>
<tr>
<td>enumeration</td>
<td>Array</td>
</tr>
<tr>
<td>enumeration</td>
<td>Average</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Characteristic</td>
<td>A quantity which can be easily identified and measured in a given environment.</td>
</tr>
<tr>
<td>Circular</td>
<td>Relative to polarization, right-hand circularly polarized light is defined such that the electric field is rotating clockwise as seen by an observer towards whom the wave is moving. Left-hand circularly polarized light is defined such that the electric field is rotating counterclockwise as seen by an observer towards whom the wave is moving. The polarization of magnetohydrodynamic waves is specified with respect to the ambient mean magnetic field: right-hand polarized waves have a transverse electric field component which turns in a right-handed sense (that of the gyrating electrons) around the magnetic field.</td>
</tr>
<tr>
<td>Column</td>
<td>A two-dimensional measure of a quantity. The column is the area over which the quantity is measured.</td>
</tr>
<tr>
<td>Component</td>
<td>Projection of a vector along one of the base axes of a coordinate system.</td>
</tr>
<tr>
<td>Component.I</td>
<td>Projection of a vector along the first named axis of a coordinate system. Typically the X axis, but could be the R axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>Component.J</td>
<td>Projection of a vector along the second named axis of a coordinate system. Typically the Y axis, but could be the T axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>Component.K</td>
<td>Projection of a vector along the third named axis of a coordinate system. Typically the Z axis, but could be the N axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>Core</td>
<td>The central or main part of an object or calculated distribution. For example, the part of a distribution of particles at low energies that is a thermal (Maxwellian) population.</td>
</tr>
<tr>
<td>CrossSpectrum</td>
<td>The Fourier transform of the cross correlation of two physical or empirical observations.</td>
</tr>
<tr>
<td>Deviation</td>
<td>The difference between an observed value and the expected value of a quantity.</td>
</tr>
<tr>
<td>Differential</td>
<td>A measurement within a narrow range of energy and/or solid angle.</td>
</tr>
<tr>
<td>Direction</td>
<td>The spatial relation between an object and another object, the orientation of the object or the course along which the object points or moves.</td>
</tr>
<tr>
<td>DirectionAngle</td>
<td>The angle between a position vector or measured vector (or one of its projections onto a plane) and one of the base axes of the coordinate system.</td>
</tr>
<tr>
<td>DirectionAngle.AzimuthAngle</td>
<td>The angle between the projection into the i-j plane of a position or measured vector and the i-axis of the coordinate system. Mathematically defined as arctan(j/i).</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DirectionAngle.ElevationAngle</td>
<td>Angle between the position or measured vector and the i-j plane of the coordinate system. Mathematically defined as $\arctan(k/\sqrt{i^2+j^2})$.</td>
</tr>
<tr>
<td>DirectionAngle.PolarAngle</td>
<td>Angle between the position or measured vector and the k-axis of the coordinate system. Mathematically defined as $\arctan(\sqrt{i^2+j^2}/k)$.</td>
</tr>
<tr>
<td>Directional</td>
<td>A measurement within a narrow range of solid angle.</td>
</tr>
<tr>
<td>FieldAligned</td>
<td>The component of a quantity which is oriented in the same direction of a field.</td>
</tr>
<tr>
<td>Fit</td>
<td>Values that make a model agree with the data.</td>
</tr>
<tr>
<td>Group</td>
<td>An assemblage of values that a certain relation or common characteristic.</td>
</tr>
<tr>
<td>Halo</td>
<td>The part of an object or distribution surrounding some central body or distribution. For example, the particles above the core energies that show enhancements above the thermal population. Typically, a &quot;power law tail&quot; shows a break from the core Maxwellian at a particular energy.</td>
</tr>
<tr>
<td>Integral</td>
<td>A flux measurement in a broad range of energy and solid angle.</td>
</tr>
<tr>
<td>Integral.Area</td>
<td>Integration over the extent of a planar region, or of the surface of a solid.</td>
</tr>
<tr>
<td>Integral.Bandwidth</td>
<td>Integration over the width a frequency band.</td>
</tr>
<tr>
<td>Integral.SolidAngle</td>
<td>Integration over the angle in three-dimensional space that an object subtends at a point.</td>
</tr>
<tr>
<td>LineOfSight</td>
<td>The line of sight is the line that connects the observer with the observed object. This expression is often used with measurements of Doppler velocity and magnetic field in magnetograms, where only the component of the vector field directed along the line of sight is measured.</td>
</tr>
<tr>
<td>Linear</td>
<td>Polarization where the E-field vector is confined to a given plane.</td>
</tr>
<tr>
<td>Magnitude</td>
<td>A measure of the strength of a vector quantity or length of its representational vector.</td>
</tr>
<tr>
<td>Maximum</td>
<td>The largest value of a batch or sample or the upper bound of a probability distribution.</td>
</tr>
<tr>
<td>Median</td>
<td>The measure of central tendency of a set of $n$. values computed by ordering the values and taking the value at position $(n + 1) / 2$ when $n$. is odd or the arithmetic mean of the values at positions $n. / 2$ and $(n. / 2) + 1$ when $n$. is even.</td>
</tr>
<tr>
<td>Minimum</td>
<td>The smallest value of a batch or sample or the lower bound of a probability distribution.</td>
</tr>
<tr>
<td>Moment</td>
<td>Parameters determined by integration over a distribution function convolved with a power of velocity.</td>
</tr>
<tr>
<td>Parallel</td>
<td>Having the same direction as a given direction.</td>
</tr>
<tr>
<td>Peak</td>
<td>The maximum value for the quantity in question.</td>
</tr>
</tbody>
</table>
over a period of time which is usually equal to the cadence.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perpendicular</td>
<td>At right angles to a given direction.</td>
</tr>
<tr>
<td>Perturbation</td>
<td>Variations in the state of a system.</td>
</tr>
<tr>
<td>Phase</td>
<td>A point or portion in a recurring series of changes.</td>
</tr>
<tr>
<td>PhaseAngle</td>
<td>Phase difference between two or more waves, normally expressed in degrees.</td>
</tr>
<tr>
<td>Projection</td>
<td>A measure of the length of a position or measured vector as projected into a plane of the coordinate system.</td>
</tr>
<tr>
<td>Projection.IJ</td>
<td>A measure of the length of a position or measured vector projected into the i-j (typically X-Y) plane of the coordinate system.</td>
</tr>
<tr>
<td>Projection.IK</td>
<td>A measure of the length of a position or measured vector projected into the i-k (typically X-Z) plane of the coordinate system.</td>
</tr>
<tr>
<td>Projection.JK</td>
<td>A measure of the length of a position or measured vector projected into the j-k (typically Y-Z) plane of the coordinate system.</td>
</tr>
<tr>
<td>Pseudo</td>
<td>Similar to or having the appearance of something else. Can be used to indicate an estimation or approximation of a particular quantity.</td>
</tr>
<tr>
<td>Ratio</td>
<td>The relative magnitudes of two quantities.</td>
</tr>
<tr>
<td>Scalar</td>
<td>A quantity that is completely specified by its magnitude and has no direction.</td>
</tr>
<tr>
<td>Spectral</td>
<td>Characterized as a range or continuum of frequencies.</td>
</tr>
<tr>
<td>StandardDeviation</td>
<td>The square root of the average of the squares of deviations about the mean of a set of data. Standard deviation is a statistical measure of spread or variability.</td>
</tr>
<tr>
<td>StokesParameters</td>
<td>A set of four parameters (usually called I, Q, U and V) which describe the polarization state of an electromagnetic wave propagating through space.</td>
</tr>
<tr>
<td>Strahl</td>
<td>A distribution of particles concentrated in a narrow energy band. The band may be may be aligned with a secondary feature. For example, it may occur in a narrow cone aligned with the mean magnetic field direction.</td>
</tr>
<tr>
<td>Superhalo</td>
<td>The part of an object or distribution surrounding some central body or distribution evident in a second break in the distribution function (e.g., a different power law). It consists of a population at a higher energies than for a halo.</td>
</tr>
<tr>
<td>Symmetric</td>
<td>Equal distribution about one or more axes.</td>
</tr>
<tr>
<td>Tensor</td>
<td>A generalized linear &quot;quantity&quot; or &quot;geometrical entity&quot; that can be expressed as a multi-dimensional array relative to a choice of basis of the particular space on which it is defined.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Total</td>
<td>The summation of quantities over all possible species.</td>
</tr>
<tr>
<td>Trace</td>
<td>The sum of the elements on the main diagonal (the diagonal from the upper left to the lower right) of a square matrix.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>A statistically defined discrepancy between a measured quantity and the true value of that quantity that cannot be corrected by calculation or calibration.</td>
</tr>
<tr>
<td>Variance</td>
<td>A measure of dispersion of a set of data points around their mean value. The expectation value of the squared deviations from the mean.</td>
</tr>
<tr>
<td>Vector</td>
<td>A set of parameter values each along some independent variable (e.g., components of a field in three orthogonal spatial directions; atmospheric temperature values at several altitudes, or at a given latitude and longitude).</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xs:element name="Qualifier" type="enumQualifier">
  <xs:annotation>
    <xs:documentation xml:lang="en">Characterizes the refinement to apply to a type or attribute of a quantity.</xs:documentation>
  </xs:annotation>
</xs:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ValidMin**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

The smallest legitimate value.

**Diagram**

![ValidMin Diagram](image)

**Type**

xsd:string

**Properties**

content: simple

**Used by**

Complex Types, Element, Parameter

**Source**

```xml
<xs:element name="ValidMin" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The smallest legitimate value.</xs:documentation>
  </xs:annotation>
</xs:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ValidMax**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

The largest legitimate value.

**Diagram**

![ValidMax Diagram](image)

**Type**

xsd:string

**Properties**

content: simple

**Used by**

Complex Types, Element, Parameter

**Source**

```xml
<xs:element name="ValidMax" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The largest legitimate value.</xs:documentation>
  </xs:annotation>
</xs:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Element **FillValue**

Namespace: http://www.spase-group.org/data/schema

Annotations: A value that indicates that a quantity is undefined.

Diagram:

<table>
<thead>
<tr>
<th>Type</th>
<th>xsd:string</th>
</tr>
</thead>
</table>

Properties:
- **content**: simple

Used by:
- Complex Types
- Element, Parameter

Source:
```xml
<xsd:element name="FillValue" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A value that indicates that a quantity is undefined.\n</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

Element **ParameterEntity**

Diagram:

<table>
<thead>
<tr>
<th>Type</th>
<th>Extension</th>
</tr>
</thead>
</table>

Properties:
- **abstract**: true

Substitution Group:
- Field
- Particle
- Wave
- Mixed
- Support

Used by:
- Complex Type
- Parameter

Source:
```xml
<xsd:element name="ParameterEntity" abstract="true"/>
```

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

Element **Extension**

Diagram:

<table>
<thead>
<tr>
<th>Type</th>
<th>Extension</th>
</tr>
</thead>
</table>

Properties:
- **content**: complex

Used by:
- Complex Types
  - Annotation, Catalog, DisplayData, Instrument, NumericalData, Observatory, Person, Registry, Repository, Service

---

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### Element Field

**Namespace**  
http://www.spase-group.org/data/schema

**Diagram**

![Diagram of Field Element]

**Type**  
Field

**Properties**

- content: complex

**Substitution Group**

- ParameterEntity

**Model**

Qualifier* , FieldQuantity , FrequencyRange[0,1]

**Children**

FieldQuantity, FrequencyRange, Qualifier

**Instance**

```xml
<Field>
  <Qualifier>(0,unbounded)</Qualifier>
  <FieldQuantity>[1,1]</FieldQuantity>
  <FrequencyRange>[0,1]</FrequencyRange>
</Field>
```

**Source**

```xml
<xsd:element name="Field" type="Field" substitutionGroup="ParameterEntity"/>
```

### Element FieldQuantity

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**

The physical attribute of the field.

**Diagram**

![Diagram of FieldQuantity Element]

**Type**  
enumFieldQuantity

**Properties**

- content: simple

**Facets**

- enumeration
  - Current
    - The flow of electrons through a conductor caused by a potential difference.

- enumeration
  - Electric
    - The physical attribute that exerts an electrical force.

- enumeration
  - Electromagnetic
    - Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.

- enumeration
  - Gyrofrequency
    - The number of gyrations around a magnetic guiding center (field line) a charged particle performs.
makes per unit time due to the Lorentz force.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic</td>
<td>The physical attribute attributed to a magnet or its equivalent.</td>
</tr>
<tr>
<td>PlasmaFrequency</td>
<td>A number-density-dependent characteristic frequency of a plasma.</td>
</tr>
<tr>
<td>Potential</td>
<td>A field which obeys Laplace’s Equation.</td>
</tr>
<tr>
<td>PoyntingFlux</td>
<td>Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.</td>
</tr>
</tbody>
</table>

**Used by:** Complex Type Field

**Source:**
```
<xsd:element name="FieldQuantity" type="enumFieldQuantity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The physical attribute of the field.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location:** file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element FrequencyRange

**Namespace:** http://www.spase-group.org/data/schema

**Diagram:**

**Type:** FrequencyRange

**Properties:**
- content: complex

**Used by:** Complex Types Field, Wave

**Model:** SpectralRange[0,1], Low, High, Units, Bin

**Children:** Bin, High, Low, SpectralRange, Units

**Instance**
```
<FrequencyRange>
  <SpectralRange>{0,1}</SpectralRange>
  <Low>{1,1}</Low>
  <High>{1,1}</High>
  <Units>{1,1}</Units>
  <Bin>{0,unbounded}</Bin>
</FrequencyRange>
```

**Source:**
```
<xsd:element name="FrequencyRange" type="FrequencyRange"/>
```

**Schema location:** file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element SpectralRange

**Namespace:** http://www.spase-group.org/data/schema

**Annotations:**
The general term used to describe wavelengths or frequencies within a given span of values for those quantities.

**Diagram:**

**Type:** enumSpectralRange
<table>
<thead>
<tr>
<th>Facets</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration CaK</td>
<td>A spectrum with a wavelength range centered near 393.5 nm. VSO nickname: Ca-K image with range of 391.9 nm to 395.2 nm.</td>
</tr>
<tr>
<td>enumeration ExtremeUltraviolet</td>
<td>A spectrum with a wavelength range of 10.0 nm to 125.0 nm. VSO nickname: EUV image with a range of 10.0 nm to 125.0 nm.</td>
</tr>
<tr>
<td>enumeration FarUltraviolet</td>
<td>A spectrum with a wavelength range of 122 nm to 200.0 nm. VSO nickname: FUV image with a range of 122.0 nm to 200 nm.</td>
</tr>
<tr>
<td>enumeration GammaRays</td>
<td>Photons with a wavelength range: 0.00001 to 0.001 nm.</td>
</tr>
<tr>
<td>enumeration Halpha</td>
<td>A spectrum with a wavelength range centered at 656.3 nm. VSO nickname: H-alpha image with a spectrum range of 655.8 nm to 656.8 nm.</td>
</tr>
<tr>
<td>enumeration HardXrays</td>
<td>Photons with a wavelength range: 0.001 to 0.1 nm and an energy range of 12 keV to 120 keV.</td>
</tr>
<tr>
<td>enumeration He10830</td>
<td>A spectrum with a wavelength range centered at 1082.9 nm. VSO nickname: He 10830 image with a range of 1082.5 nm to 1083.3 nm.</td>
</tr>
<tr>
<td>enumeration He304</td>
<td>A spectrum centered around the resonance line of ionised helium at 304 Angstrom (30.4 nm).</td>
</tr>
<tr>
<td>enumeration Infrared</td>
<td>Photons with a wavelength range: 760 to 1.00x10^-6 nm.</td>
</tr>
<tr>
<td>enumeration K7699</td>
<td>A spectrum with a wavelength range centered at 769.9 nm. VSO nickname: K-7699 dopplergram with a range of 769.8 nm to 770.0 nm.</td>
</tr>
<tr>
<td>enumeration LBHBand</td>
<td>Lyman-Birge-Hopfield band in the far ultraviolet range with wavelength range of 140nm to 170 nm.</td>
</tr>
<tr>
<td>enumeration Microwave</td>
<td>Photons with a wavelength range: 1.00x10^-6 to 1.50x10^-7 nm.</td>
</tr>
<tr>
<td>enumeration NaD</td>
<td>A spectrum with a wavelength range centered at 589.3 nm. VSO nickname: Na-D image with a range of 588.8 nm to 589.8 nm.</td>
</tr>
<tr>
<td>enumeration Ni6768</td>
<td>A spectrum with a wavelength range centered at 676.8 nm. VSO nickname: Ni-6768 dopplergram with a range of 676.7 nm to 676.9 nm.</td>
</tr>
<tr>
<td>enumeration Optical</td>
<td>Photons with a wavelength range: 380 to 760 nm.</td>
</tr>
<tr>
<td>enumeration RadioFrequency</td>
<td>Photons with a wavelength range: 100,000 to 1.00x10^11 nm.</td>
</tr>
<tr>
<td>enumeration SoftXrays</td>
<td>X-Rays with an energy range of 0.12 keV to 12 keV.</td>
</tr>
<tr>
<td>enumeration Ultraviolet</td>
<td>Photons with a wavelength range: 10 to 400 nm.</td>
</tr>
<tr>
<td>enumeration WhiteLight</td>
<td>Photons with a wavelength in the visible range for humans.</td>
</tr>
<tr>
<td>enumeration Xrays</td>
<td>Photons with a wavelength range: 0.001 &lt;= x &lt; 10 nm.</td>
</tr>
</tbody>
</table>

Used by Complex Types: DisplayData, FrequencyRange, NumericalData, WavelengthRange

Source: 
```xml
<xs:element name="SpectralRange" type="enumSpectralRange">
  <xs:annotation>
    <xs:documentation xml:lang="en">The general term used to describe wavelengths or frequencies within a given span of values for those quantities.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
### Element Low

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
The smallest value within a range of possible values.

**Diagram**

![Diagram of Low element]

**Type**  
xsd:double

**Properties**

| content: | simple |

**Used by**

Complex Types: AzimuthalAngleRange, Bin, EnergyRange, FrequencyRange, PolarAngleRange, WavelengthRange

**Source**

```xml
<xsd:element name="Low" type="xsd:double">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The smallest value within a range of possible values.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**  
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element High

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
The largest value within a range of possible values.

**Diagram**

![Diagram of High element]

**Type**  
xsd:double

**Properties**

| content: | simple |

**Used by**

Complex Types: AzimuthalAngleRange, Bin, EnergyRange, FrequencyRange, PolarAngleRange, WavelengthRange

**Source**

```xml
<xsd:element name="High" type="xsd:double">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The largest value within a range of possible values.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**  
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Bin

**Namespace**  
http://www.spase-group.org/data/schema

**Diagram**

![Diagram of Bin element]

**Type**  
Bin

**Properties**

| content: | complex |

**Used by**

Complex Types: AzimuthalAngleRange, EnergyRange, FrequencyRange, PolarAngleRange, WavelengthRange

**Model**

`BandName{0,1}, Low, High`

**Children**

`BandName, High, Low`

**Instance**

```xml
<Bin>
  <BandName>(0,1)</BandName>
</Bin>
```
Element BandName

Namespace: http://www.spase-group.org/data/schema

Annotations: A common or provider assigned name for a range of values.

Diagram:

Type:xsd:string

Properties:
content: simple

Used by:
Complex Type Bin

Source:
<xsd:element name="BandName" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A common or provider assigned name for a range of values.</xsd:documentation>
  </xsd:annotation>
</xsd:element>

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element Particle

Namespace: http://www.spase-group.org/data/schema

Diagram:

Type: Particle

Properties:
content: complex

Substitution Group:
- ParameterEntity

Affiliation:

Model:
- ParticleType+, Qualifier*, ParticleQuantity, AtomicNumber*, EnergyRange[0,1], AzimuthalAngleRange[0,1], PolarAngleRange[0,1]

Children:
- AtomicNumber, AzimuthalAngleRange, EnergyRange, ParticleQuantity, ParticleType, PolarAngleRange, Qualifier

Instance:

<Particle>
  <ParticleType>(1,unbounded)</ParticleType>
  <Qualifier>(0,unbounded)</Qualifier>
</Particle>
**Element ParticleType**

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
A characterization of the kind of particle observed by the measurement.

**Diagram**

```
Type
diagram
```

**Type**  
enumParticleType

**Properties**  
content: simple

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerosol</td>
<td>A suspension of fine solid or liquid particles in a gas.</td>
</tr>
<tr>
<td>AlphaParticle</td>
<td>A positively charged nuclear particle that consists of two protons and two neutrons.</td>
</tr>
<tr>
<td>Atom</td>
<td>Matter consisting of a nucleus surrounded by electrons which has no net charge.</td>
</tr>
<tr>
<td>Dust</td>
<td>Free microscopic particles of solid material.</td>
</tr>
<tr>
<td>Electron</td>
<td>An elementary particle consisting of a charge of negative electricity equal to about 1.602 x 10^-19 Coulomb and having a mass when at rest of about 9.109534 x 10^-28 gram.</td>
</tr>
<tr>
<td>Ion</td>
<td>An atom that has acquired a net electric charge by gaining or losing one or more electrons. (Note: Z&gt;2)</td>
</tr>
<tr>
<td>Molecule</td>
<td>A group of atoms so united and combined by chemical affinity that they form a complete, integrated whole, being the smallest portion of any particular compound that can exist in a free state</td>
</tr>
<tr>
<td>Neutron</td>
<td>An elementary particle that has no net charge and is a constituent of atomic nuclei, and that has a mass slightly larger than a proton (1.673 x 10^-24 gram.)</td>
</tr>
<tr>
<td>Proton</td>
<td>An elementary particle that is a constituent of all atomic nuclei, that carries a positive charge numerically equal to the charge of an electron, and that has a mass of 1.673 x 10^-24 gram.</td>
</tr>
</tbody>
</table>

**Used by**

Complex Types, Mixed, Particle

**Source**

<xsd:element name="ParticleType" type="enumParticleType"/>
<xsd:annotation>
  <xsd:documentation xml:lang="en">A characterization of the kind of particle observed by the measurement. </xsd:documentation>
</xsd:annotation>
</xsd:element>

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ParticleQuantity**

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
A characterization of the physical properties of the particle.
<table>
<thead>
<tr>
<th>Facets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>ArrivalDirection</td>
</tr>
<tr>
<td>enumeration</td>
<td>AtomicNumberDetected</td>
</tr>
<tr>
<td>enumeration</td>
<td>AverageChargeState</td>
</tr>
<tr>
<td>enumeration</td>
<td>ChargeState</td>
</tr>
<tr>
<td>enumeration</td>
<td>CountRate</td>
</tr>
<tr>
<td>enumeration</td>
<td>Counts</td>
</tr>
<tr>
<td>enumeration</td>
<td>Energy</td>
</tr>
<tr>
<td>enumeration</td>
<td>EnergyDensity</td>
</tr>
<tr>
<td>enumeration</td>
<td>EnergyFlux</td>
</tr>
<tr>
<td>enumeration</td>
<td>FlowSpeed</td>
</tr>
<tr>
<td>enumeration</td>
<td>FlowVelocity</td>
</tr>
<tr>
<td>enumeration</td>
<td>Fluence</td>
</tr>
<tr>
<td>enumeration</td>
<td>Gyrofrequency</td>
</tr>
<tr>
<td>enumeration</td>
<td>HeatFlux</td>
</tr>
<tr>
<td>enumeration</td>
<td>Mass</td>
</tr>
<tr>
<td>enumeration</td>
<td>MassDensity</td>
</tr>
<tr>
<td>enumeration</td>
<td>MassNumber</td>
</tr>
<tr>
<td>enumeration</td>
<td>NumberDensity</td>
</tr>
<tr>
<td>enumeration</td>
<td>NumberFlux</td>
</tr>
<tr>
<td>enumeration</td>
<td>PhaseSpaceDensity</td>
</tr>
<tr>
<td>enumeration</td>
<td>PlasmaFrequency</td>
</tr>
</tbody>
</table>

**Type**: `enumParticleQuantity`
### Pressure
The force per unit area exerted by a particle distribution or field.

### SonicMachNumber
The ratio of the bulk flow speed to the speed of sound in the medium.

### SoundSpeed
The speed at which sound travels through a medium.

### Temperature
A measure of the kinetic energy of random motion with respect to the average. Temperature is properly defined only for an equilibrium particle distribution (Maxwellian distribution).

### ThermalSpeed
For a Maxwellian distribution, the difference between the mean speed and the speed within which ~69% (one sigma) of all the members of the speed distribution occur.

### Velocity
Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as "bulk velocity".

---

| Source | <xsd:element name="ParticleQuantity" type="enumParticleQuantity">  
| <xsd:documentation xml:lang="en">A characterization of the physical properties of the particle.</xsd:documentation>  
| </xsd:annotation>  
| </xsd:element>  

#### AtomicNumber
The number of protons in the nucleus of an atom.

**Type**
xsd:double

**Properties**
- content: simple

---

| Source | <xsd:element name="AtomicNumber" type="xsd:double">  
| <xsd:annotation>  
| <xsd:documentation xml:lang="en">The number of protons in the nucleus of an atom.</xsd:documentation>  
| </xsd:annotation>  
| </xsd:element>  

#### EnergyRange

**Namespace**
http://www.spase-group.org/data/schema

---

| Source | <xsd:element name="EnergyRange">  
| <xsd:annotation>  
| <xsd:documentation xml:lang="en">Type: EnergyRange</xsd:documentation>  
| </xsd:annotation>  
| </xsd:element>  

---

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Type | EnergyRange
---|---
Properties | content: complex
Used by | Complex Types, Particle, Wave
Model | Low, High, Units, Bin*
Children | Bin, High, Low, Units
Instance | `<EnergyRange>
  <Low>1,1</Low>
  <High>1,1</High>
  <Units>1,1</Units>
  <Bin>0,unbounded</Bin>
</EnergyRange>`
Source | `<xsd:element name="EnergyRange" type="EnergyRange"/>
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element AzimuthalAngleRange**

Namespace | http://www.spase-group.org/data/schema
Diagram | ![Diagram of AzimuthalAngleRange]
Type | AzimuthalAngleRange
Properties | content: complex
Used by | Complex Type, Particle
Model | Low, High, Units, Bin*
Children | Bin, High, Low, Units
Instance | `<AzimuthalAngleRange>
  <Low>1,1</Low>
  <High>1,1</High>
  <Units>1,1</Units>
  <Bin>0,unbounded</Bin>
</AzimuthalAngleRange>`
Source | `<xsd:element name="AzimuthalAngleRange" type="AzimuthalAngleRange"/>
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element PolarAngleRange**

Namespace | http://www.spase-group.org/data/schema
Diagram | ![Diagram of PolarAngleRange]
Type | PolarAngleRange
Properties | content: complex
Used by | Complex Type, Particle
Model | Low, High, Units, Bin*
Children | Bin, High, Low, Units
Instance | `<PolarAngleRange>
  <Low>1,1</Low>
  <High>1,1</High>
  <Units>1,1</Units>
  <Bin>0,unbounded</Bin>
</PolarAngleRange>`
Source | `<xsd:element name="PolarAngleRange" type="PolarAngleRange"/>
Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

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### PolarAngleRange

<table>
<thead>
<tr>
<th>Type</th>
<th>PolarAngleRange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type, Particle</td>
</tr>
<tr>
<td>Model</td>
<td>Low, High, Units, Bin*</td>
</tr>
<tr>
<td>Children</td>
<td>Bin, High, Low, Units</td>
</tr>
</tbody>
</table>

**Instance**

```xml
<PolarAngleRange>
  <Low>1,1</Low>
  <High>1,1</High>
  <Units>1,1</Units>
  <Bin>0,unbounded</Bin>
</PolarAngleRange>
```

**Source**

```xml
<xsd:element name="PolarAngleRange" type="PolarAngleRange"/>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

### Wave

**Namespace**

http://www.spase-group.org/data/schema

**Diagram**

![Wave Diagram](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>Wave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Substitution Group</td>
<td>ParameterEntity</td>
</tr>
<tr>
<td>Model</td>
<td>WaveType, Qualifier*, WaveQuantity, EnergyRange[0,1], FrequencyRange[0,1], WavelengthRange[0,1]</td>
</tr>
<tr>
<td>Children</td>
<td>EnergyRange, FrequencyRange, Qualifier, WaveQuantity, WaveType, WavelengthRange</td>
</tr>
</tbody>
</table>

**Instance**

```xml
<Wave>
  <WaveType>1,1</WaveType>
  <Qualifier>0,unbounded</Qualifier>
  <WaveQuantity>1,1</WaveQuantity>
  <EnergyRange>0,1</EnergyRange>
  <FrequencyRange>0,1</FrequencyRange>
  <WavelengthRange>0,1</WavelengthRange>
</Wave>
```

**Source**

```xml
<xsd:element name="Wave" type="Wave" substitutionGroup="ParameterEntity"/>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

### WaveType

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

A characterization of the carrier or phenomenon of wave information observed by the measurement.
### Diagram

**Type**

`enumWaveType`

**Properties**

- `content`: `simple`

**Facets**

- `enumeration` **Electromagnetic**: Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.
- `enumeration` **Electrostatic**: Collective longitudinal electric-field and plasma oscillations trapped within a body of plasma.
- `enumeration` **Hydrodynamic**: Periodic or quasi-periodic oscillations of fluid quantities.
- `enumeration` **MHD**: Hydrodynamic waves in a magnetized plasma in which the background magnetic field plays a key role in controlling the wave propagation characteristics.
- `enumeration` **Photon**: Electromagnetic waves detected by techniques that utilize their corpuscular character (e.g., CCD, CMOS, photomultipliers).
- `enumeration` **PlasmaWaves**: Self-consistent collective oscillations of particles and fields (electric and magnetic) in a plasma.

### Used by

Complex Type: **Wave**

### Source

```
<xsd:element name="WaveType" type="enumWaveType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A characterization of the carrier or phenomenon of wave information observed by the measurement.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

### Schema location

`file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd`

---

### Element **WaveQuantity**

**Namespace**

`http://www.spase-group.org/data/schema`

**Annotations**

A characterization of the physical properties of a wave.

