The Space Physics Archive Search and Extract (SPASE) and the Virtual Space Physics Observatory (VSPO)

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Nov. 22, 2005

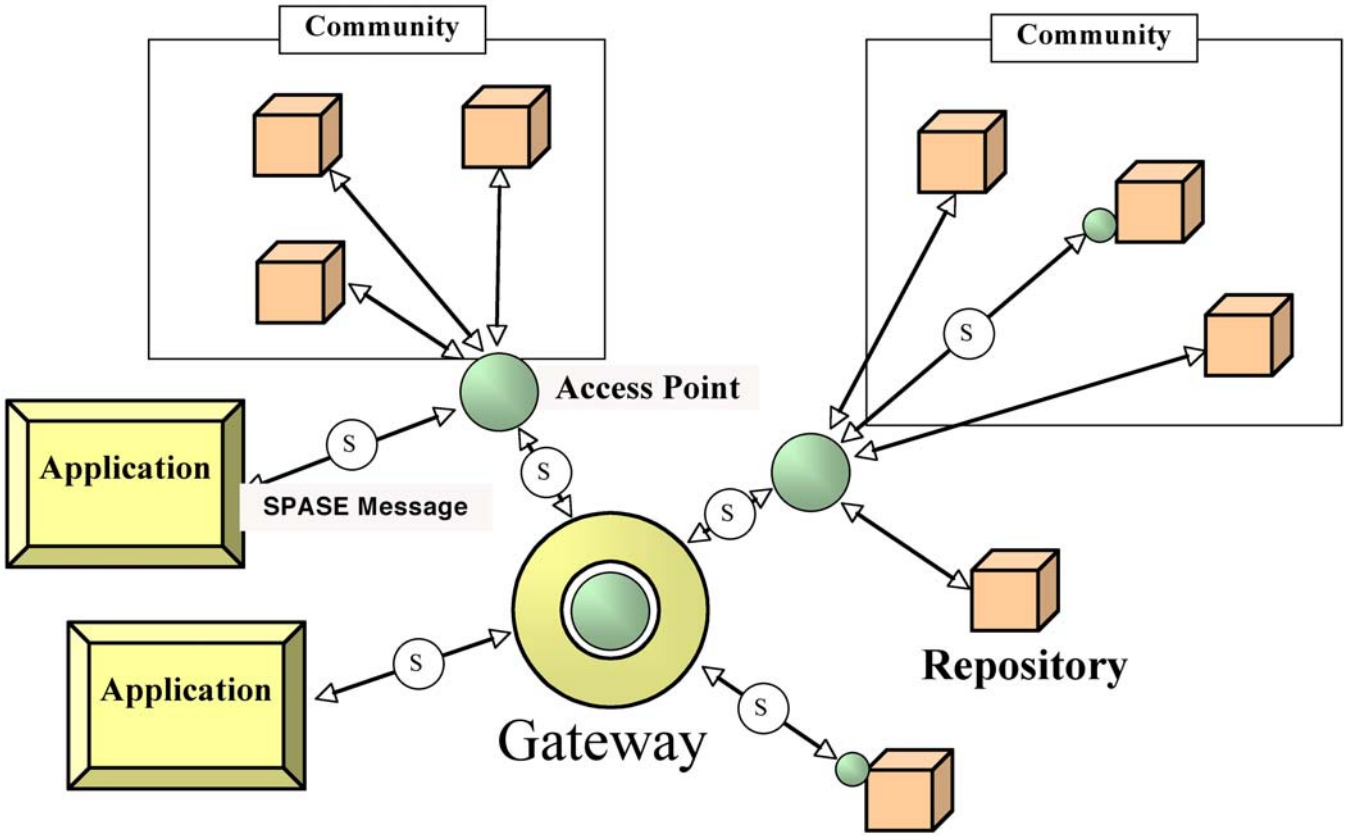
Present Participants

- CNES/CNRS Plasma Physics (CDPP) Data Archive
- NASA/Goddard Space Flight Center
- NOAA/National Geophysical Data Center
- Planetary Data System- UCLA Plasma Physics Interactions Node
- Rutherford Appleton Laboratory
- Southwest Research Institute
- Applied Physics Laboratory
- Jet Propulsion Laboratory
- Augsburg College
- European Grid of Solar Observations (EGSO)
- Institute of Space and Astronautical Science (ISAS/JAXA)

SPASE Data Model Goals

- Provide a standard method of registering products
- Enable searching for data among diverse data providers
- Facilitate intercomparison of similar variables from different data sets through common terminology mapping