### Diagram

**Type**

`enumWaveQuantity`

**Properties**

- `content`: `simple`

**Facets**

- `enumeration` **ACElectricField**: Alternating electric field component of a wave.
- `enumeration` **ACMagneticField**: Alternating magnetic field component of a wave.
- `enumeration` **Absorption**: Decrease of radiant energy (relative to the background continuum spectrum).
- `enumeration` **DopplersFrequency**: Change in the frequency of a propagating wave due to motion of the source, the observer, the reflector, or the propagation medium.
- `enumeration` **Emissivity**: The energy emitted spontaneously per unit bandwidth (typically frequency) per unit time per unit mass of source. Emissivity is usually integrated over all directions/solid angles.
| enumeration | EnergyFlux | The amount of energy passing through a unit area in a unit time. |
| enumeration | EquivalentWidth | The spectral width of a total absorption line having the amount of absorbed radiant energy being equivalent to that in an observed absorption line. |
| enumeration | Frequency | The number of occurrences of a repeating event per unit time. |
| enumeration | Gyrofrequency | The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force. |
| enumeration | Intensity | The measurement of radiant or wave energy per unit detector area per unit bandwidth per unit solid angle per unit time. |
| enumeration | LineDepth | The measure of the amount of absorption below the continuum (depth) in a particular wavelength or frequency in an absorption spectrum. |
| enumeration | MagneticField | A region of space near a magnetized body where magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.). |
| enumeration | ModeAmplitude | In helioseismology the magnitude of oscillation of waves of a particular geometry. |
| enumeration | PlasmaFrequency | A number-density-dependent characteristic frequency of a plasma. |
| enumeration | Polarization | Direction of the electric vector of an electromagnetic wave. The wave can be linearly polarized in any direction perpendicular to the direction of travel, circularly polarized (clockwise or counterclockwise), unpolarized, or mixtures of the above. |
| enumeration | PoyntingFlux | Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian. |
| enumeration | PropagationTime | Time difference between transmission and reception of a wave in an active wave experiment. |
| enumeration | StokesParameters | A set of four parameters (usually called I, Q, U and V) which describe the polarization state of an electromagnetic wave propagating through space. |
| enumeration | Velocity | Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as "bulk velocity". |
| enumeration | Wavelength | The peak-to-peak distance over one wave period. |

**Source**

```xml
<xsd:element name="WaveQuantity" type="enumWaveQuantity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A characterization of the physical properties of a wave.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element WavelengthRange**

**Namespace**

http://www.spase-group.org/data/schema
### Type: WavelengthRange

**Properties**
- content: complex

**Used by**
- Complex Type: Wave

**Model**
- SpectralRange{0,1}, Low, High, Units, Bin

**Children**
- Bin, High, Low, SpectralRange, Units

**Instance**
- `<WavelengthRange>`
  - `<SpectralRange>` {0,1} </SpectralRange>
  - `<Low>` {1,1} </Low>
  - `<High>` {1,1} </High>
  - `<Units>` {1,1} </Units>
  - `<Bin>` {0, unbounded} </Bin>
- `</WavelengthRange>`

**Source**
- `<xsd:element name="WavelengthRange" type="WavelengthRange"/>

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Mixed

**Namespace**
- http://www.spase-group.org/data/schema

**Type**
- Mixed

**Properties**
- content: complex

**Substitution Group**
- ParameterEntity

**Model**
- MixedQuantity, ParticleType*, Qualifier*

**Children**
- MixedQuantity, ParticleType, Qualifier

**Instance**
- `<Mixed>`
  - `<MixedQuantity>` {1,1} </MixedQuantity>
  - `<ParticleType>` {0, unbounded} </ParticleType>
  - `<Qualifier>` {0, unbounded} </Qualifier>
- `</Mixed>`

**Source**
- `<xsd:element name="Mixed" type="Mixed" substitutionGroup="ParameterEntity"/>

**Schema location**
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Element **MixedQuantity**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>A characterization of the combined attributes of a quantity.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>enumMixedQuantity</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Facets</td>
<td>enumMixedQuantity</td>
</tr>
</tbody>
</table>

**Enumeration: AkasofuEpsilon**

A measure of the magnetopause energy flux and an indicator of the solar wind power available for subsequent magnetospheric energization. Defined as: \( V^*B^2*l^2*sin(\theta/2)^4 \) where \( B \) is the IMF, \( l \) is an empirical scaling parameter equal to 7 RE, and \( \theta = \tan(BY/BZ)^{-1} \) the IMF clock angle.

**Enumeration: AlfvenMachNumber**

The ratio of the bulk flow speed to the Alfvén speed.

**Enumeration: AlfvenVelocity**

Phase velocity of the Alfvén wave; In SI units it is the velocity of the magnetic field divided by the square root of the mass density times the permeability of free space (\( \mu_0 \)).

**Enumeration: FrequencyToGyrofrequencyRatio**

The ratio of the characteristic frequency of a medium to gyrofrequency of a particle.

**Enumeration: MagnetosonicMachNumber**

The ratio of the velocity of fast mode waves to the Alfvén velocity.

**Enumeration: Other**

Not classified with more specific terms. The context of its usage may be described in related text.

**Enumeration: PlasmaBeta**

The ratio of the plasma pressure (nkT) to the magnetic pressure (B^2/2\(\mu_0\)) of the \( \text{SUM}(nkT)/(B^2/2\mu_0) \).

**Enumeration: TotalPressure**

In an MHD fluid it is the number density (N) times Boltzmann constant times the temperature in Kelvin.

**Enumeration: VCrossB**

The cross product of the charge velocity (V) and the magnetic field (B). It is the electric field exerted on a point charge by a magnetic field.

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td><code>&lt;xsd:element name=&quot;MixedQuantity&quot; type=&quot;enumMixedQuantity&quot;&gt;</code></td>
<td></td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
<td></td>
</tr>
</tbody>
</table>

**Element Support**

<p>| Namespace | <a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a> |</p>
<table>
<thead>
<tr>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substitution Group</th>
<th>ParameterEntity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Qualifier*, SupportQuantity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Children</th>
<th>Qualifier, SupportQuantity</th>
</tr>
</thead>
</table>

| Instance | `<Support>
 Qualifier>(0,unbounded)</Qualifier>
 SupportQuantity>{1,1}</SupportQuantity>` |
|----------|---------------------------------|

<table>
<thead>
<tr>
<th>Source</th>
<th><code>&lt;xsd:element name=&quot;Support&quot; type=&quot;Support&quot; substitutionGroup=&quot;ParameterEntity&quot;/&gt;</code></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Schema location</th>
<th>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</th>
</tr>
</thead>
</table>

**Element SupportQuantity**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Annotations</th>
<th>A characterization of the support information.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>enumSupportQuantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>InstrumentMode</th>
<th>InstrumentMode: An indication of a state (mode) in which the instrument is operating. How a mode influences the interpretation and representation of data is described in instrument related documentation.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>Other</th>
<th>Other: Not classified with more specific terms. The context of its usage may be described in related text.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>Positional</th>
<th>Positional: The specification of the location of an object or measurement within a reference coordinate system. The position is usually expressed as a set of values corresponding to the location along a set of orthogonal axes together with the date/time of the observation.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>Temporal</th>
<th>Temporal: Pertaining to time.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>Velocity</th>
<th>Velocity: Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as “bulk velocity”.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type: Support</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th><code>&lt;xsd:element name=&quot;SupportQuantity&quot; type=&quot;enumSupportQuantity&quot;&gt;</code></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th><code>&lt;xsd:annotation&gt;</code></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th><code>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A characterization of the support information.&lt;/xsd:documentation&gt;</code></th>
</tr>
</thead>
</table>

63
Element DisplayData

Namespace http://www.spase-group.org/data/schema

Diagram

Type DisplayData

Properties content: complex

Substitution Group

Affiliation * ResourceEntity
**Model**

ResourceID, ResourceHeader, AccessInformation+, ProcessingLevel{0,1}, ProviderResourceName{0,1}, ProviderProcessingLevel{0,1}, ProviderVersion{0,1}, InstrumentID*, MeasurementType+, TemporalDescription{0,1}, SpectralRange*, DisplayCadence{0,1}, ObservedRegion*, Caveats{0,1}, Keyword*, InputResourceID*, Parameter*, Extension*

**Children**

AccessInformation, Caveats, DisplayCadence, Extension, InputResourceID, InstrumentID, Keyword, MeasurementType, ObservedRegion, Parameter, ProcessingLevel, ProviderProcessingLevel, ProviderResourceName, ProviderVersion, ResourceHeader, ResourceID, SpectralRange, TemporalDescription

**Instance**

```xml
<DisplayData>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
  <AccessInformation>(1,unbounded)</AccessInformation>
  <ProcessingLevel>(0,1)</ProcessingLevel>
  <ProviderResourceName>(0,1)</ProviderResourceName>
  <ProviderProcessingLevel>(0,1)</ProviderProcessingLevel>
  <ProviderVersion>(0,1)</ProviderVersion>
  <InstrumentID>(0,unbounded)</InstrumentID>
  <MeasurementType>(1,unbounded)</MeasurementType>
  <TemporalDescription>(0,1)</TemporalDescription>
  <SpectralRange>(0,unbounded)</SpectralRange>
  <DisplayCadence>(0,1)</DisplayCadence>
  <ObservedRegion>(0,unbounded)</ObservedRegion>
  <Caveats>(0,1)</Caveats>
  <Keyword>(0,unbounded)</Keyword>
  <InputResourceID>(0,unbounded)</InputResourceID>
  <Parameter>(0,unbounded)</Parameter>
  <Extension>(0,unbounded)</Extension>
</DisplayData>
```

**Source**

```xml
<xsd:element name="DisplayData" type="DisplayData" substitutionGroup="ResourceEntity"/>
```

**Schema location**

file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ProcessingLevel**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

The standard classification of the processing performed on the product.

**Diagram**

![Diagram of ProcessingLevel](image.png)

**Type**

enumProcessingLevel

**Properties**

content: simple

**Facets**

- **enumeration** Calibrated: Data wherein sensor outputs have been convolved with instrument response function, often irreversibly, to yield data in physical units.
- **enumeration** Raw: Data in its original state with no processing to account for calibration!!!
- **enumeration** Uncalibrated: Duplicate data are removed from the data stream and data are time ordered. Values are not adjusted for any potential biases or external factors.

**Used by**

Complex Types: DisplayData, NumericalData

**Source**

```xml
<xsd:element name="ProcessingLevel" type="enumProcessingLevel"/>
```

**Schema location**

file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ProviderProcessingLevel**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

The provider specific classification of the processing performed on the product.
Diagram

<table>
<thead>
<tr>
<th>Type</th>
<th>xsd:string</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types: DisplayData, NumericalData</td>
</tr>
</tbody>
</table>

Source

```xml
<xs:element name="ProviderProcessingLevel" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The provider specific classification of the processing performed on the product.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element `MeasurementType`

Namespace

http://www.spase-group.org/data/schema

Annotations

A characterization of the quantitative assessment of a phenomenon.

Diagram

<table>
<thead>
<tr>
<th>Type</th>
<th>enumMeasurementType</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
</tbody>
</table>

Facets

<table>
<thead>
<tr>
<th>enumeration</th>
<th>ActivityIndex</th>
<th>An indication, derived from one or more measurements, of the level of activity of an object or region, such as sunspot number, F10.7 flux, Dst, or the Polar Cap Indices.</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Dopplergram</td>
<td>A map or image depicting the spatial distribution of line-of-sight velocities of the observed object.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Dust</td>
<td>Free microscopic particles of solid material.</td>
</tr>
<tr>
<td>enumeration</td>
<td>ElectricField</td>
<td>A region of space around a charged particle, or between two voltages within which a force is exerted on charged objects in its vicinity. An electric field is the electric force per unit charge.</td>
</tr>
<tr>
<td>enumeration</td>
<td>EnergeticParticles</td>
<td>Pieces of matter that are moving very fast. Energetic particles include protons, electrons, neutrons, neutrinos, the nuclei of atoms, and other sub-atomic particles.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Ephemeris</td>
<td>The spatial coordinates of a body as a function of time. When used as an Instrument Type it represents the process or methods used to generate spatial coordinates.</td>
</tr>
<tr>
<td>enumeration</td>
<td>ImageIntensity</td>
<td>Measurements of the two-dimensional distribution of the intensity of photons from some region or object such as the Sun or the polar auroral regions; can be in any wavelength band, and polarized, etc.</td>
</tr>
<tr>
<td>enumeration</td>
<td>InstrumentStatus</td>
<td>A quantity directly related to the operation or function of an instrument.</td>
</tr>
<tr>
<td>enumeration</td>
<td>IonComposition</td>
<td>In situ measurements of the relative flux or density of electrically charged particles in the space environment. May give simple fluxes, but full distribution functions are sometimes measured.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Irradiance</td>
<td>Irradiance - A radiometric term for the power of electromagnetic radiation at a surface,</td>
</tr>
</tbody>
</table>
per unit area. "Irradiance" is used when the electromagnetic radiation is incident on the surface. Irradiance data may be reported in any units (i.e. counts/s) due to, for example, being at a particular wavelength, or to being a not-fully-calibrated relative measurement.

**enumeration MagneticField**
A region of space near a magnetized body where magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.).

**enumeration Magnetogram**
Measurements of the vector or line-of-sight magnetic field determined from remote sensing measurements of the detailed structure of spectral lines, including their splitting and polarization. ("Magnetogram.")

**enumeration NeutralAtomImages**
Measurements of neutral atom fluxes as a function of look direction; often related to remote energetic charged particles that lose their charge through charge-exchange and then reach the detector on a line-of-sight trajectory.

**enumeration NeutralGas**
Measurements of neutral atomic and molecular components of a gas.

**enumeration Profile**
Measurements of a quantity as a function of height above an object such as the limb of a body.

**enumeration Radiance**
A radiometric measurement that describes the amount of electromagnetic radiation that passes through or is emitted from a particular area, and falls within a given solid angle in a specified direction. They are used to characterize both emission from diffuse sources and reflection from diffuse surfaces.

**enumeration Spectrum**
The distribution of a characteristic of a physical system or phenomenon, such as the energy emitted by a radiant source, arranged in the order of wavelengths.

**enumeration ThermalPlasma**
Measurements of the plasma in the energy regime where the most of the plasma occurs. May be the basic fluxes in the form of distribution functions or the derived bulk parameters (density, flow velocity, etc.).

**enumeration Waves**
Data resulting from observations of wave experiments and natural wave phenomena. Wave experiments are typically active and natural wave phenomena are passive. Examples of wave experiments include coherent/incoherent scatter radars, radio soundings, VLF propagation studies, ionospheric scintillation of beacon satellite signals, etc. Examples of natural wave phenomena include micropulsations, mesospheric gravity waves, auroral/plasmaspheric hiss, Langmuir waves, AKR, Jovian decametric radiation, solar radio bursts, etc.

**enumeration Waves.Active**
Exerting an influence or producing a change or effect. An active measurement is one which produces a transmission or excitation as a part of the measurement cycle.

**enumeration Waves.Passive**
Movement or effect produced by outside influence. A passive measurement is one which does not
produce a transmission or excitation as a part of the measurement cycle.

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Types</th>
<th>DisplayData, NumericalData</th>
</tr>
</thead>
</table>
| Source           | <xsd:element name="MeasurementType" type="enumMeasurementType">  
|                  | <xsd:annotation>  
|                  | <xsd:documentation xml:lang="en">A characterization of the quantitative assessment of a phenomenon.</xsd:documentation>  
|                  | </xsd:annotation>  
|                  | </xsd:element> |
| Schema location  | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

**Element TemporalDescription**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>TemporalDescription</td>
</tr>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types DisplayData, NumericalData</td>
</tr>
<tr>
<td>Model</td>
<td>TimeSpan, Cadence{0,1}, Exposure{0,1}</td>
</tr>
<tr>
<td>Children</td>
<td>Cadence, Exposure, TimeSpan</td>
</tr>
</tbody>
</table>
| Instance         | <TemporalDescription>  
|                  | <TimeSpan>{1,1}</TimeSpan>  
|                  | <Cadence>{0,1}</Cadence>  
|                  | <Exposure>{0,1}</Exposure>  
|                  | </TemporalDescription> |
| Source           | <xsd:element name="TemporalDescription" type="TemporalDescription"/> |
| Schema location  | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

**Element Exposure**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The time interval over which an individual measurement is taken.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:duration</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type TemporalDescription</td>
</tr>
</tbody>
</table>
| Source           | <xsd:element name="Exposure" type="xsd:duration">  
|                  | <xsd:annotation>  
|                  | <xsd:documentation xml:lang="en">The time interval over which an individual measurement is taken.</xsd:documentation>  
|                  | </xsd:annotation>  
|                  | </xsd:element> |
| Schema location  | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

**Element DisplayCadence**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The time interval between the successive display elements.</td>
</tr>
</tbody>
</table>

---

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Diagram

<table>
<thead>
<tr>
<th>DisplayCadence</th>
<th>duration</th>
</tr>
</thead>
</table>

### Type
- **xsd:duration**

### Properties
- **content:** simple

### Used by
- Complex Type: DisplayData

### Source
```xml
<xsd:element name="DisplayCadence" type="xsd:duration">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The time interval between the successive display elements.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

### Schema location
- file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

## Element ObservedRegion

### Namespace
- http://www.spase-group.org/data/schema

### Annotations
The portion of space measured by the instrument at the time of an observation. A region is distinguished by certain natural features or physical characteristics. It is the location of the observatory for in situ data, the location or region sensed by remote sensing observatories and the location-of-relevance for parameters that are derived from observational data.

### Diagram

<table>
<thead>
<tr>
<th>ObservedRegion</th>
<th>enumRegion</th>
</tr>
</thead>
</table>

### Type
- **enumRegion**

### Properties
- **content:** simple

### Facets

<table>
<thead>
<tr>
<th>Facet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asteroid</td>
<td>A small extraterrestrial body consisting mostly of rock and metal that is in orbit around the sun.</td>
</tr>
<tr>
<td>Comet</td>
<td>A relatively small extraterrestrial body consisting of a frozen mass that travels around the sun in a highly elliptical orbit.</td>
</tr>
<tr>
<td>Earth</td>
<td>The third planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Earth.Magnetosheath</td>
<td>The region between the bow shock and the magnetopause, characterized by very turbulent plasma.</td>
</tr>
<tr>
<td>Earth.Magnetosphere</td>
<td>The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Magnetotail</td>
<td>The region on the night side of the body where the magnetic filed is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X &gt; -10Re).</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Main</td>
<td>The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Polar</td>
<td>The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.RadiationBelt</td>
<td>The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</td>
</tr>
</tbody>
</table>
The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.

The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.

in the atmospheric where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.

The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.

The ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.

The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.

The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth.NearSurface.Troposphere</td>
<td>The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</td>
</tr>
<tr>
<td>Earth.Surface</td>
<td>The outermost area of a solid object.</td>
</tr>
<tr>
<td>Heliosphere</td>
<td>The solar atmosphere extending roughly from the outer corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.</td>
</tr>
<tr>
<td>Heliosphere.Heliosheath</td>
<td>The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</td>
</tr>
<tr>
<td>Heliosphere.Inner</td>
<td>The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</td>
</tr>
<tr>
<td>Heliosphere.NearEarth</td>
<td>The heliospheric region near the Earth which extends to and includes the area near the L1 and L2 Lagrange point.</td>
</tr>
<tr>
<td>Heliosphere.Outer</td>
<td>The region of the heliosphere extending radially outward from just outside 1 AU to the heliospheric termination shock.</td>
</tr>
<tr>
<td>Heliosphere.Remote1AU</td>
<td>A roughly toroidal region that includes the Earth's orbit, but exclusive of the region near the Earth.</td>
</tr>
<tr>
<td>Interstellar</td>
<td>The region between stars outside of the star's heliopause.</td>
</tr>
<tr>
<td>Jupiter</td>
<td>The fifth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mars</td>
<td>The forth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mercury</td>
<td>The first planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Neptune</td>
<td>The seventh planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Pluto</td>
<td>The ninth (sub)planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Saturn</td>
<td>The sixth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Sun</td>
<td>The star upon which our solar system is centered.</td>
</tr>
<tr>
<td>Sun.Chromosphere</td>
<td>The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 - 28000 K.</td>
</tr>
<tr>
<td>Sun.Corona</td>
<td>The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</td>
</tr>
<tr>
<td>Sun.Interior</td>
<td>The region inside the body which is not visible from outside the body.</td>
</tr>
<tr>
<td>Sun.Photosphere</td>
<td>The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the Mesosphere to 640+ km, temperature increasing with height.</td>
</tr>
</tbody>
</table>
### Structure Documentation for spase-2_2_1.xsd

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun.TransitionRegion</td>
<td>A very narrow (&lt;100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.</td>
</tr>
<tr>
<td>Uranus</td>
<td>The eighth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Venus</td>
<td>The second planet from the sun in our solar system.</td>
</tr>
</tbody>
</table>

#### Source

```xml
<xsd:element name="ObservedRegion" type="enumRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en"> The portion of space measured by the instrument at the time of an observation. A region is distinguished by certain natural features or physical characteristics. It is the location of the observatory for in situ data, the location or region sensed by remote sensing observatories and the location-of-relevance for parameters that are derived from observational data. </xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

#### Schema Location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element NumericalData

#### Namespace

http://www.spase-group.org/data/schema
<table>
<thead>
<tr>
<th>Type</th>
<th>NumericalData</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Substitution Group</td>
<td>- ResourceEntity</td>
</tr>
<tr>
<td>Affiliation</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>ResourceID, ResourceHeader, AccessInformation+, ProcessingLevel[0,1], ProviderProcessingLevel[0,1], ProviderResourceName[0,1], ProviderVersion (0,1), InstrumentID*, MeasurementType+, TemporalDescription[0,1], SpectralRange*, ObservedRegion*, Caveats[0,1], Keyword*, InputResourceID*, Parameter*, Extension*</td>
</tr>
<tr>
<td>Children</td>
<td>AccessInformation, Caveats, Extension, InputResourceID, InstrumentID, Keyword, MeasurementType, ObservedRegion, Parameter, ProcessingLevel, ProviderProcessingLevel, ProviderResourceName, ProviderVersion, ResourceHeader, ResourceID, SpectralRange, TemporalDescription</td>
</tr>
<tr>
<td>Instance</td>
<td>&lt;NumericalData&gt; &lt;ResourceId&gt;(1,1)&lt;/ResourceId&gt; &lt;ResourceHeader&gt;(1,1)&lt;/ResourceHeader&gt;</td>
</tr>
</tbody>
</table>
Diagram

**Type**
enumDocumentType

**Properties**
- content: simple

**Facets**
- enumeration
  - Paper
  
  A formal presentation of an idea or discovery typically more than a few pages in length.

**Used by**
- Complex Type: Document

**Source**

```
<xsd:element name="DocumentType" type="enumDocumentType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A characterization of the content or purpose of a document.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

**Schema location**
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Granule

**Namespace**
http://www.spase-group.org/data/schema

**Diagram**

```
<Granule>
  <ResourceID>{1,1}</ResourceID>
  <ReleaseDate>{1,1}</ReleaseDate>
  <ExpirationDate>{0,1}</ExpirationDate>
  <ParentID>{1,1}</ParentID>
  <PriorID>{0,unbounded}</PriorID>
  <StartDate>{1,1}</StartDate>
  <StopDate>{1,1}</StopDate>
  <Source>{1,unbounded}</Source>
</Granule>
```

**Type**
Granule

**Properties**
- content: complex

**Substitution Group**
- ResourceEntity

**Model**
ResourceID, ReleaseDate, ExpirationDate{0,1}, ParentID, PriorID*, StartDate, StopDate, Source+

**Children**
ExpirationDate, ParentID, PriorID, ReleaseDate, ResourceID, Source, StartDate, StopDate

**Instance**

```
<Granule>
  <ResourceID>[1,1]"/ResourceID>
  <ReleaseDate>[1,1]/ReleaseDate>
  <ExpirationDate>[0,1]/ExpirationDate>
  <ParentID>[1,1]/ParentID>
  <PriorID>[0,unbounded]/PriorID>
  <StartDate>[1,1]/StartDate>
  <StopDate>[1,1]/StopDate>
  <Source>[1,unbounded]/Source>
</Granule>
```
Element **ParentID**

Namespace: http://www.spase-group.org/data/schema

Annotations: The resource identifier for a resource that a resource is a part of. The resource inherits the attributes of the referenced resource. Attributes defined in the resource override attributes of the parent in the manner prescribed by the containing resource.

Diagram: [Diagram of ParentID]

Type: xsd:string

Properties: content: simple

Used by: Complex Type Granule

Source:
```xml
<xs:element name="ParentID" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The resource identifier for a resource that a resource is a part of. The resource inherits the attributes of the referenced resource. Attributes defined in the resource override attributes of the parent in the manner prescribed by the containing resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element **StopDate**

Namespace: http://www.spase-group.org/data/schema

Annotations: The specification of a stopping point in time.

Diagram: [Diagram of StopDate]

Type: xsd:dateTime

Properties: content: simple

Substitution Group Affiliation: StopDateEntity

Used by: Complex Types Granule, OperatingSpan

Source:
```xml
<xs:element name="StopDate" type="xsd:dateTime" substitutionGroup="StopDateEntity">
  <xs:annotation>
    <xs:documentation xml:lang="en">The specification of a stopping point in time.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element **Source**

Namespace: http://www.spase-group.org/data/schema
Type: Source

Properties:
- content: complex

Used by:
- Complex Type: Granule

Model:
SourceType, URL, MirrorURL*, Checksum{0,1}, DataExtent{0,1}

Children:
- Checksum, DataExtent, MirrorURL, SourceType, URL

Instance:
```
<Source>
  <SourceType>(1,1)</SourceType>
  <URL>(1,1)</URL>
  <MirrorURL>(0,unbounded)</MirrorURL>
  <Checksum>(0,1)</Checksum>
  <DataExtent>(0,1)</DataExtent>
</Source>
```

Source:
```
<xsd:element name="SourceType" type="enumSourceType"/>
```

Element: SourceType

Namespace: http://www.spase-group.org/data/schema

Annotations:
A characterization of the function or purpose of the source.

Facets:
- enumeration: Ancillary
  A complementary item which can be subordinate, subsidiary, auxiliary, supplementary to the primary item.
- enumeration: Browse
  A representation of an image which is suitable to reveal most or all of the details of the image.
- enumeration: Data
  A collection of organized information, usually the results of experience, observation or experiment, or a set of premises. This may consist of numbers, words, or images, particularly as measurements or observations of a set of variables.
- enumeration: Layout
  The structured arrangement of items in a collection.
- enumeration: Thumbnail
  A small representation of an image which is suitable to infer what the full-sized image is like.

Used by:
- Complex Type: Source

Source:
```
<xsd:element name="SourceType" type="enumSourceType"/>
```
Schema documentation for spase-2_2_1.xsd

Element MirrorURL

Namespace       http://www.spase-group.org/data/schema
Annotations     A Uniform Resource Locator (URL) to an alternate location of a resource.
Diagram         
Type            xsd:string
Properties      content: simple
Used by         Complex Type Source
Source          

Element Checksum

Namespace       http://www.spase-group.org/data/schema
Diagram         
Type            Checksum
Properties      content: complex
Used by         Complex Type Source
Model           HashValue, HashFunction
Children        HashFunction, HashValue
Instance        
Source          

Element HashValue

Namespace       http://www.spase-group.org/data/schema
Annotations     The value calculated by a hash function, e.g. the message digest of a digital data object.
Diagram         
Type            xsd:string
Properties      content: simple
Schema documentation for spase-2_2_1.xsd

Element HashFunction

Namespace http://www.spase-group.org/data/schema

Annotations A function or algorithm that converts a digital data object into a hash value. Typically the hash value is small and concise when compared to the digital data object.

Diagram

Type enumHashFunction

Properties content: simple

Facets

<table>
<thead>
<tr>
<th>Facet</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>MD5</td>
<td>Message Digest 5 (MD5) is a 128-bit message digest algorithm created in 1991 by Professor Ronald Rivest.</td>
</tr>
<tr>
<td>enumeration</td>
<td>SHA1</td>
<td>Secure Hash Algorithm (SHA), a 160-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</td>
</tr>
<tr>
<td>enumeration</td>
<td>SHA256</td>
<td>Secure Hash Algorithm (SHA), a 256-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</td>
</tr>
</tbody>
</table>

Element Instrument

Namespace http://www.spase-group.org/data/schema
### Type
- **Instrument**

### Properties
- **content:** complex

### Substitution Group
- **Entity**

### Model
- **ResourceId**, **ResourceHeader**, **InstrumentType**+, **InvestigationName**+, **OperatingSpan**{0,1}, **ObservatoryID**, **Caveats**{0,1}, **Extension***

### Children
- **Caveats**, **Extension**, **InstrumentType**, **InvestigationName**, **ObservatoryID**, **OperatingSpan**, **ResourceHeader**, **ResourceId**

### Instance
```
<Instrument>
    <ResourceId>{1,1}</ResourceId>
    <ResourceHeader>{1,1}</ResourceHeader>
    <InstrumentType>{1,unbounded}</InstrumentType>
    <InvestigationName>{1,unbounded}</InvestigationName>
    <OperatingSpan>{0,1}</OperatingSpan>
    <ObservatoryID>{1,1}</ObservatoryID>
    <Caveats>{0,1}</Caveats>
    <Extension>{0,unbounded}</Extension>
</Instrument>
```

### Source
- `file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd`

### Element InstrumentType

#### Namespace
- http://www.spase-group.org/data/schema

#### Annotations
- A characterization of an integrated collection of software and hardware containing one or more sensors and associated controls used to produce data on an environment.

#### Diagram
![Diagram of InstrumentType](image)

#### Type
- **enumInstrumentType**

#### Properties
- **content:** simple

#### Facets
- **enumeration** Antenna A sensor used to measure electric potential.
- **enumeration** Channeltron An instrument that detects electrons, ions, and UV-radiation, according to the principle of a secondary emission multiplier. It is
typically used in electron spectroscopy and mass spectrometry.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronograph</td>
<td>An instrument which can image things very close to the Sun by using a disk to block the Sun's bright surface which reveals the faint solar corona and other celestial objects.</td>
</tr>
<tr>
<td>DoubleSphere</td>
<td>A dipole antenna of which the active (sensor) elements are small spheres located at the ends of two wires deployed in the equatorial plane, on opposite sides of a spinning spacecraft.</td>
</tr>
<tr>
<td>DustDetector</td>
<td>An instrument which determines the mass and speed of ambient dust particles.</td>
</tr>
<tr>
<td>ElectronDriftInstrument</td>
<td>An active experiment to measure the electron drift velocity based on sensing the displacement of a weak beam of electrons after one gyration in the ambient magnetic field.</td>
</tr>
<tr>
<td>ElectrostaticAnalyser</td>
<td>An instrument which uses charged plates to analyse the mass, charge and kinetic energies of charged particles which enter the instrument.</td>
</tr>
<tr>
<td>EnergeticParticleInstrument</td>
<td>An instrument that measures fluxes of charged particles as a function of time, direction of motion, mass, charge and/or species.</td>
</tr>
<tr>
<td>FaradayCup</td>
<td>An instrument consisting of an electrode from which electrical current is measured while a charged particle beam (electrons or ions) impinges on it. Used to determine energy spectrum and sometimes ion composition of the impinging particles.</td>
</tr>
<tr>
<td>FluxFeedback</td>
<td>A search coil whose bandwidth and signal/noise ratio are increased by the application of negative feedback at the sensor (flux) level by driving a collocated coil with a signal from the preamplifier.</td>
</tr>
<tr>
<td>FourierTransformSpectrograph</td>
<td>An instrument that determines the spectra of a radiative source, using time-domain measurements and a Fourier transform.</td>
</tr>
<tr>
<td>GeigerMuellerTube</td>
<td>An instrument which measures density of ionizing radiation based on interactions with a gas.</td>
</tr>
<tr>
<td>Imager</td>
<td>An instrument which samples the radiation from an area at one or more spectral ranges emitted or reflected by an object.</td>
</tr>
<tr>
<td>ImagingSpectrometer</td>
<td>An instrument which is a multispectral scanner with a very large number of channels (64-256 channels) with very narrow band widths.</td>
</tr>
<tr>
<td>Interferometer</td>
<td>An instrument to study the properties of two or more waves from the pattern of interference created by their superposition.</td>
</tr>
<tr>
<td>IonChamber</td>
<td>A device in which the collected electrical charge from ionization in a gas-filled cavity is taken to be the proportion to some parameter (e.g. dose or exposure) of radiation field.</td>
</tr>
<tr>
<td>IonDrift</td>
<td>A device which measures the current produced by the displacement of ambient ions on a grid, thereby allowing the determination of the ion trajectory and velocity.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LangmuirProbe</td>
<td>A monopole antenna associated with an instrument. The instrument applies a potential to the antenna which is swept to determine the voltage/current characteristic. This provides information about the plasma surrounding the probe and spacecraft.</td>
</tr>
<tr>
<td>LongWire</td>
<td>A dipole antenna whose active (sensor) elements are two wires deployed in the equatorial plane on opposite sides of a spinning spacecraft, and whose length is several times greater than the spacecraft diameter.</td>
</tr>
<tr>
<td>Magnetometer</td>
<td>An instrument which measures the ambient magnetic field.</td>
</tr>
<tr>
<td>MassSpectrometer</td>
<td>An instrument which distinguishes chemical species in terms of their different isotopic masses.</td>
</tr>
<tr>
<td>MicrochannelPlate</td>
<td>An instrument used for the detection of elementary particles, ions, ultraviolet rays and soft X-rays constructed from very thin conductive glass capillaries.</td>
</tr>
<tr>
<td>MultispectralImager</td>
<td>An instrument which captures images at multiple spectral ranges.</td>
</tr>
<tr>
<td>NeutralAtomImager</td>
<td>An instrument which measures the quantity and properties of neutral particles over a range of angles. Measured properties can include mass and energy.</td>
</tr>
<tr>
<td>NeutralParticleDetector</td>
<td>An instrument which measures the quantity and properties of neutral particles. Measured properties can include mass and plasma bulk densities.</td>
</tr>
<tr>
<td>ParticleCorrelator</td>
<td>An instrument which correlates particle flux to help identify wave/particle interactions.</td>
</tr>
<tr>
<td>ParticleDetector</td>
<td>An instrument which detects particle flux!!!</td>
</tr>
<tr>
<td>Photometer</td>
<td>An instrument which measures the strength of electromagnetic radiation within a spectral band which can range from ultraviolet to infrared and includes the visible spectrum.</td>
</tr>
<tr>
<td>Photopolarimeter</td>
<td>An instrument which measures the intensity and polarization or radiant energy. A photopolarimeter is a combination of a photometer and a polarimeter.</td>
</tr>
<tr>
<td>Platform</td>
<td>A collection of components which can be positioned and oriented as a single unit. A platform may contain other platforms. For example, a spacecraft is a platform which may have components that can be articulated and are also considered platforms.</td>
</tr>
<tr>
<td>ProportionalCounter</td>
<td>An instrument which measures energy of ionization radiation based on interactions with a gas.</td>
</tr>
<tr>
<td>QuadrisphericalAnalyser</td>
<td>An instrument used for the 3-D detection of plasma, energetic electrons and ions, and for positive-ion composition measurements.</td>
</tr>
<tr>
<td>Radar</td>
<td>An instrument that uses directional properties of returned power to infer spatial and/or other characteristics of a remote object.</td>
</tr>
<tr>
<td>Radiometer</td>
<td>An instrument for detecting or measuring radiant energy. Radiometers are commonly limited to...</td>
</tr>
</tbody>
</table>
- **ResonanceSounder**: A combination of a radio receiver and a pulsed transmitter used to study the plasma surrounding a spacecraft by identifying resonances or cut-offs (of the wave dispersion relation), whose frequencies are related to the ambient plasma density and magnetic field. When the transmitter is off it is essentially a high frequency-resolution spectral power receiver.

- **RetardingPotentialAnalyser**: An instrument which measures ion temperatures and ion concentrations using a planar ion trap.

- **Riometer**: An instrument which measures the signal strength in various directions of the galactic radio signals. Variations in these signals are influenced by solar flare activity and geomagnetic storm and substorm processes.

- **ScintillationDetector**: An instrument which detects fluorescences of a material which is excited by high energy (ionizing) electromagnetic or charged particle radiation.

- **SearchCoil**: An instrument which measures the time variation of the magnetic flux threading a loop by measurement of the electric potential difference induced between the ends of the wire.

- **Sounder**: An instrument which measures the radiances from an object. A sounder may measure radiances at multiple spectral ranges.

- **SpacecraftPotentialControl**: An instrument to control the electric potential of a spacecraft with respect to the ambient plasma by emitting a variable current of positive ions.

- **SpectralPowerReceiver**: A radio receiver which determines the power spectral density of the electric or magnetic field, or both, at one or more frequencies.

- **Spectrometer**: An instrument that measures the component wavelengths of light (or other electromagnetic radiation) by splitting the light up into its component wavelengths.

- **TimeOfFlight**: An instrument which measures the time it takes for a particle to travel between two detectors.

- **Unspecified**: A value which is not provided.

- **WaveformReceiver**: A radio receiver which outputs the value of one or more components of the electric and/or magnetic field as a function of time.
### Element InvestigationName

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The name given to the contract or engagement which enabled the data to be produced. Each investigation is associated with a Principal Investigator or Guest Investigator who was responsible for the original proposal. For single PI missions each major subsystem having its own identified Team Leader may also be classed as an &quot;Investigation&quot; for the purposes of data archiving.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="Diagram.png" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type Instrument</td>
</tr>
<tr>
<td>Source</td>
<td><code>&lt;xsd:element name=&quot;InvestigationName&quot; type=&quot;xsd:string&quot;&gt;</code><a href="">xsd:annotation</a><code>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The name given to the contract or engagement which enabled the data to be produced. Each investigation is associated with a Principal Investigator or Guest Investigator who was responsible for the original proposal. For single PI missions each major subsystem having its own identified Team Leader may also be classed as an &quot;Investigation&quot; for the purposes of data archiving.&lt;/xsd:documentation&gt;</code>&lt;/xsd:annotation&gt;<code>&lt;/xsd:element&gt;</code></td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>

### Element OperatingSpan

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagram</td>
<td><img src="Diagram.png" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>OperatingSpan</td>
</tr>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Types Instrument, Observatory</td>
</tr>
<tr>
<td>Model</td>
<td>StartDate, StopDate{0,1}, Note*</td>
</tr>
<tr>
<td>Children</td>
<td>Note, StartDate, StopDate</td>
</tr>
<tr>
<td>Instance</td>
<td><code>&lt;OperatingSpan&gt;</code>&lt;StartDate&gt;({1,1})&lt;/StartDate&gt;<code>&lt;StopDate&gt;({0,1})&lt;/StopDate&gt;</code>&lt;Note&gt;({0,unbounded})&lt;/Note&gt;<code>&lt;/OperatingSpan&gt;</code></td>
</tr>
<tr>
<td>Source</td>
<td><code>&lt;xsd:element name=&quot;OperatingSpan&quot; type=&quot;OperatingSpan&quot;/&gt;</code></td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>

### Element ObservatoryID

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The identifier of an Observatory resource.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="Diagram.png" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
</tbody>
</table>
### Properties

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type</th>
<th>Instrument</th>
</tr>
</thead>
</table>

### Source

```xml
<xsd:element name="ObservatoryID" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The identifier of an Observatory resource.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Observatory

**Namespace**

http://www.spase-group.org/data/schema

**Diagram**

![Diagram of Observatory]

**Type**

Observatory

**Properties**

- content: complex

**Substitution Group**

- ResourceEntity

**Model**

ResourceID, ResourceHeader, ObservatoryGroupID*, Location, OperatingSpan[0,1], Extension*

**Children**

Extension, Location, ObservatoryGroupID, OperatingSpan, ResourceHeader, ResourceID

**Instance**

```xml
<Observatory>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
  <ObservatoryGroupID>(0,unbounded)</ObservatoryGroupID>
  <Location>(1,1)</Location>
  <OperatingSpan>(0,1)</OperatingSpan>
  <Extension>(0,unbounded)</Extension>
</Observatory>
```

### Source

```xml
<xsd:element name="Observatory" type="Observatory" substitutionGroup="ResourceEntity"/>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element ObservatoryGroupID

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

The identifier of an Observatory resource which the referring resource is a member of.

**Diagram**

![Diagram of ObservatoryGroupID]

**Type**

xsd:string

**Properties**

- content: simple
### Schema documentation for spase-2.2.1.xsd

#### Used by
<table>
<thead>
<tr>
<th>Complex Type</th>
<th>Observatory</th>
</tr>
</thead>
</table>

#### Source
```xml
<xsd:element name="ObservatoryGroupID" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The identifier of an Observatory resource which the
    referring resource is a member of.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

#### Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2.2.1.xsd

### Element Location

#### Namespace
http://www.spase-group.org/data/schema

#### Diagram
![Diagram of Location](image)

#### Type
Location

#### Properties
- content: complex

#### Used by
<table>
<thead>
<tr>
<th>Complex Type</th>
<th>Observatory</th>
</tr>
</thead>
</table>

#### Model
ObservatoryRegion+ , CoordinateSystemName{0,1} , Latitude{0,1} , Longitude{0,1} , Elevation{0,1}

#### Children
CoordinateSystemName, Elevation, Latitude, Longitude, ObservatoryRegion

#### Instance
```xml
<Location>
  <ObservatoryRegion>(1,unbounded)</ObservatoryRegion>
  <CoordinateSystemName>(0,1)</CoordinateSystemName>
  <Latitude>(0,1)</Latitude>
  <Longitude>(0,1)</Longitude>
  <Elevation>(0,1)</Elevation>
</Location>
```

#### Source
```xml
<xsd:element name="Location" type="Location"/>
```

#### Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2.2.1.xsd

### Element ObservatoryRegion

#### Namespace
http://www.spase-group.org/data/schema

#### Annotations
A spatial location distinguished by certain natural features or physical characteristics where an observatory is located.

#### Diagram
![Diagram of ObservatoryRegion](image)

#### Type
enumRegion

#### Properties
- content: simple

#### Facets
- **enumeration**: Asteroid
  A small extraterrestrial body consisting mostly of rock and metal that is in orbit around the sun.

- **enumeration**: Comet
  A relatively small extraterrestrial body consisting of a frozen mass that travels around the sun in a highly elliptical orbit.

- **enumeration**: Earth
  The third planet from the sun in our solar system.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth.Magnetosheath</td>
<td>The region between the bow shock and the magnetopause, characterized by very turbulent plasma.</td>
</tr>
<tr>
<td>Earth.Magnetosphere</td>
<td>The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Magnetotail</td>
<td>The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X &gt; -10Re).</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Main</td>
<td>The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.Polar</td>
<td>The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</td>
</tr>
<tr>
<td>Earth.Magnetosphere.RadiationBelt</td>
<td>The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</td>
</tr>
<tr>
<td>Earth.NearSurface</td>
<td>The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.</td>
</tr>
<tr>
<td>Earth.NearSurface.Atmosphere</td>
<td>Neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.</td>
</tr>
<tr>
<td>Earth.NearSurface.AuroralRegion</td>
<td>In the atmospheric where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.</td>
</tr>
<tr>
<td>Earth.NearSurface.EquatorialRegion</td>
<td>Centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator.</td>
</tr>
<tr>
<td>Earth.NearSurface.Ionosphere</td>
<td>Charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.</td>
</tr>
<tr>
<td>Earth.NearSurface.Ionosphere.FRegion</td>
<td>The ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.</td>
</tr>
<tr>
<td>Earth.NearSurface.Ionosphere.FRegion</td>
<td>The ionosphere. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</td>
</tr>
<tr>
<td>Earth.NearSurface.Ionosphere.Topside</td>
<td>Contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.</td>
</tr>
<tr>
<td>Earth.NearSurface.Ionosphere.ERegion</td>
<td>The region at the upper most areas of the ionosphere.</td>
</tr>
</tbody>
</table>

87
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth.NearSurface.Mesosphere</td>
<td>The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.</td>
</tr>
<tr>
<td>Earth.NearSurface.Plasmasphere</td>
<td>The magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.</td>
</tr>
<tr>
<td>Earth.NearSurface.PolarCap</td>
<td>The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude an the region south of 60 degrees south latitude.</td>
</tr>
<tr>
<td>Earth.NearSurface.SouthAtlanticAnomalyRegion</td>
<td>The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.</td>
</tr>
<tr>
<td>Earth.NearSurface.Stratosphere</td>
<td>The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.</td>
</tr>
<tr>
<td>Earth.NearSurface.Thermosphere</td>
<td>The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.</td>
</tr>
<tr>
<td>Earth.NearSurface.Troposphere</td>
<td>The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</td>
</tr>
<tr>
<td>Earth.Surface</td>
<td>The outermost area of a solid object.</td>
</tr>
<tr>
<td>Heliosphere</td>
<td>The solar atmosphere extending roughly from the outer corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.</td>
</tr>
<tr>
<td>Heliosphere.Heliosheath</td>
<td>The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</td>
</tr>
<tr>
<td>Heliosphere.Inner</td>
<td>The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</td>
</tr>
<tr>
<td>Heliosphere.NearEarth</td>
<td>The heliospheric region near the Earth which extends to and includes the area near the L1 and L2 Lagrange point.</td>
</tr>
<tr>
<td>Heliosphere.Outer</td>
<td>The region of the heliosphere extending radially outward from just outside 1 AU to the heliospheric termination shock.</td>
</tr>
<tr>
<td>Heliosphere.Remote1AU</td>
<td>A roughly toroidal region that includes the Earth's orbit, but exclusive of the region near the Earth.</td>
</tr>
<tr>
<td>Interstellar</td>
<td>The region between stars outside of the star's heliopause.</td>
</tr>
<tr>
<td>Jupiter</td>
<td>The fifth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mars</td>
<td>The forth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mercury</td>
<td>The first planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Neptune</td>
<td>The seventh planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Pluto</td>
<td>The ninth (sub)planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Saturn</td>
<td>The sixth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Sun</td>
<td>The star upon which our solar system is centered.</td>
</tr>
<tr>
<td>Sun.Chromosphere</td>
<td>The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 - 28000 K.</td>
</tr>
<tr>
<td>Sun.Corona</td>
<td>The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</td>
</tr>
<tr>
<td>Sun.Interior</td>
<td>The region inside the body which is not visible from outside the body.</td>
</tr>
<tr>
<td>Sun.Photosphere</td>
<td>The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.</td>
</tr>
<tr>
<td>Sun.TransitionRegion</td>
<td>A very narrow (~100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.</td>
</tr>
<tr>
<td>Uranus</td>
<td>The eighth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Venus</td>
<td>The second planet from the sun in our solar system.</td>
</tr>
</tbody>
</table>

**Element Latitude**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
The angular distance north (positive) or south (negative) from the equator, measured along the meridian passing through the point.

**Diagram**

**Type**
xsd:double

**Properties**
content: simple

**Source**

```
<xs:element name="Latitude" type="xsd:double">
  <xs:annotation>
    <xs:documentation xml:lang="en">The angular distance north (positive) or south (negative) from the equator, measured along the meridian passing through the point.</xs:documentation>
  </xs:annotation>
</xs:element>
```
### Element Longitude

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The angular distance measured west (positive) or east (negative) from a north-south line called the Prime Meridian.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="#" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:double</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type, Location</td>
</tr>
<tr>
<td>Source</td>
<td><code>&lt;xsd:element name=&quot;Longitude&quot; type=&quot;xsd:double&quot;&gt;</code><a href="">xsd:annotation</a>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The angular distance measured west (positive) or east (negative) from a north-south line called the Prime Meridian.&lt;/xsd:documentation&gt;&lt;/xsd:annotation&gt;`</td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>

### Element Elevation

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The distance in meters above (positive) or below (negative) the &quot;zero elevation&quot; defined by the World Geodetic System reference frame (WGS84).</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="#" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>xsd:double</td>
</tr>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type, Location</td>
</tr>
<tr>
<td>Source</td>
<td><code>&lt;xsd:element name=&quot;Elevation&quot; type=&quot;xsd:double&quot;&gt;</code><a href="">xsd:annotation</a>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The distance in meters above (positive) or below (negative) the &quot;zero elevation&quot; defined by the World Geodetic System reference frame (WGS84).&lt;/xsd:documentation&gt;&lt;/xsd:annotation&gt;`</td>
</tr>
<tr>
<td>Schema location</td>
<td>file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>

### Element Person

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
</table>

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Schema documentation for spase-2_2_1.xsd

Diagram

Type

Properties

Substitution Group

Affiliation

Model

Children

Instance

Source

Schema location

Element PersonName

Namespace

Annotations

Diagram

Type
Properties

| content: | simple |

Used by

| Complex Type | Person |

Source

```xml
<xsd:element name="PersonName" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The words used to address an individual.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element OrganizationName**

Namespace http://www.spase-group.org/data/schema

Annotations A unit within a company or other entity (e.g., Government agency or branch of service) within which many projects are managed as a whole.

Diagram

```
<complexType name="OrganizationName">
  <complexContent>
    <restriction base="xsd:string">
    </restriction>
  </complexContent>
</complexType>
```

Type xsd:string

Properties

| content: | simple |

Used by

| Complex Type | Person |

Source

```xml
<xsd:element name="OrganizationName" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A unit within a company or other entity (e.g., Government agency or branch of service) within which many projects are managed as a whole.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Address**

Namespace http://www.spase-group.org/data/schema

Annotations Directions for finding some location; written on letters or packages that are to be delivered to that location.

Diagram

```
<complexType name="Address">
  <complexContent>
    <restriction base="xsd:string">
    </restriction>
  </complexContent>
</complexType>
```

Type xsd:string

Properties

| content: | simple |

Used by

| Complex Type | Person |

Source

```xml
<xsd:element name="Address" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Directions for finding some location; written on letters or packages that are to be delivered to that location.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Element Email**

Namespace http://www.spase-group.org/data/schema

Annotations The electronic address at which the individual may be contacted expressed in the form "local-part@domain".

Diagram

```
<complexType name="Email">
  <complexContent>
    <restriction base="xsd:string">
    </restriction>
  </complexContent>
</complexType>
```

Type xsd:string
Element PhoneNumber

Namespace http://www.spase-group.org/data/schema

Annotations
The symbols and numerals required to contact an individual by telephone. The string may contain punctuation marks such as dash (-) or dot (.) to separate fields within the string.

Diagram

Type xsd:string

Properties content: simple

Used by Complex Type Person

Source

<xs:element name="PhoneNumber" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The symbols and numerals required to contact an individual by telephone. The string may contain punctuation marks such as dash (-) or dot (.) to separate fields within the string.</xs:documentation>
  </xs:annotation>
</xs:element>

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element FaxNumber

Namespace http://www.spase-group.org/data/schema

Annotations
The symbols and numerals required to send a facsimile (FAX) to an individual by telephone. The string may contain punctuation marks such as dash (-) or dot (.) to separate fields within the string.

Diagram

Type xsd:string

Properties content: simple

Used by Complex Type Person

Source

<xs:element name="FaxNumber" type="xsd:string">
  <xs:annotation>
    <xs:documentation xml:lang="en">The symbols and numerals required to send a facsimile (FAX) to an individual by telephone. The string may contain punctuation marks such as dash (-) or dot (.) to separate fields within the string.</xs:documentation>
  </xs:annotation>
</xs:element>

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Schema documentation for spase-2_2_1.xsd

Diagram

Type: Registry
Properties:
- content: complex

Substitution Group:
- Affiliation
  - ResourceEntity

Model:
- ResourceID, ResourceHeader, AccessURL, Extension*

Children:
- AccessURL, Extension, ResourceHeader, ResourceID

Instance:
```xml
<Registry>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
  <AccessURL>(1,1)</AccessURL>
  <Extension>(0,unbounded)</Extension>
</Registry>
```

Source:
```xml
<xsd:element name="Registry" type="Registry" substitutionGroup="ResourceEntity"/>
```

Schema location:
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Element Repository

Diagram

Type: Repository
Properties:
- content: complex

Substitution Group:
- Affiliation
  - ResourceEntity

Model:
- ResourceID, ResourceHeader, AccessURL, Extension*

Children:
- AccessURL, Extension, ResourceHeader, ResourceID

Instance:
```xml
<Repository>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
</Repository>
```
Element Service

Namespace  http://www.spase-group.org/data/schema

Diagram

Type  Service

Properties

Substitution Group  • ResourceEntity

Affiliation

Model  ResourceID, ResourceHeader, AccessURL, Extension*

Children  AccessURL, Extension, ResourceHeader, ResourceID

Instance

Source  <xsd:element name=Service type=Service substitutionGroup=ResourceEntity/>

Schema location  file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element Annotation

Namespace  http://www.spase-group.org/data/schema
**Schema documentation for spase-2_2_1.xsd**

**Diagram**

```
<Annotation>
  <ResourceID>(1,1)</ResourceID>
  <ResourceHeader>(1,1)</ResourceHeader>
  <ImageURL>(0,1)</ImageURL>
  <AnnotationType>(1,1)</AnnotationType>
  <PhenomenonType>(0,1)</PhenomenonType>
  <ClassificationMethod>(0,1)</ClassificationMethod>
  <ConfidenceRating>(0,1)</ConfidenceRating>
  <TimeSpan>(0,unbounded)</TimeSpan>
  <ObservationExtent>(0,unbounded)</ObservationExtent>
  <Extension>(0,unbounded)</Extension>
</Annotation>
```

**Source**

```
<xsd:element name="Annotation" type="Annotation" substitutionGroup="ResourceEntity"/>
```

**Schema location**

file:C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

**Element ImageURL**

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

A URL to graphic, image or movie.

**Diagram**

```
<ImageURL>
  <xsd:string/>
</ImageURL>
```

**Type**

xsd:string
Schema documentation for spase-2_2_1.xsd

Properties

<table>
<thead>
<tr>
<th>Properties</th>
<th>content:</th>
<th>simple</th>
</tr>
</thead>
</table>

Used by

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type</th>
<th>Annotation</th>
</tr>
</thead>
</table>

Source

```
<xsd:element name="ImageURL" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A URL to graphic, image or movie.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element AnnotationType

Namespace

http://www.spase-group.org/data/schema

Annotations

A classification for an annotation.

Diagram

```
Type
```

```
Properties
```

content: simple

Facets

<table>
<thead>
<tr>
<th>Facets</th>
<th>enumeration</th>
<th>Anomaly</th>
<th>An interval where measurements or observations may be adversely affected.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>enumeration</td>
<td>Event</td>
<td>An action or observation which occurs at a point in time.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>Feature</td>
<td>A prominent or distinctive characteristic that occurs at a location or persists over a period of time.</td>
</tr>
</tbody>
</table>

Used by

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type</th>
<th>Annotation</th>
</tr>
</thead>
</table>

Source

```
<xsd:element name="AnnotationType" type="enumAnnotationType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A classification for an annotation.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Element ClassificationMethod

Namespace

http://www.spase-group.org/data/schema

Annotations

The technique used to determine the characteristics of an object.

Diagram

```
Type
```

```
Properties
```

content: simple

Facets

<table>
<thead>
<tr>
<th>Facets</th>
<th>enumeration</th>
<th>Automatic</th>
<th>Determined by the analysis or assessment performed by a program or server.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>enumeration</td>
<td>Inferred</td>
<td>Determined by the analysis of other information or resources.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>Inspection</td>
<td>Determined by the analysis or assessment performed by a person.</td>
</tr>
</tbody>
</table>

Used by

<table>
<thead>
<tr>
<th>Used by</th>
<th>Complex Type</th>
<th>Annotation</th>
</tr>
</thead>
</table>

Source

```
<xsd:element name="ClassificationMethod" type="enumClassificationMethod">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The technique used to determine the characteristics of an object.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
```

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**Element ConfidenceRating**

**Namespace**  http://www.spase-group.org/data/schema

**Annotations**  A classification of the certainty of an assertion.

**Diagram**

<table>
<thead>
<tr>
<th>Type</th>
<th>enumConfidenceRating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: simple</td>
</tr>
<tr>
<td>Facets</td>
<td>enumeration Probable</td>
</tr>
<tr>
<td></td>
<td>Likely given the available evidence. Considered in the range of 4-7 on a scale of 0-10.</td>
</tr>
<tr>
<td></td>
<td>enumeration Strong</td>
</tr>
<tr>
<td></td>
<td>Highly likely given the available evidence. Considered in the range of 7-10 on a scale of 0-10.</td>
</tr>
<tr>
<td></td>
<td>enumeration Unlikely</td>
</tr>
<tr>
<td></td>
<td>Not likely given the available evidence. Considered in the range of 0 on a scale of 0-10.</td>
</tr>
<tr>
<td></td>
<td>enumeration Weak</td>
</tr>
<tr>
<td></td>
<td>Slightly likely given the available evidence. Considered in the range of 1-4 on a scale of 0-10.</td>
</tr>
</tbody>
</table>

**Used by**

Complex Type Annotation

**Source**

```xml
<xsd:element name="ConfidenceRating" type="enumConfidenceRating">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A classification of the certainty of an assertion.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
```

---

**Element ObservationExtent**

**Namespace**  http://www.spase-group.org/data/schema

**Diagram**

<table>
<thead>
<tr>
<th>Type</th>
<th>ObservationExtent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>content: complex</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type</td>
</tr>
<tr>
<td>Model</td>
<td>ObservedRegion[0,1], StartLocation, StopLocation, Note*</td>
</tr>
<tr>
<td>Children</td>
<td>Note, ObservedRegion, StartLocation, StopLocation</td>
</tr>
</tbody>
</table>

**Instance**

```xml
<ObservationExtent>
    <ObservedRegion>[0,1]</ObservedRegion>
    <StartLocation>[1,1]</StartLocation>
    <StopLocation>[1,1]</StopLocation>
    <Note>[0,unbounded]</Note>
</ObservationExtent>
```

**Source**

```xml
<xsd:element name="ObservationExtent" type="ObservationExtent"/>
```
### Element `StartLocation`  
**Namespace**  
http://www.spase-group.org/data/schema  
**Annotations**  
The initial position in space.  
**Diagram**  
![Diagram](image)  
**Type**  
`xsd:string`  
**Properties**  
content: simple  
**Used by**  
Complex Type ObservationExtent  
**Source**  
```xml  
<xsd:element name="StartLocation" type="xsd:string">  
  <xsd:annotation>  
    <xsd:documentation xml:lang="en">The initial position in space.</xsd:documentation>  
  </xsd:annotation>  
</xsd:element>  
```

### Element `StopLocation`  
**Namespace**  
http://www.spase-group.org/data/schema  
**Annotations**  
The final position in space.  
**Diagram**  
![Diagram](image)  
**Type**  
`xsd:string`  
**Properties**  
content: simple  
**Used by**  
Complex Type ObservationExtent  
**Source**  
```xml  
<xsd:element name="StopLocation" type="xsd:string">  
  <xsd:annotation>  
    <xsd:documentation xml:lang="en">The final position in space.</xsd:documentation>  
  </xsd:annotation>  
</xsd:element>  
```

### Element `RelativeStopDate`  
**Namespace**  
http://www.spase-group.org/data/schema  
**Annotations**  
An indication of the nominal end date relative to the present.  
**Diagram**  
![Diagram](image)  
**Type**  
`xsd:duration`  
**Properties**  
content: simple  
**Substitution Group Affiliation**  
• StopDateEntity  
**Source**  
```xml  
<xsd:element name="RelativeStopDate" type="xsd:duration" substitutionGroup="StopDateEntity">  
  <xsd:annotation>  
    <xsd:documentation xml:lang="en">An indication of the nominal end date relative to the present.</xsd:documentation>  
  </xsd:annotation>  
</xsd:element>  
```

---

Schema location  
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
### Complex Type(s)

#### Complex Type Spase

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

Space Physics Archive Search and Extract (SPASE). The outermost container or envelope for SPASE metadata. This indicates the start of the SPASE metadata.

**Diagram**

![Diagram for Spase](image)

**Used by**

Element Spase

**Model**

Version , ResourceEntity+

**Children**

ResourceEntity, Version

**Attributes**

<table>
<thead>
<tr>
<th>QName</th>
<th>Type</th>
<th>Fixed</th>
<th>Default</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>lang</td>
<td>xsd:string</td>
<td></td>
<td>en</td>
<td>optional</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xsd:complexType name="Spase">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Space Physics Archive Search and Extract (SPASE). The outermost container or envelope for SPASE metadata. This indicates the start of the SPASE metadata.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Version" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="ResourceEntity" minOccurs="1" maxOccurs="unbounded" />
  </xsd:sequence>
  <xsd:attribute name="lang" type="xsd:string" default="en" />
</xsd:complexType>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Complex Type Catalog

**Namespace**

http://www.spase-group.org/data/schema

**Annotations**

A tabular listing of events or observational notes, especially those that have utility in aiding a user in locating data. Catalogues include lists of events, files in a product, and data availability. A Catalog resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.

**Diagram**

![Diagram for Catalog](image)

**Source**

```xml
<xsd:complexType name="Catalog">
  <xsd:annotation>
    <xsd:documentation>
      A tabular listing of events or observational notes, especially those that have utility in aiding a user in locating data. Catalogues include lists of events, files in a product, and data availability. A Catalog resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.
    </xsd:documentation>
  </xsd:annotation>
</xsd:complexType>
```

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Schema documentation for spase-2_2_1.xsd

Diagram

Used by
Element
Catalog

Model
ResourceId, ResourceHeader, AccessInformation+, ProviderResourceName{0,1}, ProviderVersion{0,1}, InstrumentID*, PhenomenonType+, TimeSpan{0,1}, Caveats{0,1}, Keyword*, InputResourceID*, Parameter*, Extension*

Children

Source
<xsd:complexType name="Catalog">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A tabular listing of events or observational notes, especially those that have utility in aiding a user in locating data. Catalogues include lists of events, files in a product, and data availability. A Catalog resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceId" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AccessInformation" minOccurs="1" maxOccurs="unbounded"/>
    <xsd:element ref="ProviderResourceName" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="ProviderVersion" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="InstrumentID" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="PhenomenonType" minOccurs="1" maxOccurs="unbounded"/>
    <xsd:element ref="TimeSpan" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Caveats" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Keyword" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="InputResourceID" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="Parameter" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>

Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
**Complex Type ResourceHeader**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Attributes of a resource which pertain to the provider of the resource and descriptive information about the resource.

**Diagram**

![Diagram](image)

**Used by**
- Element ResourceHeader

**Model**
- ResourceName , AlternateName* , ReleaseDate , ExpirationDate{0,1} , Description , Acknowledgement{0,1} , Contact+ , InformationURL* , Association* , PriorID*

**Children**
- Acknowledgement , AlternateName , Association , Contact , Description , ExpirationDate , InformationURL , PriorID , ReleaseDate , ResourceName

**Source**
```xml
<xsd:complexType name="ResourceHeader">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Attributes of a resource which pertain to the provider of the resource and descriptive information about the resource.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceName" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AlternateName" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="ReleaseDate" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ExpirationDate" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Description" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Acknowledgement" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Contact" minOccurs="1" maxOccurs="unbounded"/>
    <xsd:element ref="InformationURL" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="Association" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="PriorID" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

**Schema location**
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Complex Type Contact**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
The person or organization who may be able to provide special assistance or serve as a channel for communication for additional information about a resource.
Complex Type InformationURL

Namespace: http://www.spase-group.org/data/schema

Annotations: Attributes of the method of acquiring additional information.

Diagram

Used by: Element  InformationURL

Model: Name{0,1} , URL , Description{0,1} , Language{0,1}

Children: Description, Language, Name, URL

Source:
```xml
<xsd:complexType name="InformationURL">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Attributes of the method of acquiring additional information.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Name" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="URL" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Description" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Language" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Complex Type Association

Namespace: http://www.spase-group.org/data/schema

Annotations: Attributes of a relationship a resource has with another resource.

Diagram

Used by: Element  Association

Model: AssociationID , AssociationType

Children: Note

Source:
```xml
<xsd:complexType name="Association">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Attributes of a relationship a resource has with another resource.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="AssociationID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AssociationType" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Note" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
Schema documentation for spase-2_2_1.xsd

Complex Type Association

Used by | Element | Association
---|---|---
Model | AssociationID[0,1], AssociationType[0,1], Note[0,1]
Children | AssociationID, AssociationType, Note
Source | <xsd:complexType name="Association">
Namespace | http://www.spase-group.org/data/schema
Annotations | Attributes of a relationship a resource has with another resource.
Diagram | ![Diagram of Association]
Used by | Element | AccessInformation
---|---|---
Model | RepositoryID, Availability[0,1], AccessRights[0,1], AccessURL+, Format, Encoding[0,1], DataExtent[0,1], Acknowledgement[0,1]
Children | AccessRights, AccessURL, Acknowledgement, Availability, DataExtent, Encoding, Format, RepositoryID
Source | <xsd:complexType name="AccessInformation">
Namespace | http://www.spase-group.org/data/schema
Annotations | Attributes of the resource which pertain to how to accessing the resource, availability and storage format.
Diagram | ![Diagram of AccessInformation]
Used by | Element | AccessURL
---|---|---
Model | AccessRights[0,1], AccessURL[0,1], Format, DataExtent[0,1], Encoding[0,1], RepositoryID
Children | AccessRights, AccessURL, Acknowledgement, Availability, DataExtent, Encoding, Format, RepositoryID
Source | <xsd:complexType name="AccessURL">
Namespace | http://www.spase-group.org/data/schema
Annotations

Attributes of the method for accessing a resource including a URL, name and description.

Diagram

Used by

Element AccessURL

Model

Name{0,1} , URL , Description{0,1} , Language{0,1}

Children

Description , Language , Name , URL

Source

<xsd:complexType name="AccessURL">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Attributes of the method for accessing a resource including a URL, name and description.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Name" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="URL" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Description" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Language" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>

Complex Type DataExtent

Namespace http://www.spase-group.org/data/schema

Annotations

The area of storage in a file system required to store the contents of a resource. The default units for data extent is bytes.

Diagram

Used by

Element DataExtent

Model

Quantity , Units{0,1} , Per{0,1}

Children

Per , Quantity , Units

Source

<xsd:complexType name="DataExtent">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The area of storage in a file system required to store the contents of a resource. The default units for data extent is bytes.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Quantity" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Units" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Per" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>

Complex Type TimeSpan

Namespace http://www.spase-group.org/data/schema

Annotations

The duration of an interval in time.
### Diagram

- **TimeSpan**
  - **StartDate**
  - **StopDateEntity**
  - **Note**

### Used by

- **Element**: `TimeSpan`
- **Model**: `StartDate`, `StopDateEntity`, `Note*`
- **Children**: `Note`, `StartDate`, `StopDateEntity`

### Source

```xml
<xsd:complexType name="TimeSpan">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The duration of an interval in time.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="StartDate" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="StopDateEntity" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Note" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

### Schema location

`file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd`

### Complex Type Parameter

- **Namespace**: `http://www.spase-group.org/data/schema`
- **Annotations**: A container of information regarding a parameter whose values are part of the product. Every product contains or can be related to one or more parameters.
Diagram

Used by | Element | Parameter
---|---|---
Model | Name, Set, ParameterKey, Description, Caveats, Cadence, Units, UnitsConversion, CoordinateSystem, RenderingHints, Structure, ValidMin, ValidMax, FillValue, ParameterEntity
Children | Cadence, Caveats, CoordinateSystem, Description, FillValue, Name, ParameterEntity, ParameterKey, RenderingHints, Set, Structure, Units, UnitsConversion, ValidMax, ValidMin

Source
```xml
<xsd:complexType name="Parameter">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A container of information regarding a parameter whose values are part of the product. Every product contains or can be related to one or more parameters.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Name" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Set" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="ParameterKey" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Description" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Caveats" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Cadence" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Units" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="UnitsConversion" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="CoordinateSystem" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="RenderingHints" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="Structure" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="ValidMin" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="ValidMax" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="FillValue" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="ParameterEntity" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```
**Complex Type CoordinateSystem**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: The specification of the orientation of a set of (typically) orthogonal base axes.
- **Diagram**: [Diagram of CoordinateSystem]

**Used by**
- Element: CoordinateSystem

**Model**
- CoordinateRepresentation{0,1}, CoordinateSystemName{0,1}

**Children**
- CoordinateRepresentation, CoordinateSystemName

**Source**
```xml
<xsd:complexType name="CoordinateSystem">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The specification of the orientation of a set of (typically) orthogonal base axes.</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
        <xsd:element ref="CoordinateRepresentation" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="CoordinateSystemName" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>
```

---

**Complex Type RenderingHints**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: Attributes to aid in the rendering of parameter.
- **Diagram**: [Diagram of RenderingHints]

**Used by**
- Element: RenderingHints

**Model**
- DisplayType{0,1}, AxisLabel{0,1}, RenderingAxis{0,1}, Index{0,1}, ValueFormat{0,1}, ScaleMin{0,1}, ScaleMax{0,1}, ScaleType{0,1}

**Children**
- AxisLabel, DisplayType, Index, RenderingAxis, ScaleMax, ScaleMin, ScaleType, ValueFormat

**Source**
```xml
<xsd:complexType name="RenderingHints">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Attributes to aid in the rendering of parameter.</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
        <xsd:element ref="DisplayType" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="AxisLabel" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="RenderingAxis" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="Index" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="ValueFormat" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="ScaleMin" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="ScaleMax" minOccurs="0" maxOccurs="1"/>
        <xsd:element ref="ScaleType" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>
```
<xsd:element ref="Index" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ValueFormat" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ScaleMin" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ScaleMax" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ScaleType" minOccurs="0" maxOccurs="1"/>
</xsd:sequence>
</xsd:complexType>

Complex Type Structure

Namespace | http://www.spase-group.org/data/schema
Annotations | The organization and relationship of individual values within a quantity.

Diagram

Used by | Element  | Structure
Model | Size(0,1) , Description(0,1) , Element*
Children | Description, Element, Size

Source
<xsd:complexType name="Structure">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The organization and relationship of individual values within a quantity.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Size" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Description" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Element" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>

Complex Type Element

Namespace | http://www.spase-group.org/data/schema
Annotations | A component or individual unit of a multiple value quantity such as an array or vector.

Diagram
Schema documentation for spase-2_2_1.xsd

Used by | Element | Element
---|---|---
Model | Name, Qualifier*, Index, ParameterKey{0,1}, Units{0,1}, UnitsConversion{0,1}, ValidMin{0,1}, ValidMax{0,1}, FillValue{0,1} |  
Children | FillValue, Index, Name, ParameterKey, Qualifier, Units, UnitsConversion, ValidMax, ValidMin |

### Source
```
<xsd:complexType name="Element">  
  <xsd:annotation>  
    <xsd:documentation xml:lang="en">A component or individual unit of a multiple value quantity such as an array or vector.</xsd:documentation>  
  </xsd:annotation>  
  <xsd:sequence>  
    <xsd:element ref="Name" minOccurs="1" maxOccurs="1"/>  
    <xsd:element ref="Qualifier" minOccurs="0" maxOccurs="unbounded"/>  
    <xsd:element ref="Index" minOccurs="1" maxOccurs="1"/>  
    <xsd:element ref="ParameterKey" minOccurs="0" maxOccurs="1"/>  
    <xsd:element ref="Units" minOccurs="0" maxOccurs="1"/>  
    <xsd:element ref="UnitsConversion" minOccurs="0" maxOccurs="1"/>  
    <xsd:element ref="ValidMin" minOccurs="0" maxOccurs="1"/>  
    <xsd:element ref="ValidMax" minOccurs="0" maxOccurs="1"/>  
    <xsd:element ref="FillValue" minOccurs="0" maxOccurs="1"/>  
  </xsd:sequence>  
</xsd:complexType>
```

### Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Complex Type Extension

#### Namespace
http://www.spase-group.org/data/schema

#### Annotations
A container of other metadata which is not part of the SPASE data model. The contents of this element are defined by individual usage. The organization and content are constrained by the implementation. For example, in an XML representation of the SPASE metadata the content must conform to the XML specifications.

#### Diagram

Used by | Element | Extension
---|---|---
Model | ANY element from ANY namespace |

#### Source
```
<xsd:complexType name="Extension">  
  <xsd:annotation>  
    <xsd:documentation xml:lang="en">A container of other metadata which is not part of the SPASE data model. The contents of this element are defined by individual usage. The organization and content are constrained by the implementation. For example, in an XML representation of the SPASE metadata the content must conform to the XML specifications.</xsd:documentation>  
  </xsd:annotation>  
  <xsd:sequence>  
    <xsd:any minOccurs="0" maxOccurs="unbounded"/>  
  </xsd:sequence>  
</xsd:complexType>
```

### Schema location
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Complex Type Field

#### Namespace
http://www.spase-group.org/data/schema

#### Annotations
The space around a radiating body within which its electromagnetic attributes can exert force on another similar body that is not in direct contact.

#### Diagram

Used by | Element | Field
---|---|---
Model | Qualifier*, FieldQuantity, FrequencyRange{0,1}
---|---
Children | FieldQuantity, FrequencyRange, Qualifier

### Source

```
<xsd:complexType name="Field">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The space around a radiating body within which its electromagnetic attributes can exert force on another similar body that is not in direct contact. </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Qualifier" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="FieldQuantity" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="FrequencyRange" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

### Complex Type FrequencyRange

#### Namespace

http://www.spase-group.org/data/schema

#### Annotations

The range of possible values for the observed frequency.

#### Diagram

![Diagram of FrequencyRange]

#### Used by

Element FrequencyRange

#### Model

SpectralRange{0,1}, Low, High, Units, Bin*

#### Children

Bin, High, Low, SpectralRange, Units

### Source

```
<xsd:complexType name="FrequencyRange">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The range of possible values for the observed frequency. </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="SpectralRange" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Low" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="High" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Units" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Bin" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

### Complex Type Bin

#### Namespace

http://www.spase-group.org/data/schema

#### Annotations

A grouping of observations according to a band or window of a common attribute.