Data Environment Architecture



Scope of Data Model

- **Discipline: Space and Solar Physics (close relationship to planetary science and astronomy)**
- **Present Emphasis: Numerical and Display Data**
- **Future Directions: Model data, Catalogs, Support Software, etc.**

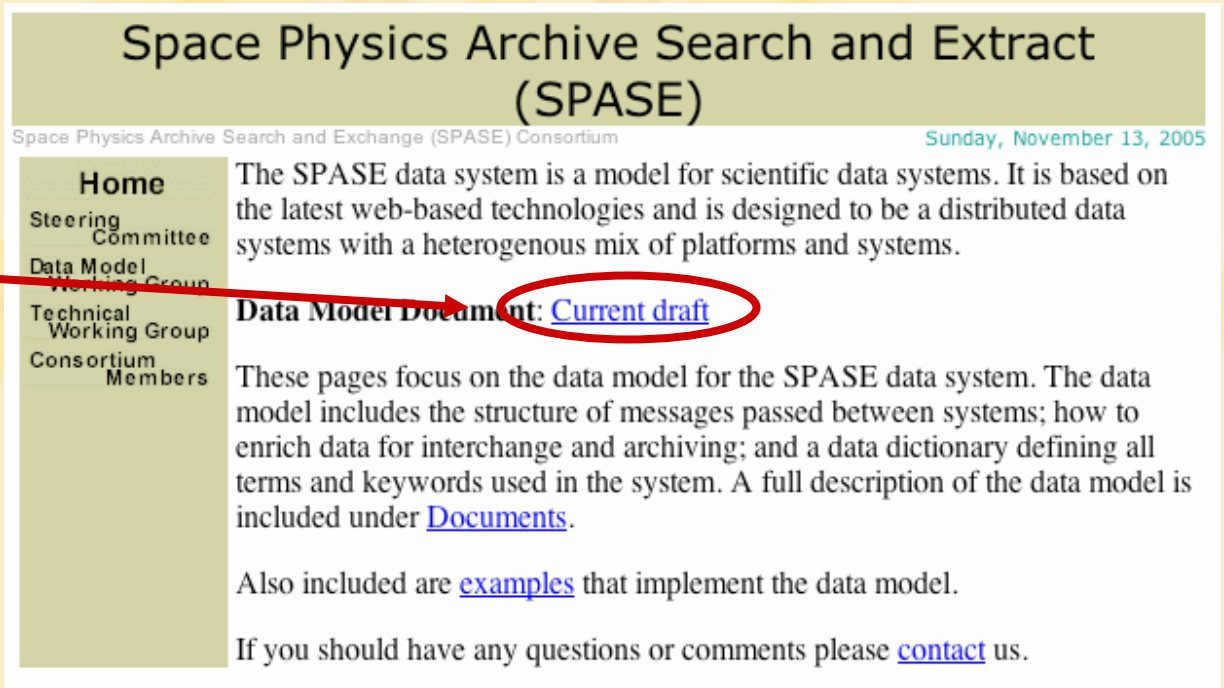
SPASE Website

Copy of Data Model

Version 0.99.8 is available on the web.

Version 1.0.0 will be available very soon.

“Data Model document”