#### Diagram

![Diagram of Bin]

#### Used by

Element Bin
### Model

<table>
<thead>
<tr>
<th>BandName{0,1}, Low, High</th>
</tr>
</thead>
</table>

### Children

<table>
<thead>
<tr>
<th>BandName, High, Low</th>
</tr>
</thead>
</table>

### Source

```
<xsd:complexType name="Bin">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A grouping of observations according to a band or window of a common attribute.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="BandName" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Low" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="High" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Complex Type Particle

#### Namespace

http://www.spase-group.org/data/schema

#### Annotations

A description of the types of particles observed in the measurement. This includes both direct observations and inferred observations.

#### Diagram

![Diagram of Particle with types and elements](attachment:particle_diagram.png)

#### Used by

Element Particle

#### Model

ParticleType+, Qualifier*, ParticleQuantity, AtomicNumber*, EnergyRange{0,1}, AzimuthalAngleRange{0,1}, PolarAngleRange{0,1}

#### Children

AtomicNumber, AzimuthalAngleRange, EnergyRange, ParticleQuantity, ParticleType, PolarAngleRange, Qualifier

#### Source

```
<xsd:complexType name="Particle">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A description of the types of particles observed in the measurement. This includes both direct observations and inferred observations.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ParticleType" minOccurs="1" maxOccurs="unbounded"/>
    <xsd:element ref="Qualifier" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="ParticleQuantity" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AtomicNumber" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="EnergyRange" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="AzimuthalAngleRange" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="PolarAngleRange" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

### Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Complex Type EnergyRange

#### Namespace

http://www.spase-group.org/data/schema

#### Annotations

The minimum and maximum energy values of the particles represented by a given "physical parameter" description.
Source

<xs:complexType name="EnergyRange">
  <xs:annotation>
    <xs:documentation xml:lang="en">The minimum and maximum energy values of the particles represented by a given "physical parameter" description.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element ref="Low" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="High" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="Units" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="Bin" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

Complex Type AzimuthalAngleRange

Namespace http://www.spase-group.org/data/schema

Annotations The range of possible azimuthal angles for a group of energy observations. Default units are degrees.

Source

<xs:complexType name="AzimuthalAngleRange">
  <xs:annotation>
    <xs:documentation xml:lang="en">The range of possible azimuthal angles for a group of energy observations. Default units are degrees.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element ref="Low" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="High" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="Units" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="Bin" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

Complex Type PolarAngleRange

Namespace http://www.spase-group.org/data/schema

Annotations The range of possible polar angles for a group of energy observations. Defaults units are
### Complex Type `PolarAngleRange`

**Model**
- Low
- High
- Units
- Bin

**Source**
```
<xsd:complexType name="PolarAngleRange">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The range of possible polar angles for a group of energy observations. Defaults units are degrees.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="Low" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="High" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="Units" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="Bin" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

**Schema location**
`file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd`

### Complex Type `Wave`

**Namespace**
`http://www.spase-group.org/data/schema`

**Annotations**
Periodic or quasi-periodic (AC) variations of physical quantities in time and space, capable of propagating or being trapped within particular regimes.

**Source**
```
<xsd:complexType name="Wave">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Periodic or quasi-periodic (AC) variations of physical quantities in time and space, capable of propagating or being trapped within particular regimes.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="WaveType" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="Qualifier" minOccurs="0" maxOccurs="unbounded" />
    <xsd:element ref="WaveQuantity" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="EnergyRange" minOccurs="0" maxOccurs="1" />
    <xsd:element ref="FrequencyRange" minOccurs="0" maxOccurs="1" />
    <xsd:element ref="WavelengthRange" minOccurs="0" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>
```

**Diagram**

**Used by**
- Element: `Wave`

**Children**
- `WaveType`
- `Qualifier`
- `WaveQuantity`
- `EnergyRange`
- `FrequencyRange`
- `WavelengthRange`

**Model**
- `WaveType`
- `Qualifier`*
- `WaveQuantity`
- `EnergyRange{0,1}`
- `FrequencyRange{0,1}`
- `WavelengthRange{0,1}`

**Schema location**
`file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd`
Complex Type **WavelengthRange**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
The range of possible values for the observed wavelength.

**Diagram**
![Diagram of WavelengthRange]

**Used by**
- **Element**  
  - WavelengthRange

**Model**
SpectralRange(0,1), Low, High, Units, Bin*

**Children**
- Bin, High, Low, SpectralRange, Units

**Source**
```xml
<xsd:complexType name="WavelengthRange">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The range of possible values for the observed wavelength.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="SpectralRange" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Low" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="High" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Units" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Bin" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

**Complex Type **Mixed**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
A parameter derived from more than one of the type of parameter. For example, plasma beta, the ratio of plasma particle energy density to the energy density of the magnetic field permeating the plasma, is "mixed."

**Diagram**
![Diagram of Mixed]

**Used by**
- **Element**  
  - Mixed

**Model**
MixedQuantity , ParticleType*, Qualifier*

**Children**
MixedQuantity, ParticleType, Qualifier

**Source**
```xml
<xsd:complexType name="Mixed">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A parameter derived from more than one of the type of parameter. For example, plasma beta, the ratio of plasma particle energy density to the energy density of the magnetic field permeating the plasma, is "mixed."</xsd:documentation>
  </xsd:annotation>
</xsd:complexType>
```
Complex Type Support

Namespace | http://www.spase-group.org/data/schema
Annotations | Information useful in understanding the context of an observation, typically observed or measured coincidentally with a physical observation.

Diagram

Used by | Element, Support
Model | Qualifier*, SupportQuantity
Children | Qualifier, SupportQuantity

Complex Type DisplayData

Namespace | http://www.spase-group.org/data/schema
Annotations | A graphical representation of data wherein the underlying numeric values are not (readily) accessible for analysis. Examples are line plots and spectrograms. A Display Data resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.
Diagram

Used by: DisplayData

Model:
- ResourceID
- ResourceHeader
- AccessInformation
- ProcessingLevel
- ProviderResourceName
- ProviderProcessingLevel
- ProviderVersion
- InstrumentID
- MeasurementType
- TemporalDescription
- SpectralRange
- DisplayCadence
- ObservedRegion
- Parameter
- Extension

Children:
- AccessInformation
- Caveats
- DisplayCadence
- Extension
- InputResourceID
- InstrumentID
- Keyword
- MeasurementType
- ObservedRegion
- Parameter
- ProcessingLevel
- ProviderProcessingLevel
- ProviderResourceName
- ProviderVersion
- ResourceHeader
- ResourceID
- SpectralRange
- TemporalDescription

Source:
```xml
<xs:complexType name="DisplayData">
  <xs:annotation>
    <xs:documentation xml:lang="en">A graphical representation of data wherein the underlying numeric values are not (readily) accessible for analysis. Examples are line plots and spectrograms. A Display Data resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
    <xs:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>
```
<xsd:element ref="AccessInformation" minOccurs="1" maxOccurs="unbounded"/>
<xsd:element ref="ProcessingLevel" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ProviderResourceName" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ProviderProcessingLevel" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="InstrumentID" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="MeasurementType" minOccurs="1" maxOccurs="unbounded"/>
<xsd:element ref="TemporalDescription" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="SpectralRange" minOccurs="0" maxOccurs="unbounded"/>
<xsd:element ref="DisplayCadence" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="ObservedRegion" minOccurs="0" maxOccurs="unbounded"/>
<xsd:element ref="Caveats" minOccurs="0" maxOccurs="1"/>
<xsd:element ref="Keyword" minOccurs="0" maxOccurs="unbounded"/>
<xsd:element ref="InputResourceID" minOccurs="0" maxOccurs="unbounded"/>
<xsd:element ref="Parameter" minOccurs="0" maxOccurs="unbounded"/>
<xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
</xsd:sequence>
</xsd:complexType>

Complex Type TemporalDescription

Namespace http://www.spase-group.org/data/schema
Annotations A characterization of the time over which the measurement was taken.
Diagram
Used by Element TemporalDescription
Model TimeSpan , Cadence[0,1] , Exposure[0,1]
Children Cadence, Exposure, TimeSpan
Source

Complex Type NumericalData

Namespace http://www.spase-group.org/data/schema
Annotations Data stored as numerical values in a specified format. A Numerical Data resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.
Data stored as numerical values in a specified format. A Numerical Data resource is a type of "data product" which is a set of data that is uniformly processed and formatted, from one or more instruments, typically spanning the full duration of the observations of the relevant instrument(s). A data product may consist of a collection of granules of successive time spans, but may be a single high-level entity.
Complex Type Document

Namespace http://www.spase-group.org/data/schema

Annotations A set of information designed and presented as an individual entity. A document may contain plain or formatted text, in-line graphics, sound, other multimedia data, or hypermedia references. Some examples of documents include a paper, letter, book, user guide, map, drawing, photograph, or image.

Diagram

Used by Element Document

Model ResourceID, ResourceHeader, AccessInformation+, Keyword*, DocumentType, InputResourceID*

Children AccessInformation, DocumentType, InputResourceID, Keyword, ResourceHeader, ResourceID

Source <xsd:complexType name="Document">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A set of information designed and presented as an individual entity. A document may contain plain or formatted text, in-line graphics, sound, other multimedia data, or hypermedia references. Some examples of documents include a paper, letter, book, user guide, map, drawing, photograph, or image.</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
        <xsd:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="AccessInformation" minOccurs="1" maxOccurs="unbounded"/>
        <xsd:element ref="Keyword" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element ref="DocumentType" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="InputResourceID" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
</xsd:complexType>

Complex Type Granule

Namespace http://www.spase-group.org/data/schema

Annotations An accessible portion of another resource. A Granule may be composed of one or more physical pieces (files) which are considered inseparable. For example, a data storage format that maintains
Schema documentation for spase-2_2_1.xsd

metadata and binary data in separate, but tightly coupled files. Granules should not be used to group files that have simple relationships or which are associated through a parent resource. For example, each file containing a time interval data for a Numerical Data resource would each be considered a Granule. The ParentID of a Granule resource must be a NumericalData resource. The attributes of a Granule supersede the corresponding attributes in the NumericalData resource.

Diagram

![Diagram](image.png)

<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
<th>Granule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>ResourceID, ReleaseDate, ExpirationDate[0,1], ParentID, PriorID*, StartDate, StopDate, Source+</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>ExpirationDate, ParentID, PriorID, ReleaseDate, ResourceID, Source, StartDate, StopDate</td>
<td></td>
</tr>
</tbody>
</table>

Source

```xml
<xsd:complexType name="Granule">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An accessible portion of another resource. A Granule may be composed of one or more physical pieces (files) which are considered inseparable. For example, a data storage format that maintains metadata and binary data in separate, but tightly coupled files. Granules should not be used to group files that have simple relationships or which are associated through a parent resource. For example, each file containing a time interval data for a Numerical Data resource would each be considered a Granule. The ParentID of a Granule resource must be a NumericalData resource. The attributes of a Granule supersede the corresponding attributes in the NumericalData resource.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ReleaseDate" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ExpirationDate" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="ParentID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="PriorID" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="StartDate" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="StopDate" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Source" minOccurs="1" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Complex Type Source

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>The location and attributes of an object.</td>
</tr>
</tbody>
</table>
Diagram

Used by

Model

Children

Source

Namespace

Annotations

Diagram

Used by

Model

Children

Source

Namespace

Annotations
Diagram

Schema documentation for spase-2_2_1.xsd

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Diagram

Used by

Element

Instrument

Model

ResourceId , ResourceHeader , InstrumentType+ , InvestigationName+ , OperatingSpan[0,1] , ObservatoryID , Caveats[0,1] , Extension*

Children

Caveats , Extension , InstrumentType , InvestigationName , ObservatoryID , OperatingSpan , ResourceHeader , ResourceID

Source

<xsd:complexType name="Instrument">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A device that makes measurements used to characterize a physical phenomenon, or a family of like devices.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceId" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="InstrumentType" minOccurs="1" maxOccurs="unbounded" />
    <xsd:element ref="InvestigationName" minOccurs="1" maxOccurs="unbounded" />
    <xsd:element ref="OperatingSpan" minOccurs="0" maxOccurs="1" />
    <xsd:element ref="ObservatoryID" minOccurs="1" maxOccurs="1" />
    <xsd:element ref="Caveats" minOccurs="0" maxOccurs="1" />
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>

Schema location

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Complex Type OperatingSpan

Namespace

http://www.spase-group.org/data/schema

Annotations

The interval in time from the first point at which an instrument or spacecraft was producing and sending data until the last such time, ignoring possible gaps.

Diagram

Used by

Element

OperatingSpan

Model

StartDate , StopDate[0,1] , Note*

Children

Note , StartDate , StopDate

Source

<xsd:complexType name="OperatingSpan">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The interval in time from the first point at which an instrument or spacecraft was producing and sending data until the last such time, ignoring possible gaps.</xsd:documentation>
  </xsd:annotation>
</xsd:complexType>
Complex Type Observatory

Annotations
The host (spacecraft, network, facility) for instruments making observations, or a family of closely related hosts.

Diagram

Used by
Element
Observatory

Model
ResourceId, ResourceHeader, ObservatoryGroupID*, Location, OperatingSpan{0,1}, Extension*

Children
Extension, Location, ObservatoryGroupID, OperatingSpan, ResourceHeader, ResourceID

Source
<xsd:complexType name="Observatory">
  <xsd:documentation xml:lang="en">The host (spacecraft, network, facility) for instruments making observations, or a family of closely related hosts.</xsd:documentation>
  <xsd:sequence>
    <xsd:element ref="ResourceId" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ObservatoryGroupID" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="Location" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="OperatingSpan" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
### Complex Type Person

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
An individual human being.

### Diagram

![Diagram of Person complex type]

**Used by** | **Element** | **Location**
---|---|---
**Model** | ObservatoryRegion+ , CoordinateSystemName{0,1} , Latitude{0,1} , Longitude{0,1} , Elevation{0,1} |
**Children** | CoordinateSystemName, Elevation, Latitude, Longitude, ObservatoryRegion |

**Source**
```
<xsd:complexType name="Person">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An individual human being.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ReleaseDate" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="PersonName" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="OrganizationName" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Address" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Email" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="PhoneNumber" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element ref="FaxNumber" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Note" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```
Schema documentation for spase-2_2_1.xsd

Complex Type Registry

Namespace  http://www.spase-group.org/data/schema
Annotations  A location or facility where resources are cataloged.

Diagram

- Used by: Element Registry
- Model: ResourceID, ResourceHeader, AccessURL, Extension*
- Children: AccessURL, Extension, ResourceHeader, ResourceID

Source

```xml
<xsd:complexType name="Registry">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A location or facility where resources are cataloged.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AccessURL" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

Complex Type Repository

Namespace  http://www.spase-group.org/data/schema
Annotations  A location or facility where resources are stored.

Diagram

- Used by: Element Repository
- Model: ResourceID, ResourceHeader, AccessURL, Extension*
- Children: AccessURL, Extension, ResourceHeader, ResourceID

Source

```xml
<xsd:complexType name="Repository">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A location or facility where resources are stored.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ResourceID" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="ResourceHeader" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="AccessURL" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```
Complex Type Service

Namespace | http://www.spase-group.org/data/schema
Annotations | A location or facility that can perform a well defined task.

Diagram

Used by | Element Service
Model | ResourceID, ResourceHeader, AccessURL, Extension*
Children | AccessURL, Extension, ResourceHeader, ResourceID

Source

Complex Type Annotation

Namespace | http://www.spase-group.org/data/schema
Annotations | Information which is explanatory or descriptive which is associated with another resource.

Diagram
### Complex Type ObservationExtent

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
The spatial area encompassed by an observation.