Other SPASE-relevant items of interest are found here as well

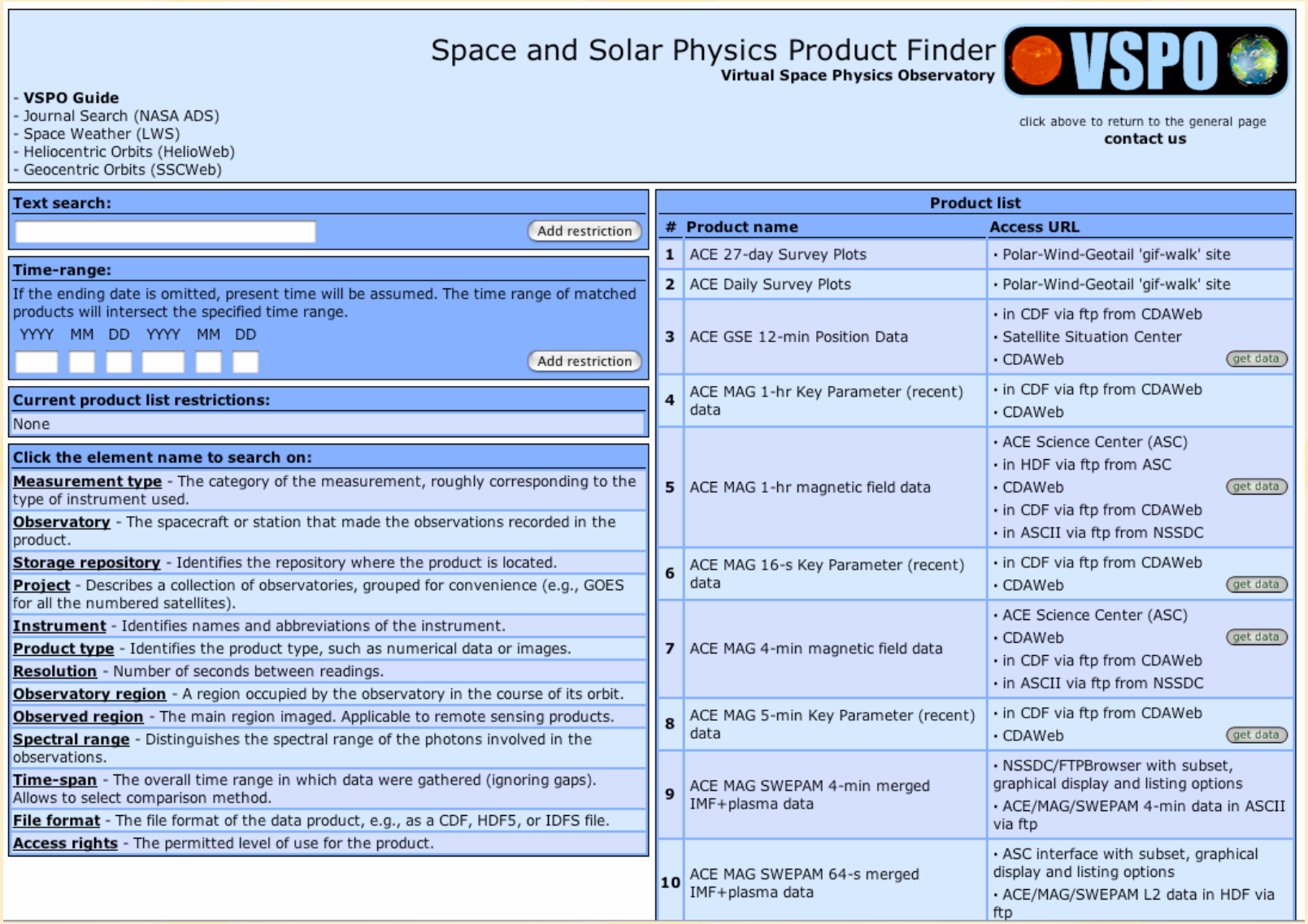
http://www.igpp.ucla.edu/spase

SPASE Data Model

Recent Example Data Product Description

```
HEADER (Data Use Elements):
 REPOSITORY NAME: CSDS
PROJECT:
  PROJECT NAME: CLUSTER
  OBSERVATORY:
         OBSERVATORY NAME: CLUSTER
         INSTRUMENT:
                 INSTRUMENT NAME: Fluxgate Magnetometer
INSTRUMENT TYPE:  Magnetometer
PRODUCT ID: CSDS::CLST_SP_FGM_CDF_60s_V01
PRODUCT NAME: Cluster Fluxgate Magnetometer Summary Parameter
PRODUCT TYPE:
  NUMERICAL DATA:
         FORMAT:  CDF
         FILE ENCODING:  SUNMS
ACCESS URL: <http://www.cluster.rl.ac.uk/>http://www.cluster.rl.ac.uk/
SHORT DESCRIPTION: TBW
LONG DESCRIPTION: TBW
CONTACT INFORMATION:
  NAME: Andre Balogh
  INSTITUTION: Imperial College of Science, Technology and Medicine, University of London
  ROLE: P.I.
  E-MAIL: <mailto:a.balogh@ic.ac.uk>a.balogh@ic.ac.uk
  PHONE: N/A
PROVIDER PROCESSING LEVEL: CALIBRATED
RELEASE DATE: 2000-11-01
VERSION: 1.0
AVAILABILITY:  Online
ACCESS RIGHTS:  Open
CAVEATS: See CSDS User's Guide, DS-MPA-TN-0015, for post-processing caveats ***CAUTION Preliminary
calibrations used: not for publication……
……..
```

VSPO Search Interface



Space and Solar Physics Product Finder
Virtual Space Physics Observatory

VSPO

- **VSPO Guide**
- Journal Search (NASA ADS)
- Space Weather (LWS)
- Heliocentric Orbits (HelioWeb)
- Geocentric Orbits (SSCWeb)

click above to return to the general page
contact us

Text search: Add restriction

Time-range:
If the ending date is omitted, present time will be assumed. The time range of matched products will intersect the specified time range.
YYYY MM DD YYYY MM DD
Add restriction