**Diagram**
![ObservationExtent Diagram](image)

**Used by**
- Element: ObservationExtent

**Model**
ObservedRegion{0,1}, StartLocation, StopLocation, Note*

**Children**
- Note, ObservedRegion, StartLocation, StopLocation

**Source**
```xml
<xsd:complexType name="ObservationExtent">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The spatial area encompassed by an observation.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element ref="ObservedRegion" minOccurs="0" maxOccurs="1"/>
    <xsd:element ref="StartLocation" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="StopLocation" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="Note" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

**Schema location**
file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

---

### Simple Type(s)

#### Simple Type enumVersion

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Version number.

**Diagram**
![enumVersion Diagram](image)

**Type**
restriction of xsd:string

**Facets**
enumeration

2.2.1

---

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Schema documentation for spase-2_2_1.xsd

<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
<th>Version</th>
</tr>
</thead>
</table>
| Source  | <xsd:simpleType name="enumVersion">  
|         | <xsd:annotation>  
|         | <xsd:documentation xml:lang="en">Version number.</xsd:documentation>  
|         | </xsd:annotation>  
|         | <xsd:restriction base="xsd:string">  
|         | <xsd:enumeration value="2.2.1"/>  
|         | </xsd:restriction>  
|         | </xsd:simpleType> |

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

Simple Type enumRole

Namespace http://www.spase-group.org/data/schema

Annotations Identifiers for the assigned or assumed function or position of an individual.

Diagram

Type restriction of xsd:string

Facets

<table>
<thead>
<tr>
<th>Facets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration ArchiveSpecialist</td>
<td>An individual who is an expert on a collection of resources and may also be knowledgeable of the phenomenon and related physics represented by the resources. This includes librarians, curators, archive scientists and other experts.</td>
</tr>
<tr>
<td>enumeration CoInvestigator</td>
<td>An individual who is a scientific peer and major participant in an investigation.</td>
</tr>
<tr>
<td>enumeration Contributor</td>
<td>An entity responsible for making contributions to the content of the resource.</td>
</tr>
<tr>
<td>enumeration DataProducer</td>
<td>An individual who generated the resource and is familiar with its provenance.</td>
</tr>
<tr>
<td>enumeration DeputyPI</td>
<td>An individual who is an administrative or scientific leader for an investigation operating under the supervision of a Principal Investigator.</td>
</tr>
<tr>
<td>enumeration FormerPI</td>
<td>An individual who had served as the administrative and scientific lead for an investigation, but no longer assumes that role.</td>
</tr>
<tr>
<td>enumeration GeneralContact</td>
<td>An individual who can provide information on a range of subjects or who can direct you to a domain expert.</td>
</tr>
<tr>
<td>enumeration MetadataContact</td>
<td>An individual who can affect a change in the metadata describing a resource.</td>
</tr>
<tr>
<td>enumeration PrincipalInvestigator</td>
<td>An individual who is the administrative and scientific lead for an investigation.</td>
</tr>
<tr>
<td>enumeration ProjectScientist</td>
<td>An individual who is an expert in the phenomenon and related physics explored by the project. A project scientist may also have a managerial role within the project.</td>
</tr>
<tr>
<td>enumeration Publisher</td>
<td>An individual, organization, institution or government department responsible for the production and dissemination of a document.</td>
</tr>
<tr>
<td>enumeration Scientist</td>
<td>An individual who is an expert in the phenomenon and related physics represented by the resource.</td>
</tr>
<tr>
<td>enumeration TeamLeader</td>
<td>An individual who is the designated leader of an investigation.</td>
</tr>
<tr>
<td>enumeration TeamMember</td>
<td>An individual who is a major participant in an investigation.</td>
</tr>
<tr>
<td>enumeration TechnicalContact</td>
<td>An individual who can provide specific information with regard to the resource or supporting</td>
</tr>
</tbody>
</table>
<xsd:simpleType name="enumRole">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the assigned or assumed function or position of an individual.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="ArchiveSpecialist">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is an expert on a collection of resources and may also be knowledgeable of the phenomenon and related physics represented by the resources. This includes librarians, curators, archive scientists and other experts.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="CoInvestigator">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is a scientific peer and major participant in an investigation.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Contributor">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An entity responsible for making contributions to the content of the resource.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DataProducer">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who generated the resource and is familiar with its provenance.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DeputyPI">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is an administrative or scientific leader for an investigation operating under the supervision of a Principal Investigator.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="FormerPI">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who had served as the administrative and scientific lead for an investigation, but no longer assumes that role.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="GeneralContact">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who can provide information on a range of subjects or who can direct you to a domain expert.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="MetadataContact">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who can affect a change in the metadata describing a resource.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="PrincipalInvestigator">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is the administrative and scientific lead for an investigation.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ProjectScientist">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is an expert in the phenomenon and related physics explored by the project. A project scientist may also have a managerial role within the project.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Publisher">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual, organization, institution or government department responsible for the production and dissemination of a document.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Scientist">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An individual who is an expert in the phenomenon and related physics explored by the project. A project scientist may also have a managerial role within the project.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
<xsd:annotation>
  <xsd:documentation xml:lang="en">An individual who is an expert in the phenomenon and related physics represented by the resource.</xsd:documentation>
</xsd:annotation>
<xsd:enumeration value="TeamLeader">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An individual who is the designated leader of an investigation.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="TeamMember">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An individual who is a major participant in an investigation.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="TechnicalContact">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An individual who can provide specific information with regard to the resource or supporting software.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>

Simple Type enumAssociationType

Namespace http://www.spase-group.org/data/schema
Annotations Identifiers for resource associations.
Diagram
Type restriction of xsd:string
Facets
| enumeration | ChildEventOf | A descendant or caused by another resource. |
| enumeration | DerivedFrom | A transformed or altered version of a resource instance. |
| enumeration | ObservedBy | Detected or originating from another resource. |
| enumeration | Other | Not classified with more specific terms. The context of its usage may be described in related text. |
| enumeration | PartOf | A portion of a larger resource. |
| enumeration | RevisionOf | A modified version of a resource instance. |

Used by

Source

Used by

Element AssociationType
Source

<xsd:simpleType name="enumAssociationType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for resource associations.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="ChildEventOf">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A descendant or caused by another resource.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DerivedFrom">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A transformed or altered version of a resource instance.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ObservedBy">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Detected or originating from another resource.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Other">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Not classified with more specific terms. The context of its usage may be described in related text.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
Not classified with more specific terms. The context of its usage may be described in related text.

A portion of a larger resource.

A modified version of a resource instance.

Not directly accessible electronically. This includes resources which may be moved to an on-line status in response to a given request.

Directly accessible electronically.

Identifiers for permissions granted or denied by the host of a product to allow other users to access and use the resource.

Access is granted to everyone.

Access to the product is regulated and requires some form of identification.
<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
<th>AccessRights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>&lt;xsd:simpleType name=&quot;enumAccessRights&quot;&gt;</td>
<td>&lt;/xsd:simpleType&gt;</td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
<td>Identifiers for permissions granted or denied by the host of a product to allow other users to access and use the resource. &lt;/xsd:annotation&gt;</td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
<td>&lt;/xsd:restriction&gt;</td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Open&quot;&gt;</td>
<td>Access is granted to everyone. &lt;/xsd:enumeration&gt;</td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Restricted&quot;&gt;</td>
<td>Access to the product is regulated and requires some form of identification. &lt;/xsd:enumeration&gt;</td>
</tr>
</tbody>
</table>

**Schema location**
file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Simple Type enumFormat**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for data organized according to preset specifications.

**Diagram**

<table>
<thead>
<tr>
<th>Facets</th>
<th>enumeration</th>
<th>AVI</th>
<th>Audio Video Interleave (AVI) a digital format for movies that conforms to the Microsoft Windows Resource Interchange File Format (RIFF).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>enumeration</td>
<td>Binary</td>
<td>A direct representation of the bits which may be stored in memory on a computer.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>CDF</td>
<td>Common Data Format (CDF). A binary storage format developed at Goddard Space Flight Center (GSFC).</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>CEF</td>
<td>Cluster Exchange Format (CEF) is a self-documenting ASCII format designed for the exchange of data. There are two versions of CEF which are not totally compatible.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>CEF1</td>
<td>Cluster Exchange Format (CEF), version 1, is a self-documenting ASCII format designed for the exchange of data. The metadata contains information compatible with the ISTF recommendations for CDF.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>CEF2</td>
<td>Cluster Exchange Format (CEF), version 2, is a self-documenting ASCII format designed for the exchange of data and introduced for Cluster Active Archive. Compared to version 1, the metadata description of vectors and tensors is different.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>Excel</td>
<td>A Microsoft spreadsheet format used to hold a variety of data in tables which can include calculations.</td>
</tr>
<tr>
<td></td>
<td>enumeration</td>
<td>FITS</td>
<td>Flexible Image Transport System (FITS) is a digital format primarily designed to store scientific data sets consisting of multi-dimensional arrays (1-D spectra, 2-D images or 3-D data cubes) and 2-dimensional tables containing rows and columns of data.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIF</td>
<td>GIF, Graphic Interchange Format (GIF) first introduced in 1987 by CompuServe. GIF uses LZW compression and images are limited to 256 colours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDF</td>
<td>Hierarchical Data Format</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDF4</td>
<td>Hierarchical Data Format, Version 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDF5</td>
<td>Hierarchical Data Format, Version 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTML</td>
<td>A text file containing structured information represented in the HyperText Mark-up Language (HTML). See <a href="http://www.w3.org/MarkUp/">http://www.w3.org/MarkUp/</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy</td>
<td>A permanent reproduction, or copy in the form of a physical object, of any media suitable for direct use by a person.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.Film</td>
<td>An image recording medium on which usually a &quot;negative&quot; analog image is registered. A &quot;positive&quot; image can be recovered or reproduced from film, which is usually made of flexible materials for ease of storage and transportation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.Microfiche</td>
<td>A sheet of microfilm on which many pages of material have been photographed; a magnification system is used to read the material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.Microfilm</td>
<td>Film rolls on which materials are photographed at greatly reduced size; a magnification system is used to read the material.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.Photograph</td>
<td>An image (positive or negative) registered on a piece of photo-sensitive paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.PhotographicPlate</td>
<td>A rigid (typically glass) medium that functions like film. Its rigidity is for guarding against image distortion due to medium deformation (caused by heat and humidity). Photographic plates are often used for astronomical photography.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardcopy.Print</td>
<td>A sheet of any written or printed material which may include notes or graphics. Multiple printed pages may be bound into a manuscript or book.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDFS</td>
<td>Instrument Data File Set (IDFS) is a set of files written in a prescribed format which contain data, timing data, and meta-data. IDFS was developed at Southwest Research Institute (SwRI).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDL</td>
<td>Interactive Data Language (IDL) save set. IDL is a proprietary format.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPEG</td>
<td>A binary format for still images defined by the Joint Photographic Experts Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATLAB_4</td>
<td>MATLAB Workspace save set, version 4. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATLAB_6</td>
<td>MATLAB Workspace save set, version 6. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATLAB_7</td>
<td>MATLAB Workspace save set, version 7. MAT-files are double-precision, binary, MATLAB format files. Version 7 includes data compression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and Unicode encoding. MATLAB is a proprietary product of The MathWorks.

**enumeration** MPEG  A digital format for movies defined by the Motion Picture Experts Group

**enumeration** NCAR  The National Center for Atmospheric Research (NCAR) format. A complete description of that standard is given in appendix C of the "Report on Establishment & Operation of the Incoherent-Scatter Data Base", dated August 23, 1984, obtainable from NCAR, P.O. Box 3000 Boulder, Colorado 80307-3000.

**enumeration** NetCDF  Unidata Program Center's Network Common Data Form (NetCDF). A self-describing portable data format for array-oriented data access. See <http://my.unidata.ucar.edu/content/software/netcdf>

**enumeration** PDF  A document expressed in the Portable Document Format (PDF) as defined by Adobe.

**enumeration** PNG  A digital format for still images. Portable Network Graphics (PNG)

**enumeration** Postscript  A page description programming language created by Adobe Systems Inc. that is a device-independent industry standard for representing text and graphics.

**enumeration** QuickTime  A format for digital movies, as defined by Apple Computer. See <http://developer.apple.com/quicktime/>

**enumeration** TIFF  A binary format for still pictures. Tagged Image Format File (TIFF). Originally developed by Aldus and now controlled by Adobe.

**enumeration** Text  A sequence of characters which may have an imposed structure or organization.

**enumeration** Text.ASCII  A sequence of characters that adheres to American Standard Code for Information Interchange (ASCII) which is an 7-bit character-coding scheme.

**enumeration** Text.Unicode  Text in multi-byte Unicode format.


**enumeration** VOTable  A proposed IVOA standard designed as a flexible storage and exchange format for tabular data.

**enumeration** XML  eXtensible Mark-up Language (XML). A structured format for representing information. See <http://www.w3.org/XML/>

---

**Table:**

<table>
<thead>
<tr>
<th>Source</th>
<th>Element</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
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<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
<td>&lt;xsd:enumeration value=&quot;AVI&quot;&gt;Audio Video Interleave (AVI) a digital format for movies that conforms to the Microsoft Windows Resource Interchange File Format (RIFF).&lt;</td>
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<td>&lt;/xsd:annotation&gt;</td>
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<xsd:enumeration value="HDF">
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    </xsd:annotation>
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        <xsd:documentation xml:lang="en">A text file containing structured information represented in the HyperText Mark-up Language (HTML). See <http://www.w3.org/MarkUp/>.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Hardcopy">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A permanent reproduction, or copy in the form of a physical object, of any media suitable for direct use by a person.</xsd:documentation>
    </xsd:annotation>
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<xs:enumeration value="Hardcopy.Film">
  <xs:annotation>
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  </xs:annotation>
</xs:enumeration>

<xs:enumeration value="Hardcopy.Microfiche">
  <xs:annotation>
    <xs:documentation xml:lang="en">A sheet of microfilm on which many pages of material have been photographed; a magnification system is used to read the material.</xs:documentation>
  </xs:annotation>
</xs:enumeration>

<xs:enumeration value="Hardcopy.Microfilm">
  <xs:annotation>
    <xs:documentation xml:lang="en">Film rolls on which materials are photographed at greatly reduced size; a magnification system is used to read the material.</xs:documentation>
  </xs:annotation>
</xs:enumeration>

<xs:enumeration value="Hardcopy.Photograph">
  <xs:annotation>
    <xs:documentation xml:lang="en">An image (positive or negative) registered on a piece of photo-sensitive paper</xs:documentation>
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</xs:enumeration>

<xs:enumeration value="Hardcopy.PhotographicPlate">
  <xs:annotation>
    <xs:documentation xml:lang="en">A rigid (typically glass) medium that functions like film. Its rigidity is for guarding against image distortion due to medium deformation (caused by heat and humidity). Photographic plates are often used for astronomical photography.</xs:documentation>
  </xs:annotation>
</xs:enumeration>

<xs:enumeration value="Hardcopy.Print">
  <xs:annotation>
    <xs:documentation xml:lang="en">A sheet of any written or printed material which may include notes or graphics. Multiple printed pages may be bound into a manuscript or book.</xs:documentation>
  </xs:annotation>
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  <xs:annotation>
    <xs:documentation xml:lang="en">Instrument Data File Set (IDFS) is a set of files written in a prescribed format which contain data, timing data, and meta-data. IDFS was developed at Southwest Research Institute (SwRI).</xs:documentation>
  </xs:annotation>
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<xs:enumeration value="IDL">
  <xs:annotation>
    <xs:documentation xml:lang="en">Interactive Data Language (IDL) save set. IDL is a proprietary format.</xs:documentation>
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</xs:enumeration>

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  <xs:annotation>
    <xs:documentation xml:lang="en">A binary format for still images defined by the Joint Photographic Experts Group</xs:documentation>
  </xs:annotation>
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    <xs:documentation xml:lang="en">MATLAB Workspace save set, version 4. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</xs:documentation>
  </xs:annotation>
</xs:enumeration>

<xs:enumeration value="MATLAB_6">
  <xs:annotation>
    <xs:documentation xml:lang="en">MATLAB Workspace save set, version 6. MAT-files are double-precision, binary, MATLAB format files. MATLAB is a proprietary product of The MathWorks.</xs:documentation>
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<xs:enumeration value="MATLAB_7">
  <xs:annotation>
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compression and Unicode encoding. MATLAB is a proprietary product of The MathWorks.</xsd:documentation>
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</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="PDF">
<xsd:annotation>
<xsd:documentation xml:lang="en">A document expressed in the Portable Document Format (PDF) as defined by Adobe.</xsd:documentation>
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</xsd:enumeration>
<xsd:enumeration value="PNG">
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</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Postscript">
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</xsd:enumeration>
<xsd:enumeration value="TIFF">
<xsd:annotation>
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</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Text">
<xsd:annotation>
<xsd:documentation xml:lang="en">A sequence of characters which may have an imposed structure or organization.</xsd:documentation>
</xsd:annotation>
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<xsd:enumeration value="Text.ASCII">
<xsd:annotation>
<xsd:documentation xml:lang="en">Text in American Standard Code for Information Interchange (ASCII) which is an 7-bit character-coding scheme.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
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</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UDF">
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</xsd:enumeration>
Simple Type `enumEncoding`

<table>
<thead>
<tr>
<th>Facets</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>ASCII</td>
<td>A sequence of characters that adheres to American Standard Code for Information Interchange (ASCII) which is an 8-bit character-coding scheme.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Base64</td>
<td>A data encoding scheme whereby binary-encoded data is converted to printable ASCII characters. It is defined as a MIME content transfer encoding for use in Internet e-mail. The only characters used are the upper- and lower-case Roman alphabet characters (A-Z, a-z), the numerals (0-9), and the &quot;*&quot; and &quot;/&quot; symbols, with the &quot;=&quot; symbol as a special suffix (padding) code.</td>
</tr>
<tr>
<td>enumeration</td>
<td>GZIP</td>
<td>An open standard algorithm distributed by GNU based on LZ77 and Huffman coding. See <a href="http://www.gnu.org/software/gzip/gzip.html">http://www.gnu.org/software/gzip/gzip.html</a> or <a href="http://www.gzip.org/">http://www.gzip.org/</a></td>
</tr>
<tr>
<td>enumeration</td>
<td>None</td>
<td>A lack or absence of anything.</td>
</tr>
<tr>
<td>enumeration</td>
<td>S3_BUCKET</td>
<td>A container of objects that comply with the Amazon Simple Storage Service (S3) specifications. A bucket has a unique, user-assigned key (name). A bucket can contain any number of objects with an aggregate size of 5 gigabytes. A bucket may be accompanied by up to 2 kilobytes of metadata.</td>
</tr>
<tr>
<td>enumeration</td>
<td>TAR</td>
<td>A file format used to collate collections of files into one larger file, for distribution or archiving, while preserving file system information such as user and group permissions, dates, and directory structures. The format was standardized by POSIX.1-1988 and later POSIX.1-2001.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Unicode</td>
<td>Text in multi-byte Unicode format.</td>
</tr>
<tr>
<td>enumeration</td>
<td>ZIP</td>
<td>An open standard for compression which is...</td>
</tr>
</tbody>
</table>
a variation of the LZW method and was originally used in the PKZIP utility.
## Simple Type `enumPhenomenonType`

<table>
<thead>
<tr>
<th>Facets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>enumeration</strong> <code>ActiveRegion</code></td>
<td>A localized, transient volume of the solar atmosphere in which PLAGES, SUNSPOTS, FACULAE, FLAREs, etc. may be observed.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>Aurora</code></td>
<td>An atmospheric phenomenon consisting of bands of light caused by charged solar particles following the earth's magnetic lines of force.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>BowShockCrossing</code></td>
<td>A crossing of the boundary between the undisturbed (except for foreshock effects) solar wind and the shocked, decelerated solar wind of the magnetosheath.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>CoronalHole</code></td>
<td>An extended region of the corona, exceptionally low in density and associated with unipolar photospheric regions. A coronal hole can be an &quot;open&quot; magnetic field in the corona and (perhaps) inner heliosphere which has a faster than average outflow (wind); A region of lower than &quot;quiet&quot; ion and electron density in the corona; or a region of lower peak electron temperature in the corona than in the &quot;quiet&quot; corona.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>CoronalMassEjection</code></td>
<td>A solar event (CME) that involves a burst of plasma ejected into the interplanetary medium. CME's may be observed remotely relatively near the sun or in situ in the interplanetary medium. The latter type of observations are often referred to as Interplanetary CME's (ICME's).</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>EITWave</code></td>
<td>A wave in the corona of the Sun which produce shock waves on the Sun's chromosphere (Moreton Waves). EIT Waves are produced by large solar flare and expand outward at about 1,000 km/s. It usually appears as a slowly moving diffuse arc of brightening in H-alpha, and may travel for several hundred thousand km.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>EnergeticSolarParticleEvent</code></td>
<td>An enhancement of interplanetary fluxes of energetic ions accelerated by interplanetary shocks and/or solar flares.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>ForbushDecrease</code></td>
<td>A rapid decrease in the observed galactic cosmic ray intensity following the passage of an outwardly convecting interplanetary magnetic field disturbance, such as those associated with large CME's, that sweep some galactic cosmic rays away from Earth.</td>
</tr>
<tr>
<td><strong>enumeration</strong> <code>GeomagneticStorm</code></td>
<td>A magnetospheric disturbance typically defined by variations in the horizontal component of the Earth's surface magnetic field. The variation typically starts with a field enhancement associated with a solar wind pressure pulse.</td>
</tr>
</tbody>
</table>
and continues with a field depression associated with an enhancement of the diamagnetic magnetospheric ring current.

| enumeration | InterplanetaryShock | A shock propagating generally anti-sunward through the slower solar wind, often seen in front of CME-associated plasma clouds. |
| enumeration | MagneticCloud | A transient event observed in the solar wind characterized as a region of enhanced magnetic field strength, smooth rotation of the magnetic field vector and low proton density and temperature. |
| enumeration | MagnetopauseCrossing | A crossing of the interface between the shocked solar wind in the magnetosheath and the magnetic field and plasma in the magnetosphere. |
| enumeration | RadioBurst | Emissions of the sun in radio wavelengths from centimeters to dekameters, under both quiet and disturbed conditions. Radio Bursts can be "Type I" consisting of many short, narrow-band bursts in the metric range (300 - 50 MHz); "Type II" consisting of narrow-band emission that begins in the meter range (300 MHz) and sweeps slowly (tens of minutes) toward dekameter wavelengths (10 MHz); "Type III" consisting of narrow-band bursts that sweep rapidly (seconds) from decimeter to dekameter wavelengths (500 - 0.5 MHz); and "Type IV" consisting of a smooth continuum of broad-band bursts primarily in the meter range (300 - 30 MHz). |
| enumeration | SolarFlare | An explosive event in the Sun's atmosphere which produces electromagnetic radiation across the electromagnetic spectrum at multiple wavelengths from long-wave radio to the shortest wavelength gamma rays. |
| enumeration | SolarWindExtreme | Intervals of unusually large or small values of solar wind attributes such as flow speed and ion density. |
| enumeration | StreamInteractionRegion | The region (SIR) where two solar wind streams, typically having differing characteristics and solar sources, abut up against (and possibly partially interpenetrate) each other. |
| enumeration | Substorm | A process by which plasma in the magnetotail becomes energized at a fast rate. |

<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
<th>PhenomenonType</th>
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</thead>
</table>
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|         | <xsd:restriction base="xsd:string">  
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|         | </xsd:annotation>  
|         | </xsd:enumeration>  
|         | <xsd:enumeration value="Aurora">  
|         | <xsd:annotation>  
|         | </xsd:enumeration>  
|         | </xsd:simpleType> |
An atmospheric phenomenon consisting of bands of light caused by charged solar particles following the Earth's magnetic lines of force.

A crossing of the boundary between the undisturbed (except for foreshock effects) solar wind and the shocked, decelerated solar wind of the magnetosheath.

An extended region of the corona, exceptionally low in density and associated with unipolar photospheric regions. A coronal hole can be an "open" magnetic field in the corona and (perhaps) inner heliosphere which has a faster than average outflow (wind); A region of lower than "quiet" ion and electron density in the corona; or a region of lower peak electron temperature in the corona than in the "quiet" corona.

A solar event (CME) that involves a burst of plasma ejected into the interplanetary medium. CME's may be observed remotely relatively near the sun or in situ in the interplanetary medium. The latter type of observations are often referred to as Interplanetary CME's (ICME's).

A wave in the corona of the Sun which produce shock waves on the Sun's chromosphere (Moreton Waves). EIT Waves are produced by large solar flare and expand outward at about 1,000 km/s. It usually appears as a slowly moving diffuse arc of brightening in H-alpha, and may travel for several hundred thousand km.

An enhancement of interplanetary fluxes of energetic ions accelerated by interplanetary shocks and/or solar flares.

A rapid decrease in the observed galactic cosmic ray intensity following the passage of an outwardly convecting interplanetary magnetic field disturbance, such as those associated with large CME's, that sweep some galactic cosmic rays away from Earth.

A magnetospheric disturbance typically defined by variations in the horizontal component of the Earth's surface magnetic field. The variation typically starts with a field enhancement associated with a solar wind pressure pulse and continues with a field depression associated with an enhancement of the diamagnetic magnetospheric ring current.

A shock propagating generally anti-sunward through the slower solar wind, often seen in front of CME-associated plasma clouds.

A transient event observed in the solar wind characterized as a region of enhanced magnetic field strength, smooth rotation of the magnetic field vector and low proton density and temperature.

A crossing of the interface between the shocked solar wind in the magnetosheath and the magnetic field and plasma in the magnetosphere.
An explosive event in the Sun’s atmosphere which produces electromagnetic radiation across the electromagnetic spectrum at multiple wavelengths from long-wave radio to the shortest wavelength gamma rays.

Intervals of unusually large or small values of solar wind attributes such as flow speed and ion density.

The region (SIR) where two solar wind streams, typically having differing characteristics and solar sources, abut up against (and possibly partially interpenetrate) each other.

A process by which plasma in the magnetotail becomes energized at a fast rate.

A representation in which a position vector or a measured vector (e.g., field or flow) is specified by its components along the base axes of the coordinate system.

A coordinate representation of a position vector or measured vector (field or flow) by its k-component, the magnitude of its projection into the i-j plane, and the azimuthal angle of the i-j plane projection.

A coordinate representation of a position vector or of a measured vector by its magnitude and two direction angles. The angles are relative to the base axes of the coordinate system used. Typically the angles are phi [azimuth angle, arctan (j/i)] and theta, where theta may be a polar angle, arctan ((SQRT(i^2+j^2))/k), or an elevation angle, arctan [k/SQRT (i^2+j^2)].
Used by | Element | CoordinateRepresentation
---|---|---
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 | | `<xsd:documentation xml:lang="en">A coordinate representation of a position vector or measured vector (field or flow) by its k-component, the magnitude of its projection into the i-j plane, and the azimuthal angle of the i-j plane projection.</xsd:documentation>`
 | `<xsd:enumeration value="Spherical">` | `<xsd:annotation>`
 | | `<xsd:documentation xml:lang="en">A coordinate representation of a position vector or of a measured vector by its magnitude and two direction angles. The angles are relative to the base axes of the coordinate system used. Typically the angles are phi [azimuth angle, =arctan (j/i)] and theta, where theta may be a polar angle, arctan ([SQRT(i^2+j^2)]/k), or an elevation angle, arctan (k/[SQRT (i^2+j^2)]).</xsd:documentation>`

**Simple Type enumCoordinatesSystemName**

- **Namespace**: http://www.spase-group.org/data/schema
- **Annotations**: Identifiers of the origin and orientation of a set of typically orthogonal axes.
- **Diagram**: 📊
- **Type**: restriction of xsd:string
- **Facets**
  - **enumeration**: CGM
    - Corrected Geomagnetic - A coordinate system from a spatial point with GEO radial distance and geomagnetic latitude and longitude, follow the epoch-appropriate IGRF/DGRF model field vector through to the point where the field line crosses the geomagnetic dipole equatorial plane. Then trace the dipole magnetic field vector Earthward from that point on the equatorial plane, in the same hemisphere as the original point, until the initial radial distance is reached. Designate the dipole latitude and longitude at that point as the CGM latitude and longitude of the original point. See [http://nssdc.gsfc.nasa.gov/space/cgm/cgmm_des.html](http://nssdc.gsfc.nasa.gov/space/cgm/cgmm_des.html)
  - **enumeration**: Carrington
    - A coordinate system which is centered at the Sun and is "fixed" with respect to the synodic rotation rate; the mean synodic value is about 27.2753 days. The Astronomical Almanac gives a value for Carrington longitude of 349.03 degrees at 0000 UT on 1 January 1995.
  - **enumeration**: DM
    - Dipole Meridian - A coordinate system centered at the observation point. Z axis is parallel
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEI</td>
<td>Geocentric Equatorial Inertial</td>
<td>A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis points towards the first point of Aries (from the Earth towards the Sun at the vernal equinox). See Russell, 1971.</td>
</tr>
<tr>
<td>GEO</td>
<td>Geographic</td>
<td>A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis points towards the first point of Aries (from the Earth towards the Sun at the vernal equinox). See Russell, 1971.</td>
</tr>
<tr>
<td>GSE</td>
<td>Geocentric Solar Ecliptic</td>
<td>A coordinate system where the X axis is from Earth to Sun. Z axis is normal to the ecliptic, positive northward. See Russell, 1971.</td>
</tr>
<tr>
<td>GSEQ</td>
<td>Geocentric Solar Equatorial</td>
<td>A coordinate system where the X axis is from Earth to Sun. Y axis is parallel to solar equatorial plane. Z axis is positive northward. See Russell, 1971.</td>
</tr>
<tr>
<td>GSM</td>
<td>Geocentric Solar Magnetospheric</td>
<td>A coordinate system where the Z axis is northward in a plane containing the X axis and the geomagnetic dipole axis. See Russell, 1971.</td>
</tr>
<tr>
<td>HAE</td>
<td>Heliocentric Aries Ecliptic</td>
<td>A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as SE below. See Hapgood, 1992.</td>
</tr>
<tr>
<td>HCC</td>
<td>Heliocentric Cartesian</td>
<td>A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Standard representation for this system is via the point's x and y values, expressed either as physical distances or as fractions of the solar disk radius.</td>
</tr>
<tr>
<td>HCI</td>
<td>Heliographic Carrington Inertial</td>
<td></td>
</tr>
<tr>
<td>HCR</td>
<td>Heliocentric Radial</td>
<td>A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar</td>
</tr>
<tr>
<td>Type</td>
<td>System Description</td>
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</tr>
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<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>HEE</td>
<td>Heliocentric Earth Ecliptic – A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis points from Sun to Earth. See Hapgood, 1992</td>
</tr>
<tr>
<td>enumeration</td>
<td>HEEQ</td>
<td>Heliocentric Earth Equatorial – A coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X axis is generally Earthward in the plane defined by the Z axis and the Sun-Earth direction. See Hapgood, 1992.</td>
</tr>
<tr>
<td>enumeration</td>
<td>HG</td>
<td>Heliographic – A heliocentric rotating coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X, Y axes rotate with a 25.38 day period. The zero longitude (X axis) is defined as the longitude that passed through the ascending node of the solar equator on the ecliptic plane on 1 January, 1854 at 12 UT. See <a href="http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html">http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html</a></td>
</tr>
<tr>
<td>enumeration</td>
<td>HGI</td>
<td>Heliographic Inertial – A heliocentric coordinate system where the Z axis is normal to the solar equatorial plane and the ecliptic plane. The X axis is along the intersection line between solar equatorial and ecliptic planes. X axis was positive at SE longitude of 74.367 deg on Jan 1, 1900. (See SE below.) See <a href="http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html">http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html</a></td>
</tr>
<tr>
<td>enumeration</td>
<td>HPC</td>
<td>Helioprojective Cartesian = A 3-D orthonormal (left-handed) coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points from the observer to the center of the solar disk. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the solar disk and the Y axis, positive toward solar west. Given as the distance between the observer and the center of the solar disk, the standard representation of an (x,y) point on the solar disk is via the point's longitude angle [arctan x/d] and latitude angle [arctan y/d].</td>
</tr>
<tr>
<td>enumeration</td>
<td>HPR</td>
<td>Helioprojective Radial – A 3-D orthonormal (left-handed) coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points from the observer to the center of the solar disk. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the solar disk and the Y axis, positive toward solar west. Given as the distance between the observer and the center of the solar disk, the standard representation of an (x,y) point on the solar disk is via the point's longitude angle [arctan x/d] and latitude angle [arctan y/d].</td>
</tr>
</tbody>
</table>
the Y and Z axes, positive toward solar west.
Given as the distance between the observer and the center of the solar disk, the standard representation for this system of an \((x,y)\) point on the solar disk is via the point’s latitude angle \(\theta = \arctan \left(\sqrt{x^2 + y^2}/d\right)\) or equivalent declination parameter \(\delta = \theta - 90\,\text{deg}\), and its phase angle \(\psi\) as measured counterclockwise from the +Y axis \(\psi = \arctan (-y/x)\).

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>J2000</strong></td>
<td>An astronomical coordinate system which uses the mean equator and equinox of Julian date 2451545.0 TT (Terrestrial Time), or January 1, 2000, noon TT. (aka J2000) to define a celestial reference frame.</td>
</tr>
<tr>
<td><strong>LGM</strong></td>
<td>Local Geomagnetic - A coordinate system used mainly for Earth surface or near Earth surface magnetic field data. X axis northward from observation point in a geographic meridian. Z axis downward towards Earth's center. In this system, (H) (total horizontal component) = (\sqrt{B_x^2 + B_y^2}) and (D) (declination angle) = (\arctan (B_y/B_x)).</td>
</tr>
<tr>
<td><strong>MAG</strong></td>
<td>Geomagnetic - Geocentric. Z axis is parallel to the geomagnetic dipole axis, positive north. X is in the plane defined by the Z axis and the Earth's rotation axis. If (N) is a unit vector from the Earth's center to the north geographic pole, the signs of the X and Y axes are given by (Y = N \times Z), (X = Y \times Z). See Russell, 1971, and <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a>.</td>
</tr>
<tr>
<td><strong>MFA</strong></td>
<td>Magnetic Field Aligned - A coordinate system spacecraft-centered system with Z in the direction of the ambient magnetic field vector. X is in the plane defined by Z and the spacecraft-Sun line, positive sunward. See <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a>.</td>
</tr>
<tr>
<td><strong>RTN</strong></td>
<td>Radial Tangential Normal. Typically centered at a spacecraft. Used for IMF and plasma (V) vectors. (R) (radial) axis is radially away from the Sun, (T) (tangential) axis is normal to the plane formed by (R) and the Sun's spin vector, positive in the direction of planetary motion. (N) (normal) is (R \times T).</td>
</tr>
<tr>
<td><strong>SC</strong></td>
<td>Spacecraft - A coordinate system defined by the spacecraft geometry and/or spin. Often has Z axis parallel to spacecraft spin vector. X and Y axes may or may not corotate with the spacecraft. See SR and SR2 below.</td>
</tr>
<tr>
<td><strong>SE</strong></td>
<td>Solar Elliptic - A heliocentric coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as (\text{RAE}) above. See <a href="http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html">http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html</a>.</td>
</tr>
<tr>
<td><strong>SM</strong></td>
<td>Solar Magnetic - A geocentric coordinate system where the Z axis is northward along Earth's dipole axis, (X) axis is in plane of (Z) axis and Earth-Sun line, positive sunward. See Russell, 1971.</td>
</tr>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>CoordinateSystemName</strong></td>
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<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------------------------</td>
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<tr>
<td><strong>SR</strong></td>
<td>Spin Reference - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X and Y rotate with the spacecraft. See <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a></td>
</tr>
<tr>
<td><strong>SR2</strong></td>
<td>Spin Reference 2 - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X is in the plane defined by Z and the spacecraft-Sun line, positive sunward. See <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a></td>
</tr>
<tr>
<td><strong>SSE</strong></td>
<td>Spacecraft Solar Ecliptic - A coordinate system used for deep space spacecraft, for example Helios. X axis from spacecraft to Sun. Z axis normal to ecliptic plane, positive northward. Note: Angle between normals to ecliptic and to Helios orbit plane - 0.25 deg.</td>
</tr>
<tr>
<td><strong>SSE_L</strong></td>
<td>Selenocentric Solar Ecliptic. The X axis points from the center of the Earth's moon to the Sun, the Z axis is normal to the ecliptic plane, positive northward. And the Y axis completes the right-handed set of axes.</td>
</tr>
<tr>
<td><strong>SpacecraftOrbitPlane</strong></td>
<td>A coordinate system where X lies in the plane normal to and in the direction of motion of the spacecraft, Z is normal to this plane and Y completes the triad in a right-handed coordinate system.</td>
</tr>
<tr>
<td><strong>WGS84</strong></td>
<td>The World Geodetic System (WGS) defines a reference frame for the earth, for use in geodesy and navigation. The WGS84 uses the zero meridian as defined by the Bureau International de l'Heure.</td>
</tr>
</tbody>
</table>

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Used by

<table>
<thead>
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<tbody>
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<td><a href="">xsd:annotation</a></td>
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<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Identifiers of the origin and orientation of a set of typically orthogonal axes.&lt;/xsd:documentation&gt;</td>
</tr>
<tr>
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<td>&lt;/xsd:annotation&gt;</td>
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<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
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<td>&lt;xsd:enumeration value=&quot;CGM&quot;&gt;</td>
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<td><a href="">xsd:annotation</a></td>
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<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Corrected Geomagnetic - A coordinate system from a spatial point with GEO radial distance and geomagnetic latitude and longitude, follow the epoch-appropriate IGRF/DGRF model field vector through to the point where the field line crosses the geomagnetic dipole equatorial plane. Then trace the dipole magnetic field vector Earthward from that point on the equatorial plane, in the same hemisphere as the original point, until the initial radial distance is reached. Designate the dipole latitude and longitude at that point as the CGM latitude and longitude of the original point. See <a href="http://nssdc.gsfc.nasa.gov/space/cgm/cgmm_des.html">http://nssdc.gsfc.nasa.gov/space/cgm/cgmm_des.html</a>&lt;/xsd:documentation&gt;</td>
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<td></td>
<td>&lt;/xsd:annotation&gt;</td>
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<td>&lt;xsd:enumeration value=&quot;Carrington&quot;&gt;</td>
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<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A coordinate system which is centered at the Sun and is &quot;fixed&quot; with respect to the synodic rotation rate; the mean synodic value is about 27.2753 days. The Astronomical Almanac gives a value for Carrington longitude of 349.03 degrees at 0000 UT on 1 January 1995.&lt;/xsd:documentation&gt;</td>
</tr>
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<td></td>
<td>&lt;/xsd:annotation&gt;</td>
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<td>&lt;xsd:enumeration value=&quot;DM&quot;&gt;</td>
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<td><a href="">xsd:annotation</a></td>
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<tr>
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<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Dipole Meridian - A coordinate system centered at the observation point. Z axis is parallel to the Earth’s dipole axis, positive northward. X is in the plane defined by Z and the line linking the observation point with the Earth’s center. Y is positive eastward. See <a href="http://cdpp.cnes.fr/00428.pdf">http://cdpp.cnes.fr/00428.pdf</a>&lt;/xsd:documentation&gt;</td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
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<xsd:enumeration value="GEI">
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    <xsd:documentation xml:lang="en">Geocentric Equatorial Inertial - A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis points towards the first point of Aries (from the Earth towards the Sun at the vernal equinox). See Russell, 1971.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

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  <xsd:annotation>
    <xsd:documentation xml:lang="en">Geographic - geocentric corotating - A coordinate system where the Z axis is along Earth's spin vector, positive northward. X axis lies in Greenwich meridian, positive towards Greenwich. See Russell, 1971.</xsd:documentation>
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  <xsd:annotation>
    <xsd:documentation xml:lang="en">Geocentric Solar Equatorial - A coordinate system where the X axis is from Earth to Sun. Z axis is northward in a plane containing the X axis and the geomagnetic dipole axis. See Russell, 1971.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="GSM">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Geocentric Solar Magnetospheric - A coordinate system where the X axis is from Earth to Sun, Z axis is positive northward. See Russell, 1971.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

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  <xsd:annotation>
    <xsd:documentation xml:lang="en">Heliocentric Aries Ecliptic - A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as SE below. See Hapgood, 1992.</xsd:documentation>
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<xsd:enumeration value="HCC">
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    <xsd:documentation xml:lang="en">Heliocentric Cartesian - A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Standard representation for this system is via the point's x and y values, expressed either as physical distances or as fractions of the solar disk radius.</xsd:documentation>
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</xsd:enumeration>

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  <xsd:annotation>
    <xsd:documentation xml:lang="en">Heliographic Carrington Inertial.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="HCR">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Heliocentric Radial - A 3-D orthonormal coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points toward the observer. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Standard representation for this system is via the point's distance rho from the Z axis [Rho = SQRT(x**2 + y**2)] and its phase angle psi measured counterclockwise from the +Y axis [psi = arctan (-y/x)].</xsd:documentation>
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</xsd:enumeration>

<xsd:enumeration value="HEE">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Heliocentric Earth Ecliptic - A coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis points from Sun to Earth. See Hapgood, 1992.</xsd:documentation>
  </xsd:annotation>
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<xsd:enumeration value="HEEQ">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Heliocentric Earth Equatorial - A coordinate system where the X axis is from Earth to Sun, Z axis is normal to the ecliptic, positive northward. See Russell, 1971.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:documentation xml:lang="en">Heliocentric Earth Equatorial - A coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X axis is generally Earthward in the plane defined by the Z axis and the Sun-Earth direction. See Hapgood, 1992.</xsd:documentation>

</xsd:annotation>

<xsd:documentation xml:lang="en">Heliographic - A heliocentric rotating coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X, Y axes rotate with a 25.38 day period. The zero longitude (X axis) is defined as the longitude that passed through the ascending node of the solar equator on the ecliptic plane on 1 January, 1854 at 12 UT. See <http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html></xsd:documentation>

</xsd:annotation>

<xsd:enumeration value="HGI">
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<xsd:documentation xml:lang="en">Heliographic Inertial - A heliocentric coordinate system where the Z axis is normal to the solar equatorial plane, positive northward. X axis is along the intersection line between solar equatorial and ecliptic planes. The X axis was positive at SE longitude of 74.367 deg on Jan 1, 1900. (See SE below.) See <http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html></xsd:documentation>
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<xsd:documentation xml:lang="en">Helioprojective Cartesian = A 3-D orthonormal (left-handed) coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Z axis points from the observer to the center of the solar disk. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Given as the distance between the observer and the center of the solar disk, the standard representation for this system of an (x,y) point on the solar disk is via the point's longitude angle [arctan (x/d)] and latitude angle [arctan y/d].</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>

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<xsd:documentation xml:lang="en">Helioprojective Radial - A 3-D orthonormal (left-handed) coordinate system that is primarily intended to specify with two dimensions a point on the solar disk. The Y axis lies in the plane defined by the solar spin vector and the Z axis, positive northward. The X axis is perpendicular to the Y and Z axes, positive toward solar west. Given as the distance between the observer and the center of the solar disk, the standard representation for this system of an (x,y) point on the solar disk is via the point's latitude angle \( \theta \) = arctan \( \sqrt{x^2 + y^2} / d \) or equivalent declination parameter delta (= \( \theta \) - 90 deg), and its phase angle psi as measured counter-clockwise from the +Y axis \( \psi = \arctan (-y/x) \).</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>

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<xsd:annotation>
<xsd:documentation xml:lang="en">An astronomical coordinate system which uses the mean equator and equinox of Julian date 2451545.0 TT (Terrestrial Time), or January 1, 2000, noon TT. (aka J2000) to define a celestial reference frame.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="LGM">
<xsd:annotation>
<xsd:documentation xml:lang="en">Local Geomagnetic - A coordinate system used mainly for Earth surface or near Earth surface magnetic field data. X axis northward from observation point in a geographic meridian. Z axis downward towards Earth's center. In this system, H (total horizontal component) = SQRT (Bx^2 + By^2) and D (declination angle) = arctan (By/Bx). See Russell, 1971, and <http://cdpp.cnes.fr/00428.pdf>.
</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MAG">
<xsd:annotation>
<xsd:documentation xml:lang="en">Geomagnetic - geocentric. Z axis is parallel to the geomagnetic dipole axis, positive north. X is in the plane defined by the Z axis and the Earth's rotation axis. If N is a unit vector from the Earth's center to the north geographic pole, the signs of the X and Y axes are given by Y = N x Z, X = Y x Z. See Russell, 1971, and <http://cdpp.cnes.fr/00428.pdf>.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MFA">
<xsd:annotation>
<xsd:documentation xml:lang="en">Magnetic Field Aligned - A coordinate system spacecraft-centered system with Z in the direction of the ambient magnetic field vector. X is in the plane defined by Z and the spacecraft-Sun line, positive sunward. See <http://cdpp.cnes.fr/00428.pdf>.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="RTN">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Radial Tangential Normal. Typically centered at a spacecraft. Used for IMF and plasma V vectors. R (radial) axis is radially away from the Sun, T (tangential) axis is normal to the plane formed by R and the Sun's spin vector, positive in the direction of planetary motion. N (normal) is R x T.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SC">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Spacecraft - A coordinate system defined by the spacecraft geometry and/or spin. Often has Z axis parallel to spacecraft spin vector. X and Y axes may or may not corotate with the spacecraft. See SR and SR2 below.</xsd:documentation>
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</xsd:enumeration>

<xsd:enumeration value="SE">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Solar Ecliptic - A heliocentric coordinate system where the Z axis is normal to the ecliptic plane, positive northward. X axis is positive towards the first point of Aries (from Earth to Sun at vernal equinox). Same as HAE above. See <http://nssdc.gsfc.nasa.gov/space/helios/coor_des.html></xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SM">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Solar Magnetic - A geocentric coordinate system where the Z axis is northward along Earth's dipole axis, X axis is in plane of Z axis and Earth-Sun line, positive sunward. See Russell, 1971.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SR">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Spin Reference - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X and Y rotate with the spacecraft. See <http://cdpp.cnes.fr/00428.pdf></xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SR2">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Spin Reference 2 - A special case of a Spacecraft (SC) coordinate system for a spinning spacecraft. Z is parallel to the spacecraft spin vector. X is in the plane defined by Z and the spacecraft-Sun line, positive sunward. See <http://cdpp.cnes.fr/00428.pdf></xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SSE">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Spacecraft Solar Ecliptic - A coordinate system used for deep space spacecraft, for example Helios. X axis from spacecraft to Sun. Z axis normal to ecliptic plane, positive northward. Note: Angle between normals to ecliptic and to Helios orbit plane ~ 0.25 deg.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SSE_L">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Selenocentric Solar Ecliptic. The X axis points from the center of the Earth's moon to the sun, the Z axis is normal to the ecliptic plane, positive northward. And the Y axis completes the right-handed set of axes.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SpacecraftOrbitPlane">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A coordinate system where X lies in the plane normal to and in the direction of motion of the spacecraft, Z is normal to this plane and Y completes the triad in a right-handed coordinate system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="WGS84">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The World Geodetic System (WGS) defines a reference frame for the earth, for use in geodesy and navigation. The WGS84 uses the zero meridian as defined by the Bureau International de l'Heure.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
**Simple Type enumDisplayType**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for types or classes of rendered data.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="enumDisplayType" /> <img src="image" alt="xsd:string" /></td>
</tr>
<tr>
<td>Type</td>
<td>restriction of xsd:string</td>
</tr>
<tr>
<td>Facets</td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>Image</td>
</tr>
<tr>
<td>enumeration</td>
<td>Plasmagram</td>
</tr>
<tr>
<td>enumeration</td>
<td>Spectrogram</td>
</tr>
<tr>
<td>enumeration</td>
<td>StackPlot</td>
</tr>
<tr>
<td>enumeration</td>
<td>TimeSeries</td>
</tr>
<tr>
<td>enumeration</td>
<td>WaveForm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
<th>DisplayType</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>&lt;xsd:simpleType name=&quot;enumDisplayType&quot;&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:simpleType&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Identifiers for types or classes of rendered data.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
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<td></td>
<td>&lt;/xsd:restriction&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Image&quot;&gt;</td>
<td></td>
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<td>&lt;/xsd:enumeration&gt;</td>
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<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A two-dimensional representation of data with values at each element of the array related to an intensity or a color.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Plasmagram&quot;&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:enumeration&gt;</td>
<td></td>
</tr>
<tr>
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<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The characterization of signal strengths in active sounding measurements as a function of virtual range or signal delay time and sounding frequency. A Plasmagram is also referred to as an Ionogram.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Spectrogram&quot;&gt;</td>
<td></td>
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<tr>
<td></td>
<td>&lt;/xsd:enumeration&gt;</td>
<td></td>
</tr>
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<td></td>
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<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The characterization of signal strengths as a function of frequency (or energy) and time.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;StackPlot&quot;&gt;</td>
<td></td>
</tr>
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<td></td>
<td>&lt;/xsd:enumeration&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A representation of data showing multiple sets of observations on a single plot, possibly offsetting each plot by some uniform amount.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;TimeSeries&quot;&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:enumeration&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A representation of data showing a set of observations taken at different points in time and charted as a time series.&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:documentation&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;WaveForm&quot;&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:enumeration&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/xsd:annotation&gt;</td>
<td></td>
</tr>
</tbody>
</table>
Spatial or temporal variations of wave amplitude over wave-period timescales. 

### Simple Type `enumRenderingAxis`

**Namespace**: http://www.spase-group.org/data/schema

**Annotations**: Identifiers for the reference component of a plot or rendering of data.

**Diagram**

![Diagram](image)

**Type**: restriction of `xsd:string`

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ColorBar</td>
<td>A spectrum or set of colors used to represent data values.</td>
</tr>
<tr>
<td>Horizontal</td>
<td>Parallel to or in the plane of the horizon or a base line.</td>
</tr>
<tr>
<td>Vertical</td>
<td>Perpendicular to the plane of the horizon or a base line.</td>
</tr>
</tbody>
</table>

**Used by**

- `Element` RenderingAxis

**Source**

```xml
<xsd:simpleType name="enumRenderingAxis">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the reference component of a plot or rendering of data.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="ColorBar">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A spectrum or set of colors used to represent data values.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Horizontal">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Parallel to or in the plane of the horizon or a base line.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Vertical">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Perpendicular to the plane of the horizon or a base line.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
  <xsd:simpleType>
</xsd:simpleType>
```

### Simple Type `typeSequence`

**Namespace**: http://www.spase-group.org/data/schema

**Diagram**

![Diagram](image)

**Type**: list of `xsd:integer`

**Used by**

- `Elements` Index, Size

**Source**

```xml
<xsd:simpleType name="typeSequence">
  <xsd:list itemType="xsd:integer"/>
</xsd:simpleType>
```

### Simple Type `enumScaleType`

**Namespace**: http://www.spase-group.org/data/schema

**Annotations**: Identifiers for scaling applied to a set of numbers.

**Source**

```xml
<xsd:simpleType name="enumScaleType">
</xsd:simpleType>
```
### Simple Type `enumQualifier`

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for terms which refine the type or attribute of a quantity.</td>
</tr>
</tbody>
</table>

#### Diagram

![Diagram](image)

#### Type

restriction of `xsd:string`

#### Facets

<table>
<thead>
<tr>
<th>enumeration</th>
<th>Anisotropy</th>
<th>Direction-dependent property.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Array</td>
<td></td>
<td>A sequence of values corresponding to the elements in a rectilinear, n-dimension matrix. Each value can be referenced by a unique index.</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>The statistical mean; the sum of a set of values divided by the number of values in the set.</td>
</tr>
<tr>
<td>Characteristic</td>
<td></td>
<td>A quantity which can be easily identified and measured in a given environment.</td>
</tr>
</tbody>
</table>

<p>| enumeration       | Circular | Relative to polarization, right-hand circularly polarized light is defined such that the electric field is rotating clockwise as seen by an observer towards whom the wave is moving. Left-hand circularly polarized light is defined such that the electric field is rotating counterclockwise as seen by an observer towards whom the wave is moving. The polarization of magnetohydrodynamic waves is specified with respect to the ambient mean magnetic field: right-hand polarized waves have a transverse electric field component which turns in a right-handed sense (that of the gyrating electrons) around the magnetic field. |</p>
<table>
<thead>
<tr>
<th>enumeration</th>
<th>Column</th>
<th>A two-dimensional measure of a quantity. The column is the area over which the quantity is measured.</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Component</td>
<td>Projection of a vector along one of the base axes of a coordinate system.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Component.I</td>
<td>Projection of a vector along the first named axis of a coordinate system. Typically the X axis, but could be the R axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Component.J</td>
<td>Projection of a vector along the second named axis of a coordinate system. Typically the Y axis, but could be the T axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Component.K</td>
<td>Projection of a vector along the third named axis of a coordinate system. Typically the Z axis, but could be the N axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Core</td>
<td>The central or main part of an object or calculated distribution. For example, the part of a distribution of particles at low energies that is a thermal (Maxwellian) population.</td>
</tr>
<tr>
<td>enumeration</td>
<td>CrossSpectrum</td>
<td>The Fourier transform of the cross correlation of two physical or empirical observations.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Deviation</td>
<td>The difference between an observed value and the expected value of a quantity.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Differential</td>
<td>A measurement within a narrow range of energy and/or solid angle.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Direction</td>
<td>The spatial relation between an object and another object, the orientation of the object or the course along which the object points or moves.</td>
</tr>
<tr>
<td>enumeration</td>
<td>DirectionAngle</td>
<td>The angle between a position vector or measured vector (or one of its projections onto a plane) and one of the base axes of the coordinate system.</td>
</tr>
<tr>
<td>enumeration</td>
<td>DirectionAngle.AzimuthAngle</td>
<td>The angle between the projection into the i-j plane of a position or measured vector and the i-axis of the coordinate system. Mathematically defined as arctan(j/i).</td>
</tr>
<tr>
<td>enumeration</td>
<td>DirectionAngle.ElevationAngle</td>
<td>The angle between the position or measured vector and the i-j plane of the coordinate system. Mathematically defined as arctan(k/SQRT(i^2+j^2)).</td>
</tr>
<tr>
<td>enumeration</td>
<td>DirectionAngle.PolarAngle</td>
<td>The angle between the position or measured vector and the k-axis of the coordinate system. Mathematically defined as arctan(SQRT(i^2+j^2)/k).</td>
</tr>
<tr>
<td>enumeration</td>
<td>Directional</td>
<td>A measurement within a narrow range of solid angle.</td>
</tr>
<tr>
<td>enumeration</td>
<td>FieldAligned</td>
<td>The component of a quantity which is oriented in the same direction of a field.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Fit</td>
<td>Values that make a model agree with the data.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Group</td>
<td>An assemblage of values that a certain relation or common characteristic.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Halo</td>
<td>The part of an object or distribution surrounding some central body or distribution. For example, the particles above the core energies that</td>
</tr>
</tbody>
</table>
show enhancements above the thermal population.
Typically, a "power law tail" shows a break from the core Maxwellian at a particular energy.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral</td>
<td>A flux measurement in a broad range of energy and solid angle.</td>
</tr>
<tr>
<td>Integral.Area</td>
<td>Integration over the extent of a planar region, or of the surface of a solid.</td>
</tr>
<tr>
<td>Integral.Bandwidth</td>
<td>Integration over the width a frequency band.</td>
</tr>
<tr>
<td>Integral.SolidAngle</td>
<td>Integration over the angle in three-dimensional space that an object subtends at a point.</td>
</tr>
<tr>
<td>LineOfSight</td>
<td>The line of sight is the line that connects the observer with the observed object. This expression is often used with measurements of Doppler velocity and magnetic field in magnetograms, where only the component of the vector field directed along the line of sight is measured.</td>
</tr>
<tr>
<td>Linear</td>
<td>Polarization where the E-field vector is confined to a given plane.</td>
</tr>
<tr>
<td>Magnitude</td>
<td>A measure of the strength of a vector quantity or length of its representational vector.</td>
</tr>
<tr>
<td>Maximum</td>
<td>The largest value of a batch or sample or the upper bound of a probability distribution.</td>
</tr>
<tr>
<td>Median</td>
<td>The measure of central tendency of a set of n. values computed by ordering the values and taking the value at position (n. + 1) / 2 when n. is odd or the arithmetic mean of the values at positions n. / 2 and (n. / 2) + 1 when n. is even.</td>
</tr>
<tr>
<td>Minimum</td>
<td>The smallest value of a batch or sample or the lower bound of a probability distribution.</td>
</tr>
<tr>
<td>Moment</td>
<td>Parameters determined by integration over a distribution function convolved with a power of velocity.</td>
</tr>
<tr>
<td>Parallel</td>
<td>Having the same direction as a given direction.</td>
</tr>
<tr>
<td>Peak</td>
<td>The maximum value for the quantity in question, over a period of time which is usually equal to the cadence.</td>
</tr>
<tr>
<td>Perpendicular</td>
<td>At right angles to a given direction.</td>
</tr>
<tr>
<td>Perturbation</td>
<td>Variations in the state of a system.</td>
</tr>
<tr>
<td>Phase</td>
<td>A point or portion in a recurring series of changes.</td>
</tr>
<tr>
<td>PhaseAngle</td>
<td>Phase difference between two or more waves, normally expressed in degrees.</td>
</tr>
<tr>
<td>Projection</td>
<td>A measure of the length of a position or measured vector as projected into a plane of the coordinate system.</td>
</tr>
<tr>
<td>Projection.IJ</td>
<td>A measure of the length of a position or measured vector projected into the i-j (typically X-Y) plane of the coordinate system.</td>
</tr>
<tr>
<td>Projection.IK</td>
<td>A measure of the length of a position or measured vector projected into the i-k (typically X-Z) plane of the coordinate system.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Projection.JK</td>
<td>A measure of the length of a position or measured vector projected into the j-k (typically Y-Z) plane of the coordinate system.</td>
</tr>
<tr>
<td>Pseudo</td>
<td>Similar to or having the appearance of something else. Can be used to indicate an estimation or approximation of a particular quantity.</td>
</tr>
<tr>
<td>Ratio</td>
<td>The relative magnitudes of two quantities.</td>
</tr>
<tr>
<td>Scalar</td>
<td>A quantity that is completely specified by its magnitude and has no direction.</td>
</tr>
<tr>
<td>Spectral</td>
<td>Characterized as a range or continuum of frequencies</td>
</tr>
<tr>
<td>StandardDeviation</td>
<td>The square root of the average of the squares of deviations about the mean of a set of data. Standard deviation is a statistical measure of spread or variability.</td>
</tr>
<tr>
<td>StokesParameters</td>
<td>A set of four parameters (usually called I,Q,U and V) which describe the polarization state of an electromagnetic wave propagating through space.</td>
</tr>
<tr>
<td>Strahl</td>
<td>A distribution of particles concentrated in a narrow energy band. The band may be may be aligned with a secondary feature. For example, it may occur in a narrow cone aligned with the mean magnetic field direction.</td>
</tr>
<tr>
<td>Superhalo</td>
<td>The part of an object or distribution surrounding some central body or distribution evident in a second break in the distribution function (e.g., a different power law). It consists of a population at a higher energies than for a halo.</td>
</tr>
<tr>
<td>Symmetric</td>
<td>Equal distribution about one or more axes.</td>
</tr>
<tr>
<td>Tensor</td>
<td>A generalized linear &quot;quantity&quot; or &quot;geometrical entity&quot; that can be expressed as a multi-dimensional array relative to a choice of basis of the particular space on which it is defined.</td>
</tr>
<tr>
<td>Total</td>
<td>The summation of quantities over all possible species.</td>
</tr>
<tr>
<td>Trace</td>
<td>The sum of the elements on the main diagonal (the diagonal from the upper left to the lower right) of a square matrix.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>A statistically defined discrepancy between a measured quantity and the true value of that quantity that cannot be corrected by calculation or calibration.</td>
</tr>
<tr>
<td>Variance</td>
<td>A measure of dispersion of a set of data points around their mean value. The expectation value of the squared deviations from the mean.</td>
</tr>
<tr>
<td>Vector</td>
<td>A set of parameter values each along some independent variable (e.g., components of a field in three orthogonal spatial directions; atmospheric temperature values at several altitudes, or at a given latitude and longitude).</td>
</tr>
</tbody>
</table>

**Used by**

| Element | Qualifier |
Source

<xsd:simpleType name="enumQualifier">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for terms which refine the type or attribute of a quantity.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Anisotropy">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Direction-dependent property.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Array">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A sequence of values corresponding to the elements in a rectilinear, n-dimension matrix. Each value can be referenced by a unique index.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Average">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The statistical mean; the sum of a set of values divided by the number of values in the set.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Characteristic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A quantity which can be easily identified and measured in a given environment.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Circular">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Relative to polarization, right-hand circularly polarized light is defined such that the electric field is rotating clockwise as seen by an observer towards whom the wave is moving. Left-hand circularly polarized light is defined such that the electric field is rotating counterclockwise as seen by an observer towards whom the wave is moving. The polarization of magnetohydrodynamic waves is specified with respect to the ambient mean magnetic field: right-hand polarized waves have a transverse electric field component which turns in a right-handed sense (that of the gyrating electrons) around the magnetic field.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Column">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A two-dimensional measure of a quantity. The column is the area over which the quantity is measured.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Component">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Projection of a vector along one of the base axes of a coordinate system.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Component.I">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Projection of a vector along the first named axis of a coordinate system. Typically the X axis, but could be the R axis for an RTN coordinate system.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Component.J">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Projection of a vector along the second named axis of a coordinate system. Typically the Y axis, but could be the T axis for an RTN coordinate system.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Component.K">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Projection of a vector along the third named axis of a coordinate system. Typically the Z axis, but could be the N axis for an RTN coordinate system.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Core">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The central or main part of an object or calculated distribution. For example, the part of a distribution of particles at low energies that is a thermal (Maxwellian) population.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
<xsd:enumeration value="CrossSpectrum"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The Fourier transform of the cross correlation of two physical or empirical observations.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Deviation"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The difference between an observed value and the expected value of a quantity.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Differential"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A measurement within a narrow range of energy and/or solid angle.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Direction"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The spatial relation between an object and another object, the orientation of the object or the course along which the object points or moves.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="DirectionAngle"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The angle between a position vector or measured vector (or one of its projections onto a plane) and one of the base axes of the coordinate system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="DirectionAngle.AzimuthAngle"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The angle between the projection into the i-j plane of a position or measured vector and the i-axis of the coordinate system. Mathematically defined as \( \arctan\left(\frac{j}{i}\right) \).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="DirectionAngle.ElevationAngle"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The angle between the position or measured vector and the i-j plane of the coordinate system. Mathematically defined as \( \arctan\left(\frac{k}{\sqrt{i^2+j^2}}\right) \).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="DirectionAngle.PolarAngle"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The angle between the position or measured vector and the k-axis of the coordinate system. Mathematically defined as \( \arctan\left(\frac{\sqrt{i^2+j^2}}{k}\right) \).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Directional"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A measurement within a narrow range of solid angle.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="FieldAligned"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The component of a quantity which is oriented in the same direction of a field.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Fit"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Values that make a model agree with the data.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Group"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An assemblage of values that a certain relation or common characteristic.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Halo"/>
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The part of an object or distribution surrounding some central body or distribution. For example, the particles above the core energies that show enhancements above the thermal population. Typically, a "power law tail" shows a break from the core Maxwellian at a particular energy.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Integral">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A flux measurement in a broad range of energy and solid angle.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Integral.Area">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Integration over the extent of a planar region, or of the surface of a solid.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Integral.Bandwidth">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Integration over the width a frequency band.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Integral.SolidAngle">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Integration over the angle in three-dimensional space that an object subtends at a point.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="LineOfSight">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The line of sight is the line that connects the observer with the observed object. This expression is often used with measurements of Doppler velocity and magnetic field in magnetograms, where only the component of the vector field directed along the line of sight is measured.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Linear">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Polarization where the E-field vector is confined to a given plane.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Magnitude">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A measure of the strength of a vector quantity or length of its representational vector.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Maximum">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The largest value of a batch or sample or the upper bound of a probability distribution.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Median">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The measure of central tendency of a set of n. values computed by ordering the values and taking the value at position (n. + 1) / 2 when n. is odd or the arithmetic mean of the values at positions n. / 2 and (n. / 2) + 1 when n. is even.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Minimum">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The smallest value of a batch or sample or the lower bound of a probability distribution.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Moment">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Parameters determined by integration over a distribution function convolved with a power of velocity.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Parallel">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Having the same direction as a given direction.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Peak">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The maximum value for the quantity in question, over a period of time which is usually equal to the cadence.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Perpendicular">
  <xsd:documentation xml:lang="en">At right angles to a given direction.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Perturbation">
  <xsd:documentation xml:lang="en">Variations in the state of a system.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Phase">
  <xsd:documentation xml:lang="en">A point or portion in a recurring series of changes.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="PhaseAngle">
  <xsd:documentation xml:lang="en">Phase difference between two or more waves, normally expressed in degrees.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Projection">
  <xsd:documentation xml:lang="en">A measure of the length of a position or measured vector as projected into a plane of the coordinate system.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Projection.IJ">
  <xsd:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the i-j (typically X-Y) plane of the coordinate system.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Projection.IK">
  <xsd:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the i-k (typically X-Z) plane of the coordinate system.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Projection.JK">
  <xsd:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the j-k (typically Y-Z) plane of the coordinate system.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Pseudo">
  <xsd:documentation xml:lang="en">Similar to or having the appearance of something else. Can be used to indicate an estimation or approximation of a particular quantity.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Ratio">
  <xsd:documentation xml:lang="en">The relative magnitudes of two quantities.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Scalar">
  <xsd:documentation xml:lang="en">A quantity that is completely specified by its magnitude and has no direction.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="Spectral">
  <xsd:documentation xml:lang="en">Characterized as a range or continuum of frequencies.</xsd:documentation>
</xsd:enumeration>

<xsd:enumeration value="StandardDeviation">
  <xsd:documentation xml:lang="en">The square root of the average of the squares of deviations about the mean of a set of data. Standard deviation is a statistical measure of spread or variability.</xsd:documentation>
</xsd:enumeration>
<xsd:restriction base="xsd:simpleType">
  <xsd:simpleType name="enumFieldQuantity">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Identifiers for the physical attribute of the field.</xsd:documentation>
    </xsd:annotation>
    <xsd:enumeration value="StokesParameters">A set of four parameters (usually called I, Q, U and V) which describe the polarization state of an electromagnetic wave propagating through space.</xsd:enumeration>
    <xsd:enumeration value="Strahl">A distribution of particles concentrated in a narrow energy band. The band may be may be aligned with a secondary feature. For example, it may occur in a narrow cone aligned with the mean magnetic field direction.</xsd:enumeration>
    <xsd:enumeration value="Superhalo">The part of an object or distribution surrounding some central body or distribution evident in a second break in the distribution function (e.g., a different power law). It consists of a population at a higher energies than for a halo.</xsd:enumeration>
    <xsd:enumeration value="Symmetric">Equal distribution about one or more axes.</xsd:enumeration>
    <xsd:enumeration value="Tensor">A generalized linear "quantity" or "geometrical entity" that can be expressed as a multi-dimensional array relative to a choice of basis of the particular space on which it is defined.</xsd:enumeration>
    <xsd:enumeration value="Total">The summation of quantities over all possible species.</xsd:enumeration>
    <xsd:enumeration value="Trace">The sum of the elements on the main diagonal (the diagonal from the upper left to the lower right) of a square matrix.</xsd:enumeration>
    <xsd:enumeration value="Uncertainty">A statistically defined discrepancy between a measured quantity and the true value of that quantity that cannot be corrected by calculation or calibration.</xsd:enumeration>
    <xsd:enumeration value="Variance">A measure of dispersion of a set of data points around their mean value. The expectation value of the squared deviations from the mean.</xsd:enumeration>
    <xsd:enumeration value="Vector">A set of parameter values each along some independent variable (e.g., components of a field in three orthogonal spatial directions; atmospheric temperature values at several altitudes, or at a given latitude and longitude).</xsd:enumeration>
  </xsd:simpleType>
</xsd:restriction>

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Simple Type** enumFieldQuantity

<table>
<thead>
<tr>
<th><strong>Namespace</strong></th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annotations</strong></td>
<td>Identifiers for the physical attribute of the field.</td>
</tr>
<tr>
<td>Facets</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Current</td>
<td>The flow of electrons through a conductor caused by a potential difference.</td>
</tr>
<tr>
<td>Electric</td>
<td>The physical attribute that exerts an electrical force.</td>
</tr>
<tr>
<td>Electromagnetic</td>
<td>Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.</td>
</tr>
<tr>
<td>Gyrofrequency</td>
<td>The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force.</td>
</tr>
<tr>
<td>Magnetic</td>
<td>The physical attribute attributed to a magnet or its equivalent.</td>
</tr>
<tr>
<td>PlasmaFrequency</td>
<td>A number-density-dependent characteristic frequency of a plasma.</td>
</tr>
<tr>
<td>Potential</td>
<td>A field which obeys Laplace's Equation.</td>
</tr>
<tr>
<td>PoyntingFlux</td>
<td>Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.</td>
</tr>
</tbody>
</table>

Source

```xml
<xsd:simpleType name="enumFieldQuantity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the physical attribute of the field.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Current">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The flow of electrons through a conductor caused by a potential difference.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Electric">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The physical attribute that exerts an electrical force.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Electromagnetic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Gyrofrequency">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The physical attribute attributed to a magnet or its equivalent.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="PlasmaFrequency">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A number-density-dependent characteristic frequency of a plasma.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Potential">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A field which obeys Laplace's Equation.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="PoyntingFlux">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
A number-density-dependent characteristic frequency of a plasma. A field which obeys Laplace's Equation. Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.

### Simple Type `enumSpectralRange`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for names associated with wavelengths. Based on the ISO 21348 Solar Irradiance Standard. Additions have been made to extend the frequency ranges to include those used in space physics. Those additions are indicated in blue text. The "Total Solar Irradiance" category has not been included since it is a type of measurement and not a specific spectral range. See Appendix A - Comparison of Spectrum Domains for a comparison of the spectral ranges with other systems.

**Diagram**
![Diagram](style.png)

**Type**
restriction of xsd:string

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaK</td>
<td>A spectrum with a wavelength of range centered near 393.5 nm. VSO nickname: Ca-K image with range of 391.9 nm to 395.2 nm.</td>
</tr>
<tr>
<td>ExtremeUltraviolet</td>
<td>A spectrum with a wavelength range of 10.0 nm to 125.0 nm. VSO nickname: EUV image with a range of 10.0 nm to 125.0 nm.</td>
</tr>
<tr>
<td>FarUltraviolet</td>
<td>A spectrum with a wavelength range of 122 nm to 200 nm. VSO nickname: FUV image with a range of 122.0 nm to 200 nm.</td>
</tr>
<tr>
<td>GammaRays</td>
<td>Photons with a wavelength range: 0.00001 to 0.001 nm.</td>
</tr>
<tr>
<td>Halpha</td>
<td>A spectrum with a wavelength range centered at 656.3 nm. VSO nickname: H-alpha image with a spectrum range of 655.8 nm to 656.8 nm.</td>
</tr>
<tr>
<td>HardXrays</td>
<td>Photons with a wavelength range: 0.001 to 0.1 nm and an energy range of 12 keV to 120 keV.</td>
</tr>
<tr>
<td>He10830</td>
<td>A spectrum with a wavelength range centered at 1082.9 nm. VSO nickname: He 10830 image with a range of 1082.5 nm to 1083.3 nm.</td>
</tr>
<tr>
<td>He304</td>
<td>A spectrum centered around the resonance line of ionised helium at 304 Angstrom (30.4 nm).</td>
</tr>
<tr>
<td>Infrared</td>
<td>Photons with a wavelength range: 760 to 1.00x10^6 nm.</td>
</tr>
<tr>
<td>K7699</td>
<td>A spectrum with a wavelength range centered at 769.9 nm. VSO nickname: K-7699 dopplergram with a range of 769.8 nm to 770.0 nm.</td>
</tr>
<tr>
<td>LBHBand</td>
<td>Lyman-Birge-Hopfield band in the far ultraviolet range with wavelength range of 140nm to 170 nm.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Microwave</td>
<td>Photons with a wavelength range: 1.00x10^-6 to 1.50x10^-7 nm</td>
</tr>
<tr>
<td>NaD</td>
<td>A spectrum with a wavelength range centered at 589.3 nm. VSO nickname: Na-D image with a range of 588.8 nm to 589.8 nm.</td>
</tr>
<tr>
<td>Ni6768</td>
<td>A spectrum with a wavelength range centered at 676.8 nm. VSO nickname: Ni-6768 dopplergram with a range of 676.7 nm to 676.9 nm.</td>
</tr>
<tr>
<td>Optical</td>
<td>Photons with a wavelength range: 380 to 760 nm</td>
</tr>
<tr>
<td>RadioFrequency</td>
<td>Photons with a wavelength range: 100,000 to 1.00x10^11 nm</td>
</tr>
<tr>
<td>SoftXrays</td>
<td>X-Rays with an energy range of 0.12 keV to 12 keV.</td>
</tr>
<tr>
<td>Ultraviolet</td>
<td>Photons with a wavelength range: 10 to 400 nm</td>
</tr>
<tr>
<td>WhiteLight</td>
<td>Photons with a wavelength in the visible range for humans.</td>
</tr>
<tr>
<td>Xrays</td>
<td>Photons with a wavelength range: 0.001 &lt;= x &lt; 10 nm</td>
</tr>
</tbody>
</table>

Used by Source SpectralRange

```xml
<xsd:simpleType name="enumSpectralRange">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for names associated with wavelengths. Based on the ISO 21348 Solar Irradiance Standard. Additions have been made to extend the frequency ranges to include those used in space physics. Those additions are indicated in blue text. The "Total Solar Irradiance" category has not been included since it is a type of measurement and not a specific spectral range. See Appendix A - Comparison of Spectrum Domains for a comparison of the spectral ranges with other systems.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="CaK">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A spectrum with a wavelength of range centered near 393.5 nm. VSO nickname: Ca-K image with range of 391.9 nm to 395.2 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ExtremeUltraviolet">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A spectrum with a wavelength range of 10.0 nm to 125.0 nm. VSO nickname: EUV image with a range of 10.0 nm to 125.0 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="FarUltraviolet">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A spectrum with a wavelength range of 122 nm to 200.0 nm. VSO nickname: FUV image with a range of 122.0 nm to 200 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="GammaRays">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Photons with a wavelength range: 0.00001 to 0.001 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Haalpha">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A spectrum with a wavelength range centered at 656.3 nm. VSO nickname: H-alpha image with a spectrum range of 655.8 nm to 656.8 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="HardXrays">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Photons with a wavelength range: 0.001 to 0.1 nm and an energy range of 12 keV to 120 keV.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="He10830">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Photons with a wavelength range: 0.0 to 0.083 nm.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
<xsd:documentation xml:lang="en">A spectrum with a wavelength range centered at 1082.9 nm. VSO nickname: He 10830 image with a range of 1082.5 nm to 1083.3 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="He304">
<xsd:annotation>
<xsd:documentation xml:lang="en">A spectrum centered around the resonance line of ionised helium at 304 Angstrom (30.4 nm).</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Infrared">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength range: 760 to 1.00x10^6 nm</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="K7699">
<xsd:annotation>
<xsd:documentation xml:lang="en">A spectrum with a wavelength range centered at 769.9 nm. VSO nickname: K-7699 dopplergram with a range of 769.8 nm to 770.0 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="LBHBand">
<xsd:annotation>
<xsd:documentation xml:lang="en">Lyman-Birge-Hopfield band in the far ultraviolet range with wavelength range of 140nm to 170 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Microwave">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength range: 1.00x10^6 to 1.50x10^7 nm</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="NaD">
<xsd:annotation>
<xsd:documentation xml:lang="en">A spectrum with a wavelength range of centered at 589.3 nm. VSO nickname: Na-D image with a range of 588.8 nm to 589.8 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="N16768">
<xsd:annotation>
<xsd:documentation xml:lang="en">A spectrum with a wavelength range centered at 676.8 nm. VSO nickname: N1-6768 dopplergram with a range of of 676.7 nm to 676.9 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Optical">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength range: 380 to 760 nm</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="RadioFrequency">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength range: 100,000 to 1.00x10^11 nm</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="SoftXRays">
<xsd:annotation>
<xsd:documentation xml:lang="en">X-Rays with an energy range of 0.12 keV to 12 keV.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Ultraviolet">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength range: 10 to 400 nm.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Whitelight">
<xsd:annotation>
<xsd:documentation xml:lang="en">Photons with a wavelength in the visible range for humans.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="XRays">
<xsd:annotation>
</xsd:annotation>
</xsd:enumeration>
### Simple Type `enumParticleType`

<table>
<thead>
<tr>
<th>Facets</th>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>enumeration</strong></td>
<td><strong>Aerosol</strong></td>
<td>A suspension of fine solid or liquid particles in a gas.</td>
</tr>
<tr>
<td></td>
<td><strong>AlphaParticle</strong></td>
<td>A positively charged nuclear particle that consists of two protons and two neutrons.</td>
</tr>
<tr>
<td></td>
<td><strong>Atom</strong></td>
<td>Matter consisting of a nucleus surrounded by electrons which has no net charge.</td>
</tr>
<tr>
<td></td>
<td><strong>Dust</strong></td>
<td>Free microscopic particles of solid material.</td>
</tr>
<tr>
<td></td>
<td><strong>Electron</strong></td>
<td>An elementary particle consisting of a charge of negative electricity equal to about 1.602 x 10^{-19} Coulomb and having a mass when at rest of about 9.109534 x 10^{-28} gram.</td>
</tr>
<tr>
<td></td>
<td><strong>Ion</strong></td>
<td>An atom that has acquired a net electric charge by gaining or losing one or more electrons. (Note: Z&gt;2)</td>
</tr>
<tr>
<td></td>
<td><strong>Molecule</strong></td>
<td>A group of atoms so united and combined by chemical affinity that they form a complete, integrated whole, being the smallest portion of any particular compound that can exist in a free state</td>
</tr>
<tr>
<td></td>
<td><strong>Neutron</strong></td>
<td>An elementary particle that has no net charge and is a constituent of atomic nuclei, and that has a mass slightly larger than a proton (1.673 x 10^{-24} gram.)</td>
</tr>
<tr>
<td></td>
<td><strong>Proton</strong></td>
<td>An elementary particle that is a constituent of all atomic nuclei, that carries a positive charge numerically equal to the charge of an electron, and that has a mass of 1.673 x 10^{-24} gram.</td>
</tr>
</tbody>
</table>

**Namespace**: http://www.spase-group.org/data/schema

**Annotations**: Identifiers for the characterization of the kind of particle observed by the measurement.

**Diagram**

**Type**: restriction of `xsd:string`

**Used by**: `Element` ParticleType
<xsd:documentation xml:lang="en">Matter consisting of a nucleus surrounded by electrons which has no net charge.</xsd:documentation>
</xsd:annotation>
<xsd:enumeration value="Dust">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Free microscopic particles of solid material.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Electron">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">An elementary particle consisting of a charge of negative electricity equal to about $1.602 \times 10^{-19}$ Coulomb and having a mass when at rest of about $9.109354 \times 10^{-28}$ gram.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Ion">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">An atom that has acquired a net electric charge by gaining or losing one or more electrons. (Note: $Z>2$)</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Molecule">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A group of atoms so united and combined by chemical affinity that they form a complete, integrated whole, being the smallest portion of any particular compound that can exist in a free state.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Neutron">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">An elementary particle that has no net charge and is a constituent of atomic nuclei, and that has a mass slightly larger than a proton ($1.673 \times 10^{-24}$ gram). </xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Proton">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">An elementary particle that is a constituent of all atomic nuclei, that carries a positive charge numerically equal to the charge of an electron, and that has a mass of $1.673 \times 10^{-24}$ gram.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>

**Simple Type enumParticleQuantity**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the characterization of the physical properties of the particle.

**Diagram**

- ArrivalDirection
- AtomicNumberDetected
- AverageChargeState
- ChargeState
- CountRate
- Counts

**Type**
restriction of xsd:string

**Facets**

- Enumeration **ArrivalDirection**
  An angular measure of the direction from which an energetic particle or photon was incident on a detector. The angles may be measured in any coordinate system.

- Enumeration **AtomicNumberDetected**
  The number of protons in the nucleus of an atom as determined by a detector.

- Enumeration **AverageChargeState**
  A measure of the composite deficit (positive) or excess (negative) of electrons with respect to protons.

- Enumeration **ChargeState**
  Charge of a fully or partially stripped ion, in units of the charge of a proton. Charge state of a bare proton = 1.

- Enumeration **CountRate**
  The number of events per unit time.

- Enumeration **Counts**
  The number of detection events occurring in a detector over the detector accumulation time.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy).</td>
</tr>
<tr>
<td>EnergyDensity</td>
<td>The amount of energy per unit volume.</td>
</tr>
<tr>
<td>EnergyFlux</td>
<td>The amount of energy passing through a unit area in a unit time.</td>
</tr>
<tr>
<td>FlowSpeed</td>
<td>The rate at which particles or energy is passing through a unit area in a unit time.</td>
</tr>
<tr>
<td>FlowVelocity</td>
<td>The volume of matter passing through a unit area perpendicular to the direction of flow in a unit of time.</td>
</tr>
<tr>
<td>Fluence</td>
<td>The time integral of a flux. A fluence does not have any &quot;per unit time&quot; in its units.</td>
</tr>
<tr>
<td>Gyrofrequency</td>
<td>The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force.</td>
</tr>
<tr>
<td>HeatFlux</td>
<td>Flow of thermal energy through a gas or plasma; typically computed as third moment of a distribution function.</td>
</tr>
<tr>
<td>Mass</td>
<td>The measure of inertia (mass) of individual objects (e.g., aerosols).</td>
</tr>
<tr>
<td>MassDensity</td>
<td>The mass of particles per unit volume.</td>
</tr>
<tr>
<td>MassNumber</td>
<td>The total number of protons and neutrons (together known as nucleons) in an atomic nucleus.</td>
</tr>
<tr>
<td>NumberDensity</td>
<td>The number of particles per unit volume.</td>
</tr>
<tr>
<td>NumberFlux</td>
<td>The number of particles passing a unit area in unit time, possibly also per unit energy (or equivalent) and/or per unit look direction.</td>
</tr>
<tr>
<td>PhaseSpaceDensity</td>
<td>The number of particles per unit volume in the six-dimensional space of position and velocity.</td>
</tr>
<tr>
<td>PlasmaFrequency</td>
<td>A number-density-dependent characteristic frequency of a plasma.</td>
</tr>
<tr>
<td>Pressure</td>
<td>The force per unit area exerted by a particle distribution or field.</td>
</tr>
<tr>
<td>SonicMachNumber</td>
<td>The ratio of the bulk flow speed to the speed of sound in the medium.</td>
</tr>
<tr>
<td>SoundSpeed</td>
<td>The speed at which sound travels through a medium.</td>
</tr>
<tr>
<td>Temperature</td>
<td>A measure of the kinetic energy of random motion with respect to the average. Temperature is properly defined only for an equilibrium particle distribution (Maxwellian distribution).</td>
</tr>
<tr>
<td>ThermalSpeed</td>
<td>For a Maxwellian distribution, the difference between the mean speed and the speed within which ~69% (one sigma) of all the members of the speed distribution occur.</td>
</tr>
<tr>
<td>Velocity</td>
<td>Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as &quot;bulk velocity&quot;.</td>
</tr>
</tbody>
</table>

**Used by**

- Element: ParticleQuantity

**Source**

```xml
<xs:simpleType name="enumParticleQuantity">
  <xs:annotation>
  </xs:annotation>
</xs:simpleType>`
Identifiers for the characterization of the physical properties of the particle.

- **ArrivalDirection**: An angular measure of the direction from which an energetic particle or photon was incident on a detector. The angles may be measured in any coordinate system.

- **AtomicNumberDetected**: The number of protons in the nucleus of an atom as determined by a detector.

- **AverageChargeState**: A measure of the composite deficit (positive) or excess (negative) of electrons with respect to protons.

- **ChargeState**: Charge of a fully or partially stripped ion, in units of the charge of a proton. Charge state of a bare proton = 1.

- **CountRate**: The number of events per unit time.

- **Counts**: The number of detection events occurring in a detector over the detector accumulation time.

- **Energy**: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy).

- **EnergyDensity**: The amount of energy per unit volume.

- **EnergyFlux**: The amount of energy passing through a unit area in a unit time.

- **FlowSpeed**: The rate at which particles or energy is passing through a unit area in a unit time.

- **FlowVelocity**: The volume of matter passing through a unit area perpendicular to the direction of flow in a unit of time.

- **Fluence**: The time integral of a flux. A fluence does not have any "per unit time" in its units.

- **Gyrofrequency**: The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force.
<xsd:annotation>
  <xsd:documentation xml:lang="en">Flow of thermal energy through a gas or plasma; typically computed as third moment of a distribution function.</xsd:documentation>
</xsd:annotation>

<xsd:enumeration value="Mass">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The measure of inertia (mass) of individual objects (e.g., aerosols).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MassDensity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The mass of particles per unit volume.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MassNumber">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The total number of protons and neutrons (together known as nucleons) in an atomic nucleus.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NumberDensity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The number of particles per unit volume.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NumberFlux">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The number of particles passing a unit area in unit time, possibly also per unit energy (or equivalent) and/or per unit look direction.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="PhaseSpaceDensity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The number of particles per unit volume in the six-dimensional space of position and velocity.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="PlasmaFrequency">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A number-density-dependent characteristic frequency of a plasma.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Pressure">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The force per unit area exerted by a particle distribution or field.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SonicMachNumber">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The ratio of the bulk flow speed to the speed of sound in the medium.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="SoundSpeed">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The speed at which sound travels through a medium.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Temperature">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A measure of the kinetic energy of random motion with respect to the average. Temperature is properly defined only for an equilibrium particle distribution (Maxwellian distribution).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="ThermalSpeed">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">For a Maxwellian distribution, the difference between the mean speed and the speed within which ~69% (one sigma) of all the members of the speed distribution occur.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
### Simple Type `enumWaveType`

<table>
<thead>
<tr>
<th>Facets</th>
<th>Enumerations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electromagnetic</td>
<td>Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.</td>
</tr>
<tr>
<td></td>
<td>Electrostatic</td>
<td>Collective longitudinal electric-field and plasma oscillations trapped within a body of plasma.</td>
</tr>
<tr>
<td></td>
<td>Hydrodynamic</td>
<td>Periodic or quasi-periodic oscillations of fluid quantities.</td>
</tr>
<tr>
<td></td>
<td>MHD</td>
<td>Hydrodynamic waves in a magnetized plasma in which the background magnetic field plays a key role in controlling the wave propagation characteristics.</td>
</tr>
<tr>
<td></td>
<td>Photon</td>
<td>Electromagnetic waves detected by techniques that utilize their corpuscular character (e.g., CCD, CMOS, photomultipliers).</td>
</tr>
<tr>
<td></td>
<td>PlasmaWaves</td>
<td>Self-consistent collective oscillations of particles and fields (electric and magnetic) in a plasma.</td>
</tr>
</tbody>
</table>

#### Source

```
<xsd:simpleType name="enumWaveType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the carrier or phenomenon of wave information observed by the measurement.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Electromagnetic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Electric and magnetic field variations in time and space that propagate through a medium or a vacuum with the wave's propagation, electric field, and magnetic field vectors forming an orthogonal triad. Waves in this category are detected by having their field quantities measured.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Electrostatic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Collective longitudinal electric-field and plasma oscillations trapped within a body of plasma.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Hydrodynamic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Periodic or quasi-periodic oscillations of fluid quantities.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="MHD">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Hydrodynamic waves in a magnetized plasma in which the background magnetic field plays a key role in controlling the wave propagation characteristics.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Photon">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Electromagnetic waves detected by techniques that utilize their corpuscular character (e.g., CCD, CMOS, photomultipliers).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="PlasmaWaves">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Self-consistent collective oscillations of particles and fields (electric and magnetic) in a plasma.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
Hydrodynamic waves in a magnetized plasma in which the background magnetic field plays a key role in controlling the wave propagation characteristics.

Electromagnetic waves detected by techniques that utilize their corpuscular character (e.g., CCD, CMOS, photomultipliers).

Self-consistent collective oscillations of particles and fields (electric and magnetic) in a plasma.
magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.).

<table>
<thead>
<tr>
<th>enumeration</th>
<th>ModeAmplitude</th>
<th>In helioseismology the magnitude of oscillation of waves of a particular geometry.</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>PlasmaFrequency</td>
<td>A number-density-dependent characteristic frequency of a plasma.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Polarization</td>
<td>Direction of the electric vector of an electromagnetic wave. The wave can be linearly polarized in any direction perpendicular to the direction of travel, circularly polarized (clockwise or counterclockwise), unpolarized, or mixtures of the above.</td>
</tr>
<tr>
<td>enumeration</td>
<td>PoyntingFlux</td>
<td>Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.</td>
</tr>
<tr>
<td>enumeration</td>
<td>PropagationTime</td>
<td>Time difference between transmission and reception of a wave in an active wave experiment.</td>
</tr>
<tr>
<td>enumeration</td>
<td>StokesParameters</td>
<td>A set of four parameters (usually called (I, Q, U) and (V)) which describe the polarization state of an electromagnetic wave propagating through space.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Velocity</td>
<td>Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as &quot;bulk velocity&quot;.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Wavelength</td>
<td>The peak-to-peak distance over one wave period.</td>
</tr>
</tbody>
</table>

Source

```xml
<xsd:simpleType name="enumWaveQuantity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the characterization of the physical properties of a wave.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="ACElectricField">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Alternating electric field component of a wave.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ACMagneticField">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Alternating magnetic field component of a wave.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Absorption">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Decrease of radiant energy (relative to the background continuum spectrum).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DopplerFrequency">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Change in the frequency of a propagating wave due to motion of the source, the observer, the reflector, or the propagation medium.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Emissivity">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The energy emitted spontaneously per unit bandwidth (typically frequency) per unit time per unit mass of source. Emissivity is usually integrated over all directions/solid angles.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="EnergyFlux">
      <xsd:annotation>
        <xsd:documentation xml:lang="en"></xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
<xsd:documentation xml:lang="en">The amount of energy passing through a unit area in a unit time.</xsd:documentation>
</xsd:enumeration>
<xsd:enumeration value="EquivalentWidth">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The spectral width of a total absorption line having the amount of absorbed radiant energy being equivalent to that in an observed absorption line.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Frequency">
  <xsd:annotation>
    <xsd:/documentation xml:lang="en">The number of occurrences of a repeating event per unit time.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Gyrofrequency">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The number of gyrations around a magnetic guiding center (field line) a charged particle makes per unit time due to the Lorentz force.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Intensity">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The measurement of radiant or wave energy per unit detector area per unit bandwidth per unit solid angle per unit time.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="LineDepth">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The measure of the amount of absorption below the continuum (depth) in a particular wavelength or frequency in an absorption spectrum.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="MagneticField">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A region of space near a magnetized body where magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.).</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="ModeAmplitude">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">In helioseismology the magnitude of oscillation of waves of a particular geometry.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="PlasmaFrequency">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A number-density-dependent characteristic frequency of a plasma.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Polarization">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Direction of the electric vector of an electromagnetic wave. The wave can be linearly polarized in any direction perpendicular to the direction of travel, circularly polarized (clockwise or counterclockwise), unpolarized, or mixtures of the above.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="PoyntingFlux">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Electromagnetic energy flux transported by a wave characterized as the rate of energy transport per unit area per steradian.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="PropagationTime">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Time difference between transmission and reception of a wave in an active wave experiment.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="StokesParameters">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A set of four parameters (usually called I, Q, U and V) which describe the polarization state of an electromagnetic wave propagating through space.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
**Simple Type: EnumMixedQuantity**

**Namespace:** http://www.spase-group.org/data/schema

**Annotations:** Identifiers for the combined attributes of a mixed parameter quantity.

**Diagram:**
- ![Diagram](image_url)

**Type:** restriction of xsd:string

**Facets:**
- **enumeration** AkasofuEpsilon: A measure of the magnetopause energy flux and an indicator of the solar wind power available for subsequent magnetospheric energization. Defined as: \( V^2 B^2 \). Here, \( V \) is the IMF, \( B \) is the IMF, \( l \) is an empirical scaling parameter equal to 7 RE, and theta = tan(BY / BZ)^-1 the IMF clock angle.