Current product list restrictions:
None

Click the element name to search on:

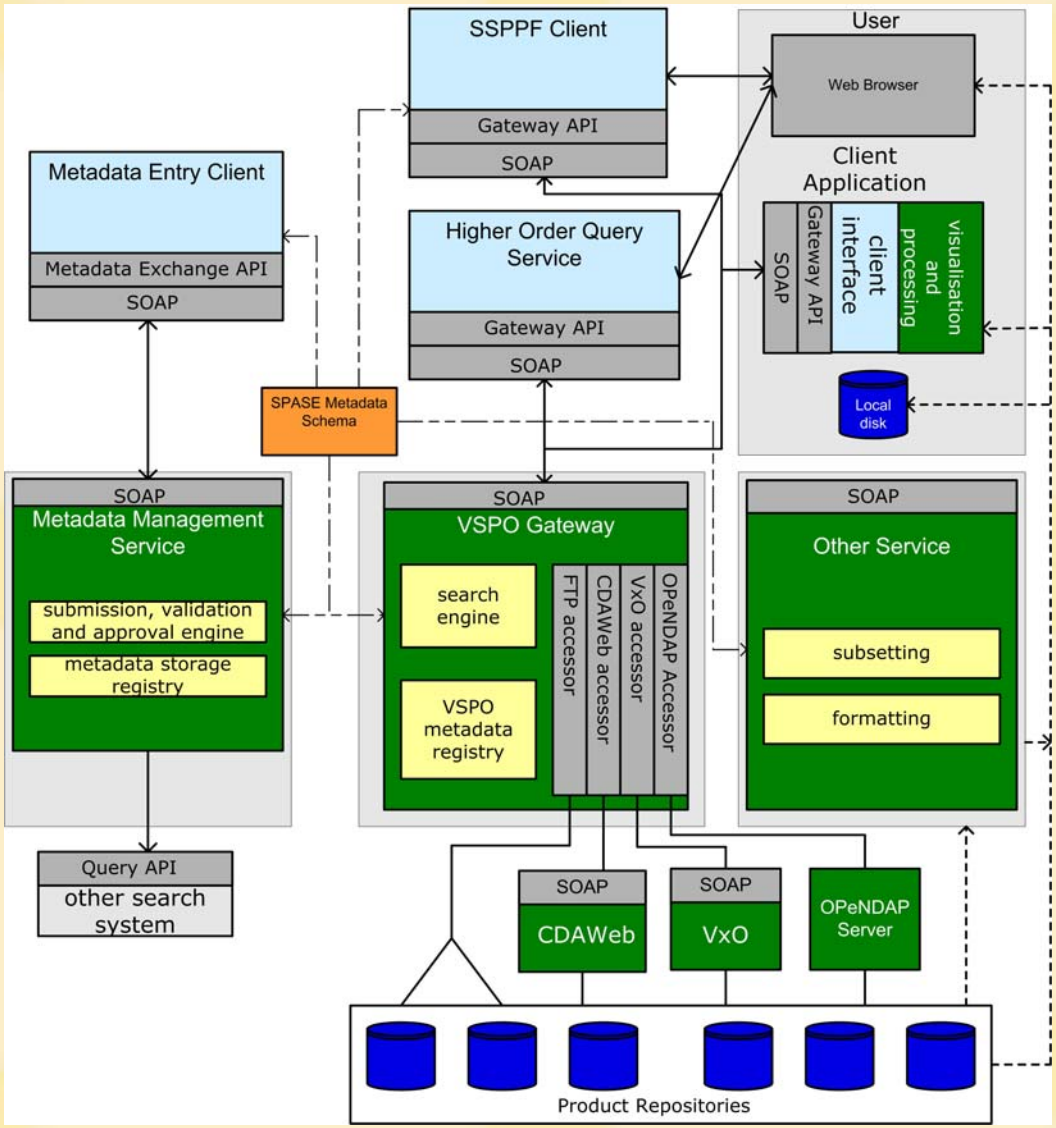
- **Measurement type** - The category of the measurement, roughly corresponding to the type of instrument used.
- **Observatory** - The spacecraft or station that made the observations recorded in the product.
- **Storage repository** - Identifies the repository where the product is located.
- **Project** - Describes a collection of observatories, grouped for convenience (e.g., GOES for all the numbered satellites).
- **Instrument** - Identifies names and abbreviations of the instrument.
- **Product type** - Identifies the product type, such as numerical data or images.
- **Resolution** - Number of seconds between readings.
- **Observatory region** - A region occupied by the observatory in the course of its orbit.
- **Observed region** - The main region imaged. Applicable to remote sensing products.
- **Spectral range** - Distinguishes the spectral range of the photons involved in the observations.
- **Time-span** - The overall time range in which data were gathered (ignoring gaps). Allows to select comparison method.
- **File format** - The file format of the data product, e.g., as a CDF, HDF5, or IDFS file.
- **Access rights** - The permitted level of use for the product.