- **enumeration** AlfvenMachNumber: The ratio of the bulk flow speed to the Alfven speed.

- **enumeration** AlfvenVelocity: Phase velocity of the Alfven wave; in SI units it is the velocity of the magnetic field divided by the square root of the mass density times the permeability of free space (\( \mu_0 \)).

- **enumeration** FrequencyToGyrofrequencyRatio: The ratio of the characteristic frequency of a medium to gyrofrequency of a particle.

- **enumeration** MagnetosonicMachNumber: The ratio of the velocity of fast mode waves to the Alfven velocity.

- **enumeration** Other: Not classified with more specific terms. The context of its usage may be described in related text.

- **enumeration** PlasmaBeta: The ratio of the plasma pressure (nkT) to the magnetic pressure (B^2/2\mu_0) of the solar wind.

- **enumeration** TotalPressure: In an MHD fluid it is the number density (N) times Boltzmann constant times the temperature in Kelvin.

- **enumeration** VCrossB: The cross product of the charge velocity (V) and the magnetic field (B). It is the electric field exerted on a point charge by a magnetic field.

**Used by:**
- **Element** MixedQuantity

**Source:**
```xml
<xs:simpleType name="enumMixedQuantity">
  <xs:annotation>
    <xs:documentation xml:lang="en">Identifiers for the combined attributes of a mixed parameter quantity.</xs:documentation>
  </xs:annotation>
</xs:simpleType>
```
<xsd:restriction base="xsd:string">
  <xsd:enumeration value="AkasofuEpsilon">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">A measure of the magnetopause energy flux and an indicator of the solar wind power available for subsequent magnetospheric energization. Defined as: \( V^2 B^2 l^2 \sin(\theta/2)^4 \) where \( B \) is the IMF, \( l \) is an empirical scaling parameter equal to 7 RE, and \( \theta = \tan(B_Y/B_Z)^{-1} \) the IMF clock angle.</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
  <xsd:enumeration value="AlfvenMachNumber">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">The ratio of the bulk flow speed to the Alfven speed.</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
  <xsd:enumeration value="AlfvenVelocity">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Phase velocity of the Alfven wave; In SI units it is the velocity of the magnetic field divided by the square root of the mass density times the permeability of free space \( \mu_0 \).</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
  <xsd:enumeration value="FrequencyToGyrofrequencyRatio">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">The ratio of the characteristic frequency of a medium to gyrofrequency of a particle.</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
  <xsd:enumeration value="MagnetosonicMachNumber">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">The ratio of the velocity of fast mode waves to the Alfven velocity.</xsd:documentation>
    </xsd:annotation>
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  <xsd:enumeration value="Other">
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  <xsd:enumeration value="PlasmaBeta">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">The ratio of the plasma pressure \( nkT \) to the magnetic pressure \( B^2/2\mu_0 \) of the \( \Sigma(nkT)/(B^2/2\mu_0) \).</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
  <xsd:enumeration value="TotalPressure">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">In an MHD fluid it is the number density \( N \) times Boltzmann constant times the temperature in Kelvin.</xsd:documentation>
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  </xsd:enumeration>
  <xsd:enumeration value="VCrossB">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">The cross product of the charge velocity \( V \) and the magnetic field \( B \). It is the electric field exerted on a point charge by a magnetic field.</xsd:documentation>
    </xsd:annotation>
  </xsd:enumeration>
</xsd:restriction>

Simple Type enumSupportQuantity

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the information useful in understanding the context of an observation, typically observed or measured coincidentally with a physical observation.

**Diagram**
- enumSupportQuantity
- xsd:string

**Type**
restriction of xsd:string

**Facets**
- enumeration
- InstrumentMode
  - An indication of a state (mode) in which the instrument is operating. How a mode influences the interpretation and representation of data
is described in instrument related documentation.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Other</th>
<th>Not classified with more specific terms. The context of its usage may be described in related text.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enumeration</td>
<td>Positional</td>
<td>The specification of the location of an object or measurement within a reference coordinate system. The position is usually expressed as a set of values corresponding to the location along a set of orthogonal axes together with the date/time of the observation.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Temporal</td>
<td>Pertaining to time.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Velocity</td>
<td>Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as &quot;bulk velocity&quot;.</td>
</tr>
</tbody>
</table>

Used by | Element | SupportQuantity |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
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</tr>
<tr>
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<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
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<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;InstrumentMode&quot;&gt;</td>
<td>An indication of a state (mode) in which the instrument is operating. How a mode influences the interpretation and representation of data is described in instrument related documentation.&lt;/xsd:documentation&gt;</td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
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</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Other&quot;&gt;</td>
<td>Not classified with more specific terms. The context of its usage may be described in related text.. &lt;/xsd:documentation&gt;</td>
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<td></td>
<td><a href="">xsd:annotation</a></td>
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</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Positional&quot;&gt;</td>
<td>The specification of the location of an object or measurement within a reference coordinate system. The position is usually expressed as a set of values corresponding to the location along a set of orthogonal axes together with the date/time of the observation. &lt;/xsd:documentation&gt;</td>
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<td>Pertaining to time. &lt;/xsd:documentation&gt;</td>
</tr>
<tr>
<td></td>
<td><a href="">xsd:annotation</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;xsd:enumeration value=&quot;Velocity&quot;&gt;</td>
<td>Rate of change of position. Also used for the average velocity of a collection of particles, also referred to as &quot;bulk velocity&quot;. &lt;/xsd:documentation&gt;</td>
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<td></td>
<td><a href="">xsd:annotation</a></td>
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</table>

Schema location: file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Simple Type enumProcessingLevel**

**Namespace** | http://www.spase-group.org/data/schema

**Annotations** | Identifiers to characterize the amount and type of manipulation which has been applied to the sampled data.

**Diagram** | ![enumProcessingLevel] (xsd:string)

**Type** | restriction of xsd:string

**Facets** | enumeration Calibrated Data wherein sensor outputs have been convolved
with instrument response function, often irreversibly, to yield data in physical units.

<table>
<thead>
<tr>
<th>enumeration</th>
<th>Raw</th>
<th>Data in its original state with no processing to account for calibration!!</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Uncalibrated</td>
<td>Duplicate data are removed from the data stream and data are time ordered. Values are not adjusted for any potential biases or external factors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Used by</th>
<th>Element</th>
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</tr>
<tr>
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<tr>
<td><a href="">xsd:annotation</a></td>
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<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td><a href="">xsd:annotation</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;</td>
<td>Duplicate data are removed from the data stream and data are time ordered. Values are not adjusted for any potential biases or external factors. &lt;/xsd:documentation&gt;</td>
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</tr>
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<td><a href="">xsd:restriction</a></td>
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<td><a href="">xsd:annotation</a></td>
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</tr>
<tr>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;</td>
<td>Identifiers to characterize the amount and type of manipulation which has been applied to the sampled data. &lt;/xsd:documentation&gt;</td>
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<tr>
<td>&lt;xsd:enumeration value=&quot;Calibrated&quot;&gt;</td>
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</tr>
<tr>
<td><a href="">xsd:annotation</a></td>
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<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;</td>
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<td></td>
</tr>
<tr>
<td>&lt;xsd:enumeration value=&quot;Raw&quot;&gt;</td>
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<td>Data in its original state with no processing to account for calibration!!! &lt;/xsd:documentation&gt;</td>
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<tr>
<td><a href="">xsd:annotation</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;</td>
<td>Duplicate data are removed from the data stream and data are time ordered. Values are not adjusted for any potential biases or external factors. &lt;/xsd:documentation&gt;</td>
<td></td>
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<td><a href="">xsd:restriction</a></td>
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</tr>
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</table>

**Simple Type enumMeasurementType**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for the method of making an estimated value of a quantity that forms the basis of an observation.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="Image" alt="enumMeasurementType" /> <img src="Image" alt="xsd:string" /></td>
</tr>
<tr>
<td>Type</td>
<td>restriction of xsd:string</td>
</tr>
<tr>
<td>Facets</td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>ActivityIndex</td>
</tr>
<tr>
<td>enumeration</td>
<td>Dopplergram</td>
</tr>
<tr>
<td>enumeration</td>
<td>Dust</td>
</tr>
<tr>
<td>enumeration</td>
<td>ElectricField</td>
</tr>
<tr>
<td>enumeration</td>
<td>EnergeticParticles</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Ephemeris</td>
<td>The spatial coordinates of a body as a function of time. When used as an Instrument Type it represents the process or methods used to generate spatial coordinates.</td>
</tr>
<tr>
<td>ImageIntensity</td>
<td>Measurements of the two-dimensional distribution of the intensity of photons from some region or object such as the Sun or the polar auroral regions; can be in any wavelength band, and polarized, etc.</td>
</tr>
<tr>
<td>InstrumentStatus</td>
<td>A quantity directly related to the operation or function of an instrument.</td>
</tr>
<tr>
<td>IonComposition</td>
<td>In situ measurements of the relative flux or density of electrically charged particles in the space environment. May give simple fluxes, but full distribution functions are sometimes measured.</td>
</tr>
<tr>
<td>Irradiance</td>
<td>Irradiance - A radiometric term for the power of electromagnetic radiation at a surface, per unit area. &quot;Irradiance&quot; is used when the electromagnetic radiation is incident on the surface. Irradiance data may be reported in any units (i.e. counts/s) due to, for example, being at a particular wavelength, or to being a not-fully-calibrated relative measurement.</td>
</tr>
<tr>
<td>MagneticField</td>
<td>A region of space near a magnetized body where magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.).</td>
</tr>
<tr>
<td>Magnetogram</td>
<td>Measurements of the vector or line-of-sight magnetic field determined from remote sensing measurements of the detailed structure of spectral lines, including their splitting and polarization. (&quot;Magnetogram.&quot;)</td>
</tr>
<tr>
<td>NeutralAtomImages</td>
<td>Measurements of neutral atom fluxes as a function of look direction; often related to remote energetic charged particles that lose their charge through charge-exchange and then reach the detector on a line-of-sight trajectory.</td>
</tr>
<tr>
<td>NeutralGas</td>
<td>Measurements of neutral atomic and molecular components of a gas.</td>
</tr>
<tr>
<td>Profile</td>
<td>Measurements of a quantity as a function of height above an object such as the limb of a body.</td>
</tr>
<tr>
<td>Radiance</td>
<td>A radiometric measurement that describes the amount of electromagnetic radiation that passes through or is emitted from a particular area, and falls within a given solid angle in a specified direction. They are used to characterize both emission from diffuse sources and reflection from diffuse surfaces.</td>
</tr>
<tr>
<td>Spectrum</td>
<td>The distribution of a characteristic of a physical system or phenomenon, such as the energy emitted by a radiant source, arranged in the order of wavelengths.</td>
</tr>
<tr>
<td>ThermalPlasma</td>
<td>Measurements of the plasma in the energy regime where the most of the plasma occurs. May be the basic fluxes in the form of distribution functions or the derived bulk parameters (density, flow velocity, etc.).</td>
</tr>
</tbody>
</table>
### Waves

Data resulting from observations of wave experiments and natural wave phenomena. Wave experiments are typically active and natural wave phenomena are passive. Examples of wave experiments include coherent/incoherent scatter radars, radio soundings, VLF propagation studies, ionospheric scintillation of beacon satellite signals, etc. Examples of natural wave phenomena include micropulsations, mesospheric gravity waves, auroral/plasmaspheric hiss, Langmuir waves, AKR, Jovian decametric radiation, solar radio bursts, etc.

### Waves.Active

Exerting an influence or producing a change or effect. An active measurement is one which produces a transmission or excitation as a part of the measurement cycle.

### Waves.Passive

Movement or effect produced by outside influence. A passive measurement is one which does not produce a transmission or excitation as a part of the measurement cycle.

#### Used by

<table>
<thead>
<tr>
<th>Source</th>
<th>Element</th>
<th>MeasurementType</th>
</tr>
</thead>
<tbody>
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<td>&lt;xsd:restriction base=&quot;xsd:string&quot;&gt;</td>
<td>&lt;xsd:enumeration value=&quot;ActivityIndex&quot;&gt;</td>
</tr>
<tr>
<td><a href="">xsd:annotation</a></td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;An indication, derived from one or more measurements, of the level of activity of an object or region, such as sunspot number, F10.7 flux, Dst, or the Polar Cap Indices.&lt;/xsd:documentation&gt;</td>
</tr>
<tr>
<td>&lt;xsd:enumeration value=&quot;Dopplergram&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A map or image depicting the spatial distribution of line-of-sight velocities of the observed object.&lt;/xsd:documentation&gt;</td>
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<tr>
<td>&lt;xsd:enumeration value=&quot;Dust&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Free microscopic particles of solid material.&lt;/xsd:documentation&gt;</td>
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<td>&lt;xsd:enumeration value=&quot;ElectricField&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;A region of space around a charged particle, or between two voltages within which a force is exerted on charged objects in its vicinity. An electric field is the electric force per unit charge.&lt;/xsd:documentation&gt;</td>
</tr>
<tr>
<td>&lt;xsd:enumeration value=&quot;EnergeticParticles&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Pieces of matter that are moving very fast. Energetic particles include protons, electrons, neutrons, neutrinos, the nuclei of atoms, and other sub-atomic particles.&lt;/xsd:documentation&gt;</td>
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<tr>
<td>&lt;xsd:enumeration value=&quot;Ephemeris&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;The spatial coordinates of a body as a function of time. When used as an Instrument Type it represents the process or methods used to generate spatial coordinates.&lt;/xsd:documentation&gt;</td>
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<tr>
<td>&lt;xsd:enumeration value=&quot;ImageIntensity&quot;&gt;</td>
<td><a href="">xsd:annotation</a></td>
<td>&lt;xsd:documentation xml:lang=&quot;en&quot;&gt;Measurements of the two-dimensional distribution of the intensity of photons from some region or object such as the Sun or the polar auroral regions; can be in any wavelength band, and polarized, etc.&lt;/xsd:documentation&gt;</td>
</tr>
</tbody>
</table>
A quantity directly related to the operation or function of an instrument.

In situ measurements of the relative flux or density of electrically charged particles in the space environment. May give simple fluxes, but full distribution functions are sometimes measured.

A radiometric term for the power of electromagnetic radiation at a surface, per unit area. "Irradiance" is used when the electromagnetic radiation is incident on the surface. Irradiance data may be reported in any units (i.e. counts/s) due to, for example, being at a particular wavelength, or to being a not-fully-calibrated relative measurement.

A region of space near a magnetized body where magnetic forces can be detected (as measured by methods such as Zeeman splitting, etc.).

Measurements of the vector or line-of-sight magnetic field determined from remote sensing measurements of the detailed structure of spectral lines, including their splitting and polarization.

Measurements of neutral atom fluxes as a function of look direction; often related to remote energetic charged particles that lose their charge through charge-exchange and then reach the detector on a line-of-sight trajectory.

Measurements of neutral atomic and molecular components of a gas.

Measurements of a quantity as a function of height above an object such as the limb of a body.

A radiometric measurement that describes the amount of electromagnetic radiation that passes through or is emitted from a particular area, and falls within a given solid angle in a specified direction. They are used to characterize both emission from diffuse sources and reflection from diffuse surfaces.

The distribution of a characteristic of a physical system or phenomenon, such as the energy emitted by a radiant source, arranged in the order of wavelengths.

Measurements of the plasma in the energy regime where the most of the plasma occurs. May be the basic fluxes in the form of distribution functions or the derived bulk parameters (density, flow velocity, etc.).
<xsd:enumeration value="Waves">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Data resulting from observations of wave experiments and natural wave phenomena. Wave experiments are typically active and natural wave phenomena are passive. Examples of wave experiments include coherent/incoherent scatter radars, radio soundings, VLF propagation studies, ionospheric scintillation of beacon satellite signals, etc. Examples of natural wave phenomena include micro pulsations, mesospheric gravity waves, auroral/plasmaspheric hiss, Langmuir waves, AKR, Jovian decametric radiation, solar radio bursts, etc.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Waves.Active">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Exerting an influence or producing a change or effect. An active measurement is one which produces a transmission or excitation as a part of the measurement cycle.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Waves.Passive">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Movement or effect produced by outside influence. A passive measurement is one which does not produce a transmission or excitation as a part of the measurement cycle.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

---

### Simple Type `enumRegion`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for areas of the physical world which may be occupied or observed.

**Diagram**

![Diagram](image)

**Type**
restriction of xsd:string

**Facets**

- **enumeration**
  - **Asteroid**: A small extraterrestrial body consisting mostly of rock and metal that is in orbit around the sun.
  - **Comet**: A relatively small extraterrestrial body consisting of a frozen mass that travels around the sun in a highly elliptical orbit.
  - **Earth**: The third planet from the sun in our solar system.
  - **Earth.Magnetosheath**: The region between the bow shock and the magnetopause, characterized by very turbulent plasma.
  - **Earth.Magnetosphere**: The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.
  - **Earth.Magnetosphere.Magnetotail**: The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X > -10Re).
  - **Earth.Magnetosphere.Main**: The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.
  - **Earth.Magnetosphere.Polar**: The region near the pole of a body. For a magnetosphere, the polar region is the area where magnetic field lines are open and includes the auroral zone.
  - **Earth.Magnetosphere.RadiationBelt**: The region within a magnetosphere where high-energy particles could potentially be trapped in
<table>
<thead>
<tr>
<th>Schema Documentation for spase-2.2.1.xsd</th>
</tr>
</thead>
</table>

**Earth.NearSurface**

The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.

**Earth.NearSurface.Atmosphere**

Neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.

**Earth.NearSurface.AuroralRegion**

The atmospheric region in the atmosphere where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.

**Earth.NearSurface.EquatorialRegion**

A region centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator.

**Earth.NearSurface.Ionosphere**

The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.

**Earth.NearSurface.Ionosphere.DRegion**

The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.

**Earth.NearSurface.Ionosphere.ERegion**

A layer of ionized gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called The Kennelly-Heaviside layer.

**Earth.NearSurface.Ionosphere.FRegion**

A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.

**Earth.NearSurface.Ionosphere.Topside**

The region at the upper most areas of the ionosphere.

**Earth.NearSurface.Mesosphere**

The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.

**Earth.NearSurface.Plasmasphere**

The outer part of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.

**Earth.NearSurface.PolarCap**

The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude an the region south of 60 degrees south latitude.

**Earth.NearSurface.SouthAtlanticAnomalyRegion**

The region where the Earth’s inner van Allen radiation belt makes its closest approach to the planet’s surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.

**Earth.NearSurface.Stratosphere**

The temperature increases with height. The stratosphere contains the ozone layer.
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth.NearSurface.Thermosphere</td>
<td>The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.</td>
</tr>
<tr>
<td>Earth.NearSurface.Troposphere</td>
<td>The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</td>
</tr>
<tr>
<td>Earth.Surface</td>
<td>The outermost area of a solid object.</td>
</tr>
<tr>
<td>Heliosphere</td>
<td>The solar atmosphere extending roughly from the outer corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.</td>
</tr>
<tr>
<td>Heliosphere.Heliosheath</td>
<td>The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</td>
</tr>
<tr>
<td>Heliosphere.Inner</td>
<td>The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</td>
</tr>
<tr>
<td>Heliosphere.NearEarth</td>
<td>The heliospheric region near the Earth which extends to and includes the area near the L1 and L2 Lagrange point.</td>
</tr>
<tr>
<td>Heliosphere OUTER</td>
<td>The region of the heliosphere extending radially outward from just outside 1 AU to the heliospheric termination shock.</td>
</tr>
<tr>
<td>Heliosphere.Remote1AU</td>
<td>A roughly toroidal region that includes the Earth's orbit, but exclusive of the region near the Earth.</td>
</tr>
<tr>
<td>Interstellar</td>
<td>The region between stars outside of the star's heliopause.</td>
</tr>
<tr>
<td>Jupiter</td>
<td>The fifth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mars</td>
<td>The forth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Mercury</td>
<td>The first planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Neptune</td>
<td>The seventh planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Pluto</td>
<td>The ninth (sub)planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Saturn</td>
<td>The sixth planet from the sun in our solar system.</td>
</tr>
<tr>
<td>Sun</td>
<td>The star upon which our solar system is centered.</td>
</tr>
<tr>
<td>Sun.Chrmosphere</td>
<td>The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 - 28000 K.</td>
</tr>
<tr>
<td>Sun.Corona</td>
<td>The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10⁵ K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</td>
</tr>
<tr>
<td>Sun.Interior</td>
<td>The region inside the body which is not visible from outside the body.</td>
</tr>
</tbody>
</table>
enumeration  Sun.Photosphere  The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.

enumeration  Sun.TransitionRegion  A very narrow (~100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.

enumeration  Uranus  The eighth planet from the sun in our solar system.

enumeration  Venus  The second planet from the sun in our solar system.

Used by  Elements  ObservatoryRegion, ObservedRegion

Source  <xsd:simpleType name="enumRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for areas of the physical world which may be occupied or observed.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Asteroid">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A small extraterrestrial body consisting mostly of rock and metal that is in orbit around the sun.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Comet">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A relatively small extraterrestrial body consisting of a frozen mass that travels around the sun in a highly elliptical orbit.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The third planet from the sun in our solar system.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosheath">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region between the bow shock and the magnetopause, characterized by very turbulent plasma.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosphere">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosphere.Magnetotail">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X > -10Re).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosphere.Main">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosphere.Polar">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Earth.Magnetosphere.RadiationBelt">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.

The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.

The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.

The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.

A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.

A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1-and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.

The region at the upper most areas of the ionosphere.

The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.

A region of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.
<xsd:documentation xml:lang="en">The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude and the region south of 60 degrees south latitude.</xsd:documentation>
</xsd:enumeration>
<xsd:enumeration value="Earth.NearSurface.SouthAtlanticAnomalyRegion">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Earth.NearSurface.Stratosphere">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Earth.NearSurface.Thermosphere">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Earth.NearSurface.Troposphere">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Earth.Surface">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The outermost area of a solid object.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The solar atmosphere extending roughly from the outer corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere.Heliosheath">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere.Inner">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere.NearEarth">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The heliospheric region near the Earth which extends to and includes the area near the L1 and L2 Lagrange point.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere.Outer">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the heliosphere extending radially outward from just outside 1 AU to the heliospheric termination shock.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Heliosphere.Remote1AU">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">A roughly toroidal region that includes the Earth's orbit, but exclusive of the region near the Earth.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Interstellar">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region between stars outside of the star's heliopause.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Jupiter">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The fifth planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Mars">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The forth planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Mercury">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The first planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Neptune">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The seventh planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Pluto">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The ninth (sub)planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Saturn">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The sixth planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The star upon which our solar system is centered.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun.Chromosphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 – 28000 K.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun.Corona">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun.Interior">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The region inside the body which is not visible from outside the body.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun.Photosphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Sun.TransitionRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A very narrow (<100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Uranus">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The eighth planet from the sun in our solar system.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
### Simple Type `enumDocumentType`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the characterization of the content or purpose of a document.

**Diagram**

<table>
<thead>
<tr>
<th><code>enumDocumentType</code></th>
<th><code>xsd:string</code></th>
</tr>
</thead>
</table>

**Type**
restriction of `xsd:string`

**Facets**
- **enumeration** `Paper`
  A formal presentation of an idea or discovery typically more than a few pages in length.

**Used by**
- Element `DocumentType`

**Source**

```xml
<xsd:simpleType name="enumDocumentType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the characterization of the content or purpose of a document.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Paper">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A formal presentation of an idea or discovery typically more than a few pages in length.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```

**Schema location**
file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

### Simple Type `enumSourceType`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the characterization of the function or purpose of a source.

**Diagram**

<table>
<thead>
<tr>
<th><code>enumSourceType</code></th>
<th><code>xsd:string</code></th>
</tr>
</thead>
</table>

**Type**
restriction of `xsd:string`

**Facets**
- **enumeration** `Ancillary`
  A complementary item which can be subordinate, subsidiary, auxiliary, supplementary to the primary item.

- **enumeration** `Browse`
  A representation of an image which is suitable to reveal most or all of the details of the image.

- **enumeration** `Data`
  A collection of organized information, usually the results of experience, observation or experiment, or a set of premises. This may consist of numbers, words, or images, particularly as measurements or observations of a set of variables.

- **enumeration** `Layout`
  The structured arrangement of items in a collection.

- **enumeration** `Thumbnail`
  A small representation of an image which is suitable to infer what the full-sized image is like.

**Used by**
- Element `SourceType`
Schema documentation for spase-2.2.1.xsd

Source

```xml
<xsd:simpleType name="enumSourceType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the characterization of the function or purpose of a source.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Ancillary">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A complementary item which can be subordinate, subsidiary, auxiliary, supplementary to the primary item.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Browse">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A representation of an image which is suitable to reveal most or all of the details of the image.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Data">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A collection of organized information, usually the results of experience, observation or experiment, or a set of premises. This may consist of numbers, words, or images, particularly as measurements or observations of a set of variables.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Layout">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The structured arrangement of items in a collection.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Thumbnail">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A small representation of an image which is suitable to infer what the full-sized image is like.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```

Schema location file:/C:/Projects/spase/java/model-tools/bin/spase-2.2.1.xsd

Simple Type enumHashFunction

Namespace http://www.spase-group.org/data/schema

Annotations Identifiers for functions or algorithms that convert a digital data object into a hash value.

Diagram

Type restriction of xsd:string

Facets

<table>
<thead>
<tr>
<th>enumeration</th>
<th>MD5</th>
<th>Message Digest 5 (MD5) is a 128-bit message digest algorithm created in 1991 by Professor Ronald Rivest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>SHA1</td>
<td>Secure Hash Algorithm (SHA), a 160-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</td>
</tr>
<tr>
<td>enumeration</td>
<td>SHA256</td>
<td>Secure Hash Algorithm (SHA), a 256-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</td>
</tr>
</tbody>
</table>