Product list

#	Product name	Access URL
1	ACE 27-day Survey Plots	• Polar-Wind-Geotail 'gif-walk' site
2	ACE Daily Survey Plots	• Polar-Wind-Geotail 'gif-walk' site
3	ACE GSE 12-min Position Data	• in CDF via ftp from CDAWeb • Satellite Situation Center • CDAWeb get data
4	ACE MAG 1-hr Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb
5	ACE MAG 1-hr magnetic field data	• ACE Science Center (ASC) • in HDF via ftp from ASC • CDAWeb get data • in CDF via ftp from CDAWeb • in ASCII via ftp from NSSDC
6	ACE MAG 16-s Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb get data
7	ACE MAG 4-min magnetic field data	• ACE Science Center (ASC) • CDAWeb get data • in CDF via ftp from CDAWeb • in ASCII via ftp from NSSDC
8	ACE MAG 5-min Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb get data
9	ACE MAG SWEPAM 4-min merged IMF+plasma data	• NSSDC/FTPBrowser with subset, graphical display and listing options • ACE/MAG/SWEPAM 4-min data in ASCII via ftp
10	ACE MAG SWEPAM 64-s merged IMF+plasma data	• ASC interface with subset, graphical display and listing options • ACE/MAG/SWEPAM L2 data in HDF via ftp

http://vspo.gsfc.nasa.gov/websearch/dispatcher

VSPO System Architecture



Data Model Work

- **Where are we now?**
  - SPASE Data Model now at version 0.99.6+.
    (Next version briefly 0.99.8, then 1.0.0)
  - Data Model Document is mostly complete
  - Alignment of text, schema, and dictionary needed
  - Some issues on schema need resolution
  - Concerns about numerical data keyword adequacy
- **What needs to be done at this meeting?**
  - Define final Table of Contents
  - Agree on the narrative sections (Exec. Sum., I, II, and other smaller narrative parts)
  - Resolve major issues of schema
  - Resolve any major dictionary problems
  - Determine format of SPASE
  - Test with data set descriptions and revise as needed
  - Examine useful technologies

Summary Guidelines

- Perfection is not required
- Keep to major issues and don’t get caught on details
- Look for the simple solution
- Seek consensus, majority rule, decision by chair if necessary

Thanks for all of your hard work!!

Summary

- The Version 1.0 Data Model will be released shortly and will continue to be updated in new versions
- Feedback from the community is particularly important for SPASE progress and use
- VSPO serves as an access point to available space physics data and
- VSPO follows the SPASE model and serves as a test system for
- Results and current work can be found at: http://www.igpp.ucla.edu/spase

BACKUP

Data Model Work

Finishing 1.0.0

- Data Model Definition Document would need:
  - Introductory section
  - Purpose and Scope
  - Applicability
  - Glossary
  - Conformance section
- Version 1.0 released for full community review for at least 6 weeks
- All community comments formally listed as well as responses
- Data Model Definition Document to be followed by Implementation Document with XML or other approaches

Latest Interactions

- Biweekly hour-long teleconferences continue (summaries of each are available)
- Occasional multi-hour teleconferences are held when more concentrated work is needed
- Team meets face-to-face twice per year (next one in San Antonio - May 9-11)
- Recent presentations about SPASE at Fall AGU, CODATA
- Planned presentations at Spring AGU, PV 2005, GEM/CEDAR

SPASE Proposal Objectives

- Develop a Space Physics Data Model/Data Dictionary as an *interlingua* or common language translating the multitude of metadata values used in the Space Physics community;

- Provide a search capability across the Virtual Observatories (VxO's) and the major data holdings of interest to space physicists through one or more interfaces of choice;

- Return results from SPASE searches in a common form that will allow cross-comparison of the metadata even though they come from data centers using .differing storage formats, data dictionaries and schemas.;

- Connect important space physics data services (e.g., ViSBARD, CDAWeb, SSCWeb, SDDAS, COHOWeb, FTPBrowser, Modelweb, Helioweb, OMNIWeb, etc), into a common system to allow them to be used as conveniently and widely as possible; and

- Extract and retrieve for the user the data sets or subsets of data sets of interest.