Used by Element HashFunction

Source

```xml
<xsd:simpleType name="enumHashFunction">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for functions or algorithms that convert a digital data object into a hash value.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="MD5">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Message Digest 5 (MD5) is a 128-bit message digest algorithm created in 1991 by Professor Ronald Rivest.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="SHA1">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Secure Hash Algorithm (SHA), a 160-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="SHA256">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Secure Hash Algorithm (SHA), a 256-bit message digest algorithm developed by the NSA and described in Federal Information Processing Standard (FIPS) publication 180-1.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
**Schema documentation for spase-2_2_1.xsd**

**Simple Type enumInstrumentType**

<table>
<thead>
<tr>
<th>Facets</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Antenna</td>
</tr>
<tr>
<td>enumeration</td>
<td>Channeltron</td>
</tr>
<tr>
<td>enumeration</td>
<td>Coronograph</td>
</tr>
<tr>
<td>enumeration</td>
<td>DoubleSphere</td>
</tr>
<tr>
<td>enumeration</td>
<td>DustDetector</td>
</tr>
<tr>
<td>enumeration</td>
<td>ElectronDriftInstrument</td>
</tr>
<tr>
<td>enumeration</td>
<td>ElectrostaticAnalyser</td>
</tr>
<tr>
<td>enumeration</td>
<td>EnergeticParticleInstrument</td>
</tr>
<tr>
<td>enumeration</td>
<td>FaradayCup</td>
</tr>
<tr>
<td>enumeration</td>
<td>FluxFeedback</td>
</tr>
</tbody>
</table>

**Annotations**

Identifiers for the type of experiment the instrument performs. This is the technique of observation.

**Diagram**

![Diagram](image)

**Type**

restriction of xsd:string

**Namespace**

http://www.spase-group.org/data/schema

**Diagram**

http://www.w3.org/2001/XMLSchema

**Schema location**

file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd
ratio are increased by the application of negative feedback at the sensor (flux) level by driving a colocated coil with a signal from the preamplifier.

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FourierTransformSpectrograph</td>
<td>Instrument that determines the spectra of a radiative source, using time-domain measurements and a Fourier transform.</td>
</tr>
<tr>
<td>GeigerMuellerTube</td>
<td>An instrument which measures density of ionizing radiation based on interactions with a gas.</td>
</tr>
<tr>
<td>Imager</td>
<td>An instrument which samples the radiation from an area at one or more spectral ranges emitted or reflected by an object.</td>
</tr>
<tr>
<td>ImagingSpectrometer</td>
<td>An instrument which is a multispectral scanner with a very large number of channels (64-256 channels) with very narrow band widths.</td>
</tr>
<tr>
<td>Interferometer</td>
<td>An instrument to study the properties of two or more waves from the pattern of interference created by their superposition.</td>
</tr>
<tr>
<td>IonChamber</td>
<td>A device in which the collected electrical charge from ionization in a gas-filled cavity is taken to be the proportion to some parameter (e.g. dose or exposure) of radiation field.</td>
</tr>
<tr>
<td>IonDrift</td>
<td>A device which measures the current produced by the displacement of ambient ions on a grid, thereby allowing the determination of the ion trajectory and velocity.</td>
</tr>
<tr>
<td>LangmuirProbe</td>
<td>A monopole antenna associated with an instrument. The instrument applies a potential to the antenna which is swept to determine the voltage/current characteristic. This provides information about the plasma surrounding the probe and spacecraft.</td>
</tr>
<tr>
<td>LongWire</td>
<td>A dipole antenna whose active (sensor) elements are two wires deployed in the equatorial plane on opposite sides of a spinning spacecraft, and whose length is several times greater than the spacecraft diameter.</td>
</tr>
<tr>
<td>Magnetometer</td>
<td>An instrument which measures the ambient magnetic field.</td>
</tr>
<tr>
<td>MassSpectrometer</td>
<td>An instrument which distinguishes chemical species in terms of their different isotopic masses.</td>
</tr>
<tr>
<td>MicrochannelPlate</td>
<td>An instrument used for the detection of elementary particles, ions, ultraviolet rays and soft X-rays constructed from very thin conductive glass capillaries.</td>
</tr>
<tr>
<td>MultispectralImager</td>
<td>An instrument which captures images at multiple spectral ranges.</td>
</tr>
<tr>
<td>NeutralAtomImager</td>
<td>An instrument which measures the quantity and properties of neutral particles over a range of angles. Measured properties can include mass and energy.</td>
</tr>
<tr>
<td>NeutralParticleDetector</td>
<td>An instrument which measures the quantity and properties of neutral particles. Measured properties can include mass and plasma bulk densities.</td>
</tr>
<tr>
<td>ParticleCorrelator</td>
<td>An instrument which correlates particle flux to help identify wave/particle interactions.</td>
</tr>
<tr>
<td>Schema documentation for spase-2.2.1.xsd</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>enumeration</strong> ParticleDetector</td>
<td>An instrument which detects particle flux!!!</td>
</tr>
<tr>
<td><strong>enumeration</strong> Photometer</td>
<td>An instrument which measures the strength of electromagnetic radiation within a spectral band which can range from ultraviolet to infrared and includes the visible spectrum.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Photopolarimeter</td>
<td>An instrument which measures the intensity and polarization or radiant energy. A photopolarimeter is a combination of a photometer and a polarimeter.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Platform</td>
<td>A collection of components which can be positioned and oriented as a single unit. A platform may contain other platforms. For example, a spacecraft is a platform which may have components that can be articulated and are also considered platforms.</td>
</tr>
<tr>
<td><strong>enumeration</strong> ProportionalCounter</td>
<td>An instrument which measures energy of ionization radiation based on interactions with a gas.</td>
</tr>
<tr>
<td><strong>enumeration</strong> QuadrisphericalAnalyser</td>
<td>An instrument used for the 3-D detection of plasma, energetic electrons and ions, and for positive-ion composition measurements.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Radar</td>
<td>An instrument that uses directional properties of returned power to infer spatial and/or other characteristics of a remote object.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Radiometer</td>
<td>An instrument for detecting or measuring radiant energy. Radiometers are commonly limited to infrared radiation.</td>
</tr>
<tr>
<td><strong>enumeration</strong> ResonanceSounder</td>
<td>A combination of a radio receiver and a pulsed transmitter used to study the plasma surrounding a spacecraft by identifying resonances or cut-offs (of the wave dispersion relation), whose frequencies are related to the ambient plasma density and magnetic field. When the transmitter is off it is essentially a high frequency-resolution spectral power receiver.</td>
</tr>
<tr>
<td><strong>enumeration</strong> RetardingPotentialAnalyser</td>
<td>An instrument which measures ion temperatures and ion concentrations using a planar ion trap.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Riometer</td>
<td>An instrument which measure the signal strength in various directions of the galactic radio signals. Variations in these signals are influenced by solar flare activity and geomagnetic storm and substorm processes.</td>
</tr>
<tr>
<td><strong>enumeration</strong> ScintillationDetector</td>
<td>An instrument which detects flouresences of a material which is excited by high energy (ionizing) electromagnetic or charged particle radiation.</td>
</tr>
<tr>
<td><strong>enumeration</strong> SearchCoil</td>
<td>An instrument which measures the time variation of the magnetic flux threading a loop by measurement of the electric potential difference induced between the ends of the wire.</td>
</tr>
<tr>
<td><strong>enumeration</strong> Sounder</td>
<td>An instrument which measures the radiances from an object. A sounder may measure radiances at multiple spectral ranges.</td>
</tr>
<tr>
<td><strong>enumeration</strong> SpacecraftPotentialControl</td>
<td>An instrument to control the electric potential of a spacecraft with respect to the ambient</td>
</tr>
</tbody>
</table>
plasma by emitting a variable current of positive ions.

<table>
<thead>
<tr>
<th>enumeration</th>
<th>SpectralPowerReceiver</th>
<th>A radio receiver which determines the power spectral density of the electric or magnetic field, or both, at one or more frequencies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Spectrometer</td>
<td>An instrument that measures the component wavelengths of light (or other electromagnetic radiation) by splitting the light up into its component wavelengths.</td>
</tr>
<tr>
<td>enumeration</td>
<td>TimeOfFlight</td>
<td>An instrument which measures the time it takes for a particle to travel between two detectors.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Unspecified</td>
<td>A value which is not provided.</td>
</tr>
<tr>
<td>enumeration</td>
<td>WaveformReceiver</td>
<td>A radio receiver which outputs the value of one or more components of the electric and/or magnetic field as a function of time.</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xsd:simpleType name="enumInstrumentType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the type of experiment the instrument performs. This is the technique of observation.\</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Antenna">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A sensor used to measure electric potential.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Channeltron">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An instrument that detects electrons, ions, and UV-radiation, according to the principle of a secondary emission multiplier. It is typically used in electron spectroscopy and mass spectrometry.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Coronograph">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An instrument which can image things very close to the Sun by using a disk to block the Sun’s bright surface which reveals the faint solar corona and other celestial objects.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DoubleSphere">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A dipole antenna of which the active (sensor) elements are small spheres located at the ends of two wires deployed in the equatorial plane, on opposite sides of a spinning spacecraft.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="DustDetector">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An instrument which determines the mass and speed of ambient dust particles.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ElectronDriftInstrument">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An active experiment to measure the electron drift velocity based on sensing the displacement of a weak beam of electrons after one gyration in the ambient magnetic field.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ElectrostaticAnalyser">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An instrument which uses charged plates to analyze the mass, charge and kinetic energies of charged particles which enter the instrument.\</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
<xsd:documentation xml:lang="en">An instrument that measures fluxes of charged particles as a function of time, direction of motion, mass, charge and/or species.</xsd:documentation>

<xsd:annotation>
<xsd:documentation xml:lang="en">An instrument consisting of an electrode from which electrical current is measured while a charged particle beam (electrons or ions) impinges on it. Used to determine energy spectrum and sometimes ion composition of the impinging particles.</xsd:documentation>
</xsd:annotation>

<xsd:documentation xml:lang="en">A search coil whose bandwidth and signal/noise ratio are increased by the application of negative feedback at the sensor (flux) level by driving a collocated coil with a signal from the preamplifier.</xsd:documentation>

<xsd:documentation xml:lang="en">An instrument that determines the spectra of a radiative source, using time-domain measurements and a Fourier transform.</xsd:documentation>

<xsd:documentation xml:lang="en">An instrument which is a multispectral scanner with a very large number of channels (64-256 channels) with very narrow band widths.</xsd:documentation>

<xsd:documentation xml:lang="en">An instrument to study the properties of two or more waves from the pattern of interference created by their superposition.</xsd:documentation>

<xsd:documentation xml:lang="en">A device in which the collected electrical charge from ionization in a gas-filled cavity is taken to be the proportion to some parameter (e.g. dose or exposure) of radiation field.</xsd:documentation>

<xsd:documentation xml:lang="en">A device which measures the current produced by the displacement of ambient ions on a grid, thereby allowing the determination of the ion trajectory and velocity.</xsd:documentation>

<xsd:documentation xml:lang="en">A monopole antenna associated with an instrument. The instrument applies a potential to the antenna which is swept to determine the voltage/current characteristic. This provides information about the plasma surrounding the probe and spacecraft.</xsd:documentation>

<xsd:documentation xml:lang="en">A dipole antenna whose active (sensor) elements are two wires deployed in the equatorial plane on opposite sides of spinning spacecraft, and whose length is several times greater than the spacecraft diameter.</xsd:documentation>
<xsd:enumeration value="Magnetometer">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the ambient magnetic field.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MassSpectrometer">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which distinguishes chemical species in terms of their different isotopic masses.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MicrochannelPlate">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument used for the detection of elementary particles, ions, ultraviolet rays and soft X-rays constructed from very thin conductive glass capillaries.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="MultispectralImager">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which captures images at multiple spectral ranges.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NeutralAtomImager">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the quantity and properties of neutral particles over a range of angles. Measured properties can include mass and energy.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NeutralParticleDetector">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the quantity and properties of neutral particles. Measured properties can include mass and plasma bulk densities.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="ParticleCorrelator">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which correlates particle flux to help identify wave/particle interactions.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="ParticleDetector">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which detects particle flux!!!</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Photometer">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the strength of electromagnetic radiation within a spectral band which can range from ultraviolet to infrared and includes the visible spectrum.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Photopolarimeter">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the intensity and polarization or radiant energy. A photopolarimeter is a combination of a photometer and a polarimeter.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Platform">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A collection of components which can be positioned and oriented as a single unit. A platform may contain other platforms. For example, a spacecraft is a platform which may have components that can be articulated and are also considered platforms.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="ProportionalCounter">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures energy of ionization radiation based on interactions with a gas.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="QuadrisphericalAnalyser">
  <xsd:annotation>
    <!-- Additional documentation for QuadrisphericalAnalyser -->
  </xsd:annotation>
</xsd:enumeration>
An instrument used for the 3-D detection of plasma, energetic electrons and ions, and for positive-ion composition measurements.

An instrument that uses directional properties of returned power to infer spatial and/or other characteristics of a remote object.

An instrument for detecting or measuring radiant energy. Radiometers are commonly limited to infrared radiation.

A combination of a radio receiver and a pulsed transmitter used to study the plasma surrounding a spacecraft by identifying resonances or cut-offs (of the wave dispersion relation), whose frequencies are related to the ambient plasma density and magnetic field. When the transmitter is off it is essentially a high frequency-resolution spectral power receiver.

An instrument which measures ion temperatures and ion concentrations using a planar ion trap.

An instrument which measure the signal strength in various directions of the galactic radio signals. Variations in these signals are influenced by solar flare activity and geomagnetic storm and substorm processes.

An instrument which detects fluorences of a material which is excited by high energy (ionizing) electromagnetic or charged particle radiation.

An instrument which measures the time variation of the magnetic flux threading a loop by measurement of the electric potential difference induced between the ends of the wire.

An instrument which measures the radiances from an object. A sounder may measure radiances at multiple spectral ranges.

An instrument to control the electric potential of a spacecraft with respect to the ambient plasma by emitting a variable current of positive ions.

A radio receiver which determines the power spectral density of the electric or magnetic field, or both, at one or more frequencies.

An instrument that measures the component wavelengths of light (or other electromagnetic radiation) by splitting the light up into its component wavelengths.
<xsd:enumeration value="TimeOfFlight">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">An instrument which measures the time it takes for a particle to travel between two detectors.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="Unspecified">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A value which is not provided.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="WaveformReceiver">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A radio receiver which outputs the value of one or more components of the electric and/or magnetic field as a function of time.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<table>
<thead>
<tr>
<th>Simple Type</th>
<th>enumAnnotationType</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namespace</td>
<td><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></td>
</tr>
<tr>
<td>Annotations</td>
<td>Identifiers for a classification of an annotation.</td>
</tr>
<tr>
<td>Diagram</td>
<td>restriction of xsd:string</td>
</tr>
<tr>
<td>Type</td>
<td>enumeration, Anomaly: An interval where measurements or observations may be adversely affected.</td>
</tr>
<tr>
<td></td>
<td>enumeration, Event: An action or observation which occurs at a point in time.</td>
</tr>
<tr>
<td></td>
<td>enumeration, Feature: A prominent or distinctive characteristic that occurs at a location or persists over a period of time.</td>
</tr>
<tr>
<td>Used by</td>
<td>Element, AnnotationType</td>
</tr>
</tbody>
</table>
| Source      | <xsd:simpleType name="enumAnnotationType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for a classification of an annotation.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Anomaly">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An interval where measurements or observations may be adversely affected.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Event">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">An action or observation which occurs at a point in time.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Feature">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A prominent or distinctive characteristic that occurs at a location or persists over a period of time.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType> |
| Schema location | file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd |

<table>
<thead>
<tr>
<th>Simple Type</th>
<th>enumClassificationMethod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namespace</td>
<td><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></td>
</tr>
<tr>
<td>Annotations</td>
<td>Identifiers for the technique used to determine the characteristics of an object.</td>
</tr>
</tbody>
</table>
Simple Type `enumClassificationMethod`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the technique used to determine the characteristics of an object.

**Diagram**

**Type**
restriction of `xsd:string`

**Facets**
- **enumeration** `Automatic`
  Determined by the analysis or assessment performed by a program or server.
- **enumeration** `Inferred`
  Determined by the analysis of other information or resources.
- **enumeration** `Inspection`
  Determined by the analysis or assessment performed by a person.

**Used by**
- **Element** `ClassificationMethod`

**Source**
```xml
<xsd:simpleType name="enumClassificationMethod">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the technique used to determine the characteristics of an object.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Automatic">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Determined by the analysis or assessment performed by a program or server.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Inferred">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Determined by the analysis of other information or resources.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Inspection">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Determined by the analysis or assessment performed by a person.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```

Simple Type `enumConfidenceRating`

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the classification of the certainty of an assertion.

**Diagram**

**Type**
restriction of `xsd:string`

**Facets**
- **enumeration** `Probable`
  Likely given the available evidence. Considered in the range of 4-7 on a scale of 0-10.
- **enumeration** `Strong`
  Highly likely given the available evidence. Considered in the range of 7-10 on a scale of 0-10.
- **enumeration** `Unlikely`
  Not likely given the available evidence. Considered in the range of 0 on a scale of 0-10.
- **enumeration** `Weak`
  Slightly likely given the available evidence. Considered in the range of 1-4 on a scale of 0-10.

**Used by**
- **Element** `ConfidenceRating`

**Source**
```xml
<xsd:simpleType name="enumConfidenceRating">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the classification of the certainty of an assertion.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Probable">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Likely given the available evidence. Considered in the range of 4-7 on a scale of 0-10.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Strong">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Highly likely given the available evidence. Considered in the range of 7-10 on a scale of 0-10.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Unlikely">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Not likely given the available evidence. Considered in the range of 0 on a scale of 0-10.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Weak">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Slightly likely given the available evidence. Considered in the range of 1-4 on a scale of 0-10.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
<xsd:annotation>
  <xsd:documentation xml:lang="en">Likely given the available evidence. Considered in the range of 4-7 on a scale of 0-10.</xsd:documentation>
</xsd:annotation>
<xsd:enumeration value="Strong">
  <xsd:documentation xml:lang="en">Highly likely given the available evidence. Considered in the range of 7-10 on a scale of 0-10.</xsd:documentation>
</xsd:enumeration>
<xsd:enumeration value="Unlikely">
  <xsd:documentation xml:lang="en">Not likely given the available evidence. Considered in the range of 0 on a scale of 0-10.</xsd:documentation>
</xsd:enumeration>
<xsd:enumeration value="Weak">
  <xsd:documentation xml:lang="en">Slightly likely given the available evidence. Considered in the range of 1-4 on a scale of 0-10.</xsd:documentation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>

Schema location: file:/C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd

**Simple Type enumComponent**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for the axis of coordinate systems.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="#" alt="enumComponent" /> <img src="#" alt="xsd:string" /></td>
</tr>
<tr>
<td>Type</td>
<td>restriction of xsd:string</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration I</td>
<td>Projection of a vector along the first named axis of a coordinate system. Typically the X axis, but could be the R axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>enumeration J</td>
<td>Projection of a vector along the second named axis of a coordinate system. Typically the Y axis, but could be the T axis for an RTN coordinate system.</td>
</tr>
<tr>
<td>enumeration K</td>
<td>Projection of a vector along the third named axis of a coordinate system. Typically the Z axis, but could be the N axis for an RTN coordinate system.</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xs:simpleType name="enumComponent">
  <xs:annotation>
    <xs:documentation xml:lang="en">Identifiers for the axis of coordinate systems.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xsd:string">
    <xs:enumeration value="I">
      <xs:documentation xml:lang="en">Projection of a vector along the first named axis of a coordinate system. Typically the X axis, but could be the R axis for an RTN coordinate system.</xs:documentation>
    </xs:enumeration>
    <xs:enumeration value="J">
      <xs:documentation xml:lang="en">Projection of a vector along the second named axis of a coordinate system. Typically the Y axis, but could be the T axis for an RTN coordinate system.</xs:documentation>
    </xs:enumeration>
    <xs:enumeration value="K">
      <xs:documentation xml:lang="en">Projection of a vector along the third named axis of a coordinate system. Typically the Z axis, but could be the N axis for an RTN coordinate system.</xs:documentation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```
**Simple Type enumDirectionAngle**

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
Identifiers for the angle between a vector and a base axis.

**Diagram**

**Type**  
restriction of xsd:string

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AzimuthAngle</td>
<td>The angle between the projection into the i-j plane of a position or measured vector and the i-axis of the coordinate system. Mathematically defined as ( \arctan(\frac{j}{i}) ).</td>
</tr>
<tr>
<td>ElevationAngle</td>
<td>The angle between the position or measured vector and the i-j plane of the coordinate system. Mathematically defined as ( \arctan(\frac{k}{\sqrt{i^2+j^2}}) ).</td>
</tr>
<tr>
<td>PolarAngle</td>
<td>The angle between the position or measured vector and the k-axis of the coordinate system. Mathematically defined as ( \arctan(\frac{\sqrt{i^2+j^2}}{k}) ).</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xsd:simpleType name="enumDirectionAngle">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the angle between a vector and a base axis.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="AzimuthAngle">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The angle between the projection into the i-j plane of a position or measured vector and the i-axis of the coordinate system. Mathematically defined as \( \arctan(\frac{j}{i}) \).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="ElevationAngle">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The angle between the position or measured vector and the i-j plane of the coordinate system. Mathematically defined as \( \arctan(\frac{k}{\sqrt{i^2+j^2}}) \).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="PolarAngle">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The angle between the position or measured vector and the k-axis of the coordinate system. Mathematically defined as \( \arctan(\frac{\sqrt{i^2+j^2}}{k}) \).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```

**Simple Type enumEarth**

**Namespace**  
http://www.spase-group.org/data/schema

**Annotations**  
Identifiers for the regions surrounding the Earth.

**Diagram**

**Type**  
restriction of xsd:string

**Facets**

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetosheath</td>
<td>The region between the bow shock and the magnetopause, characterized by very turbulent plasma.</td>
</tr>
<tr>
<td>Magnetosphere</td>
<td>The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Enumeration Magnetosphere.Magnetotail</td>
<td>The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X &gt; -10Re).</td>
</tr>
<tr>
<td>Enumeration Magnetosphere.Main</td>
<td>The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</td>
</tr>
<tr>
<td>Enumeration Magnetosphere.Polar</td>
<td>The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</td>
</tr>
<tr>
<td>Enumeration Magnetosphere.RadiationBelt</td>
<td>The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</td>
</tr>
<tr>
<td>Enumeration NearSurface</td>
<td>The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Atmosphere</td>
<td>The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.</td>
</tr>
<tr>
<td>Enumeration NearSurface.AuroralRegion</td>
<td>The region in the atmosphere where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.</td>
</tr>
<tr>
<td>Enumeration NearSurface.EquatorialRegion</td>
<td>A region centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Ionosphere</td>
<td>The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Ionosphere.Region</td>
<td>One of several layers in the ionosphere. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Ionosphere.FRegion</td>
<td>One of several layers in the ionosphere. Also called the Appleton layer.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Ionosphere.Topside</td>
<td>The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Mesosphere</td>
<td>The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.</td>
</tr>
<tr>
<td>Enumeration NearSurface.Plasmasphere</td>
<td>A region of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude</td>
</tr>
<tr>
<td>Enumeration</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NearSurface.PolarCap</td>
<td>The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude and the region south of 60 degrees south latitude.</td>
</tr>
<tr>
<td>NearSurface.SouthAtlanticAnomalyRegion</td>
<td>The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.</td>
</tr>
<tr>
<td>NearSurface.Stratosphere</td>
<td>The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.</td>
</tr>
<tr>
<td>NearSurface.Thermosphere</td>
<td>The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.</td>
</tr>
<tr>
<td>NearSurface.Troposphere</td>
<td>The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</td>
</tr>
<tr>
<td>Surface</td>
<td>The outermost area of a solid object.</td>
</tr>
</tbody>
</table>

Source

```xml
<xsd:simpleType name="enumEarth">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the regions surrounding the Earth.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Magnetosheath">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region between the bow shock and the magnetopause, characterized by very turbulent plasma.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetosphere">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of the planet's magnetic field.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetosphere.Magnetotail">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X > -10Re).</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetosphere.Main">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetosphere.Polar">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Magnetosphere.RadiationBelt">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
<xsd:enumeration value="NearSurface">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The gaseous and possibly ionized environment of a body extending from the surface to some specified altitude. For the Earth, this altitude is 2000 km.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Atmosphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.AuroralRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The region in the atmospheric where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.EquatorialRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A region centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Ionosphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Ionosphere.DRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Ionosphere.ERegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Ionosphere.FRegion">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1-and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Ionosphere.Topside">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The region at the uppermost areas of the ionosphere.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Mesosphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.Plasmasphere">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">A region of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>

<xsd:enumeration value="NearSurface.PolarCap">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude an the region south of 60 degrees south latitude.</xsd:documentation>
  </xsd:annotation>
</xsd:enumeration>
### Simple Type `enumHardcopy`

<table>
<thead>
<tr>
<th>Facets</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Film</td>
<td>An image recording medium on which usually a &quot;negative&quot; analog image is registered. A &quot;positive&quot; image can be recovered or reproduced from film, which is usually made of flexible materials for ease of storage and transportation.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Microfiche</td>
<td>A sheet of microfilm on which many pages of material have been photographed; a magnification system is used to read the material.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Microfilm</td>
<td>Film rolls on which materials are photographed at greatly reduced size; a magnification system is used to read the material.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Photograph</td>
<td>An image (positive or negative) registered on a piece of photo-sensitive paper</td>
</tr>
<tr>
<td>enumeration</td>
<td>PhotographicPlate</td>
<td>A rigid (typically glass) medium that functions like film. Its rigidity is for guarding against image distortion due to medium deformation (caused by heat and humidity). Photographic plates are often used for astronomical photography.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Print</td>
<td>A sheet of any written or printed material</td>
</tr>
</tbody>
</table>
Source

```xml
<xsd:simpleType name="enumHardcopy">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Identifiers for permanent reproductions, or copy in the form of a physical object, of any media suitable for direct use by a person.</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="Film">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">An image recording medium on which usually a "negative" analog image is registered. A "positive" image can be recovered or reproduced from film, which is usually made of flexible materials for ease of storage and transportation.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Microfiche">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A sheet of microfilm on which many pages of material have been photographed; a magnification system is used to read the material.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Microfilm">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">Film rolls on which materials are photographed at greatly reduced size; a magnification system is used to read the material.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Photograph">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">An image (positive or negative) registered on a piece of photo-sensitive paper</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="PhotographicPlate">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A rigid (typically glass) medium that functions like film. Its rigidity is for guarding against image distortion due to medium deformation (caused by heat and humidity). Photographic plates are often used for astronomical photography.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Print">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A sheet of any written or printed material which may include notes or graphics. Multiple printed pages may be bound into a manuscript or book.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
    </xsd:restriction>
</xsd:simpleType>
```

**Simple Type enumHeliosphere**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for regions of the solar atmosphere which extends roughly from the inner corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.

**Diagram**

![Diagram](en/heliosphere.png)

**Type**
restriction of xsd:string

**Facets**

<table>
<thead>
<tr>
<th>enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heliosheath</td>
<td>The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</td>
</tr>
<tr>
<td>Inner</td>
<td>The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</td>
</tr>
<tr>
<td>enumeration</td>
<td>NearEarth</td>
</tr>
<tr>
<td>enumeration</td>
<td>Outer</td>
</tr>
<tr>
<td>enumeration</td>
<td>Remote1AU</td>
</tr>
</tbody>
</table>

Source
<xs:simpleType name="enumHeliosphere">
  <xs:annotation>
    <xs:documentation xml:lang="en">Identifiers for regions of the solar atmosphere which extends roughly from the inner corona to the edge of the solar plasma at the heliopause separating primarily solar plasma from interstellar plasma.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xsd:string">
    <xs:enumeration value="Heliosheath">
      <xs:annotation>
        <xs:documentation xml:lang="en">The region extending radially outward from the heliospheric termination shock and in which the decelerated solar wind plasma is still significant.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Inner">
      <xs:annotation>
        <xs:documentation xml:lang="en">The region of the heliosphere extending radially outward from the solar coronal base to just inside 1 AU.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="NearEarth">
      <xs:annotation>
        <xs:documentation xml:lang="en">The heliospheric region near the Earth which extends to and includes the area near the L1 and L2 Lagrange point.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Outer">
      <xs:annotation>
        <xs:documentation xml:lang="en">The region of the heliosphere extending radially outward from just outside 1 AU to the heliospheric termination shock.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Remote1AU">
      <xs:annotation>
        <xs:documentation xml:lang="en">A roughly toroidal region that includes the Earth's orbit, but exclusive of the region near the Earth.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>

Simple Type enumIntegral

Namespace http://www.spase-group.org/data/schema

Annotations Identifiers for values above a given threshold and over area or solid-angle range.

Diagram

Type restriction of xsd:string

Facets

- enumeration Area Integration over the extent of a planar region, or of the surface of a solid.
- enumeration Bandwidth Integration over the width a frequency band.
- enumeration SolidAngle Integration over the angle in three-dimensional space that an object subtends at a point.

Source
<xs:simpleType name="enumIntegral">
  <xs:annotation>
    <xs:documentation xml:lang="en">Identifiers for values above a given threshold and over area or solid-angle range.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xsd:string">
    <xs:enumeration value="Area">
    <xs:enumeration value="Bandwidth">
    <xs:enumeration value="SolidAngle">
  </xs:restriction>
</xs:simpleType>
<xsd:documentation xml:lang="en">Integration over the extent of a planar region, or of the surface of a solid.</xsd:documentation>
</xsd:enumeration>
<xsd:enumeration value="Bandwidth">
<xsd:annotation>
<xsd:documentation xml:lang="en">Integration over the width a frequency band.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="SolidAngle">
<xsd:annotation>
<xsd:documentation xml:lang="en">Integration over the angle in three-dimensional space that an object subtends at a point.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>

Schema location: file:///C:/Projects/spase/java/model-tools/bin/spase-2.2.1.xsd

**Simple Type enumIonosphere**

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for ionospheric regions.</td>
</tr>
<tr>
<td>Diagram</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>restriction of xsd:string</td>
</tr>
<tr>
<td>Facets</td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>DRegion</td>
</tr>
<tr>
<td></td>
<td>The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>ERegion</td>
</tr>
<tr>
<td></td>
<td>A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>FRegion</td>
</tr>
<tr>
<td></td>
<td>A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. the F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>xsd:simpleType name=&quot;enumIonosphere&quot;&gt;</td>
<td></td>
</tr>
</tbody>
</table>
<xsd:annotation>
<xsd:documentation xml:lang="en">Identifiers for ionospheric regions.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:enumeration value="DRegion">
<xsd:annotation>
<xsd:documentation xml:lang="en">The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="ERegion">
<xsd:annotation>
<xsd:documentation xml:lang="en">A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="FRegion">
<xsd:annotation>
<xsd:documentation xml:lang="en">A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. the F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Topside">
<xsd:annotation>
<xsd:documentation xml:lang="en">The region at the upper most areas of the ionosphere.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:annotation>
</xsd:simpleType>
be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.

```xml
<xsd:enumeration value="Topside">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region at the upper most areas of the ionosphere.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Main">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Polar">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="RadiationBelt">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</xsd:documentation>
    </xsd:annotation>
</xsd:enumeration>
```

### Simple Type `enumMagnetosphere`<br>

type restriction of xsd:string

<table>
<thead>
<tr>
<th>Facets</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>Magnetotail</td>
</tr>
<tr>
<td>enumeration</td>
<td>Main</td>
</tr>
<tr>
<td>enumeration</td>
<td>Polar</td>
</tr>
<tr>
<td>enumeration</td>
<td>RadiationBelt</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xs:complexType name="enumMagnetosphere">
    <xs:annotation>
        <xs:documentation xml:lang="en">Identifiers for the region of space above the atmosphere or surface of the planet, and bounded by the magnetopause, that is under the direct influence of planet’s magnetic field.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xsd:string">
        <xs:enumeration value="Magnetotail">
            <xs:annotation>
                <xs:documentation xml:lang="en">The region on the night side of the body where the magnetic field is stretched backwards by the force of the solar wind. For Earth, the magnetotail begins at a night-side radial distance of 10 Re (X > -10Re).</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="Main">
            <xs:annotation>
                <xs:documentation xml:lang="en">The region of the magnetosphere where the magnetic field lines are closed, but does not include the gaseous region gravitationally bound to the body.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="Polar">
            <xs:annotation>
                <xs:documentation xml:lang="en">The region near the pole of a body. For a magnetosphere the polar region is the area where magnetic field lines are open and includes the auroral zone.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="RadiationBelt">
            <xs:annotation>
                <xs:documentation xml:lang="en">The region within a magnetosphere where high-energy particles could potentially be trapped in a magnetic field.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:complexType>
```
### Simple Type enumNearSurface

<p>| Facets |
|---|---|
| enumeration | Atmosphere | The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction. |
| enumeration | AuroralRegion | The region in the atmospheric where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon. |
| enumeration | EquatorialRegion | A region centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator. |
| enumeration | Ionosphere | The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction. |
| enumeration | Ionosphere.DRegion | The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere. |
| enumeration | Ionosphere.ERegion | A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer. |
| enumeration | Ionosphere.FRegion | A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1- and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer. |
| enumeration | Ionosphere.Topside | The region at the upper most areas of the ionosphere. |
| enumeration | Mesosphere | The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height. |
| enumeration | Plasmasphere | A region of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density. |
| enumeration | PolarCap | The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude an the region south of 60 degrees |</p>
<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SouthAtlanticAnomalyRegion</strong></td>
<td>The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.</td>
</tr>
<tr>
<td><strong>Stratosphere</strong></td>
<td>The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.</td>
</tr>
<tr>
<td><strong>Thermosphere</strong></td>
<td>The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.</td>
</tr>
<tr>
<td><strong>Troposphere</strong></td>
<td>The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xsd:simpleType name="enumNearSurface">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Identifiers for regions of the gaseous and possibly ionized environment of a body extending from the surface to some specified altitude.</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="Atmosphere">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">The neutral gases surrounding a body that extends from the surface and is bound to the body by virtue of the gravitational attraction.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="AuroralRegion">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">The region in the atmospheric where electrically-charged particles bombarding the upper atmosphere of a planet in the presence of a magnetic field produce an optical phenomenon.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="EquatorialRegion">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A region centered on the equator and limited in latitude by approximately 23 degrees north and south of the equator.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Ionosphere">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">The charged or ionized gases surrounding a body that are nominally bound to the body by virtue of the gravitational attraction.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Ionosphere.DRegion">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">The layer of the ionosphere that exists approximately 50 to 95 km above the surface of the Earth. One of several layers in the ionosphere.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Ionosphere.ERegion">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A layer of ionised gas occurring at 90-150km above the ground. One of several layers in the ionosphere. Also called the The Kennelly-Heaviside layer.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
        <xsd:enumeration value="Ionosphere.FRegion">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">A layer that contains ionized gases at a height of around 150-800 km above sea level, placing it in the thermosphere. The F region has the highest concentration of free electrons and ions anywhere in the atmosphere. It may be thought of as comprising two layers, the F1-and F2-layers. One of several layers in the ionosphere. Also known as the Appleton layer.</xsd:documentation>
            </xsd:annotation>
        </xsd:enumeration>
    </xsd:restriction>
</xsd:simpleType>```
The region at the upper most areas of the ionosphere.

The layer of the atmosphere that extends from the Stratosphere to a range of 80 km to 85 km, temperature decreasing with height.

The region of the magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.

The areas of the globe surrounding the poles and consisting of the region north of 60 degrees north latitude an the region south of 60 degrees south latitude.

The region where the Earth's inner van Allen radiation belt makes its closest approach to the planet's surface. The result is that, for a given altitude, the radiation intensity is higher over this region than elsewhere.

The layer of the atmosphere that extends from the troposphere to about 30 km, temperature increases with height. The stratosphere contains the ozone layer.

The layer of the atmosphere that extends from the Mesosphere to 640+ km, temperature increasing with height.

The lowest layer of the atmosphere which begins at the surface and extends to between 7 km (4.4 mi) at the poles and 17 km (10.6 mi) at the equator, with some variation due to weather factors.
Source

<xs:simpleType name="enumProjection">
  <xs:annotation>
    <xs:documentation xml:lang="en">Identifiers to projections into a coordinate system.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xsd:string">
    <xs:enumeration value="IJ">
      <xs:annotation>
        <xs:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the i-j (typically X-Y) plane of the coordinate system.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="IK">
      <xs:annotation>
        <xs:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the i-k (typically X-Z) plane of the coordinate system.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="JK">
      <xs:annotation>
        <xs:documentation xml:lang="en">A measure of the length of a position or measured vector projected into the j-k (typically Y-Z) plane of the coordinate system.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>

Simple Type enumSun

Namespace http://www.spase-group.org/data/schema

Annotations Identifiers for regions of the star upon which our solar system is centered.

Diagram

Type restriction of xsd:string

Facets

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromosphere</td>
<td>The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 to 28000 K.</td>
</tr>
<tr>
<td>Corona</td>
<td>The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</td>
</tr>
<tr>
<td>Interior</td>
<td>The region inside the body which is not visible from outside the body.</td>
</tr>
<tr>
<td>Photosphere</td>
<td>The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.</td>
</tr>
<tr>
<td>TransitionRegion</td>
<td>A very narrow (&lt;100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.</td>
</tr>
</tbody>
</table>

Source

<xs:simpleType name="enumSun"/>
Identifiers for regions of the star upon which our solar system is centered.

- **Chromosphere**: The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 - 28000 K.

- **Corona**: The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.

- **Interior**: The region inside the body which is not visible from outside the body.

- **Photosphere**: The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.

- **TransitionRegion**: A very narrow (<100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.

**Simple Type `enumText`**

**Namespace**
http://www.spase-group.org/data/schema

**Annotations**
Identifiers for the encoding of sequences of characters.

**Diagram**

**Type**
restriction of xsd:string

**Facets**

<table>
<thead>
<tr>
<th>Facet</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enumeration</td>
<td>ASCII</td>
<td>A sequence of characters that adheres to American Standard Code for Information Interchange (ASCII) which is an 7-bit character-coding scheme.</td>
</tr>
<tr>
<td>enumeration</td>
<td>Unicode</td>
<td>Text in multi-byte Unicode format.</td>
</tr>
</tbody>
</table>

**Source**

```xml
<xsd:simpleType name="enumText">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Identifiers for the encoding of sequences of characters.</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Chromosphere">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region of the Sun's (or a star's) atmosphere above the temperature minimum and below the Transition Region. The solar chromosphere is approximately 400 km to 2100 km above the photosphere, and characterized by temperatures from 4500 - 28000 K.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Corona">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The outermost atmospheric region of the Sun or a star, characterized by ionization temperatures above 10^5 K. The solar corona starts at about 2100 km above the photosphere; there is no generally defined upper limit.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Interior">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The region inside the body which is not visible from outside the body.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="Photosphere">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">The atmospheric layer of the Sun or a star from which continuum radiation, especially optical, is emitted to space. For the Sun, the photosphere is about 500 km thick.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="TransitionRegion">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">A very narrow (<100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K.</xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
```
## Simple Type enumWaves

<table>
<thead>
<tr>
<th>Namespace</th>
<th><a href="http://www.spase-group.org/data/schema">http://www.spase-group.org/data/schema</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Identifiers for experimental and natural wave phenomena.</td>
</tr>
<tr>
<td>Diagram</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Type</td>
<td>restriction of xsd:string</td>
</tr>
<tr>
<td>Facets</td>
<td></td>
</tr>
<tr>
<td>enumeration</td>
<td>Active</td>
</tr>
<tr>
<td>enumeration</td>
<td>Passive</td>
</tr>
</tbody>
</table>
| Source | `<xsd:simpleType name="enumWaves">
<xsd:annotation>
<xsd:documentation xml:lang="en">Identifiers for experimental and natural wave phenomena.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:enumeration value="Active">
<xsd:annotation>
<xsd:documentation xml:lang="en">Exerting an influence or producing a change or effect. An active measurement is one which produces a transmission or excitation as a part of the measurement cycle.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="Passive">
<xsd:annotation>
<xsd:documentation xml:lang="en">Movement or effect produced by outside influence. A passive measurement is one which does not produce a transmission or excitation as a part of the measurement cycle.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>` |

### Namespace: ""

#### Attribute(s)

**Attribute Spase / @lang**

<table>
<thead>
<tr>
<th>Namespace</th>
<th>No namespace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>xsd:string</td>
</tr>
<tr>
<td>Properties</td>
<td>default: en</td>
</tr>
<tr>
<td>Used by</td>
<td>Complex Type Spase</td>
</tr>
<tr>
<td>Source</td>
<td><code>&lt;xsd:attribute name=&quot;lang&quot; type=&quot;xsd:string&quot; default=&quot;en&quot;/&gt;</code></td>
</tr>
<tr>
<td>Schema location</td>
<td>file://C:/Projects/spase/java/model-tools/bin/spase-2_2_1.xsd</td>
</tr>
</tbody>
</table>