SPASE

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SPASE

Space Physics Archive Search and Extract (SPASE) is an international, community-based standards organization with the goals of:

- Easing data search and retrieval across the Space and Solar Physics data environment
- Defining and maintaining a Metadata Model for Space and Solar Physics interoperability
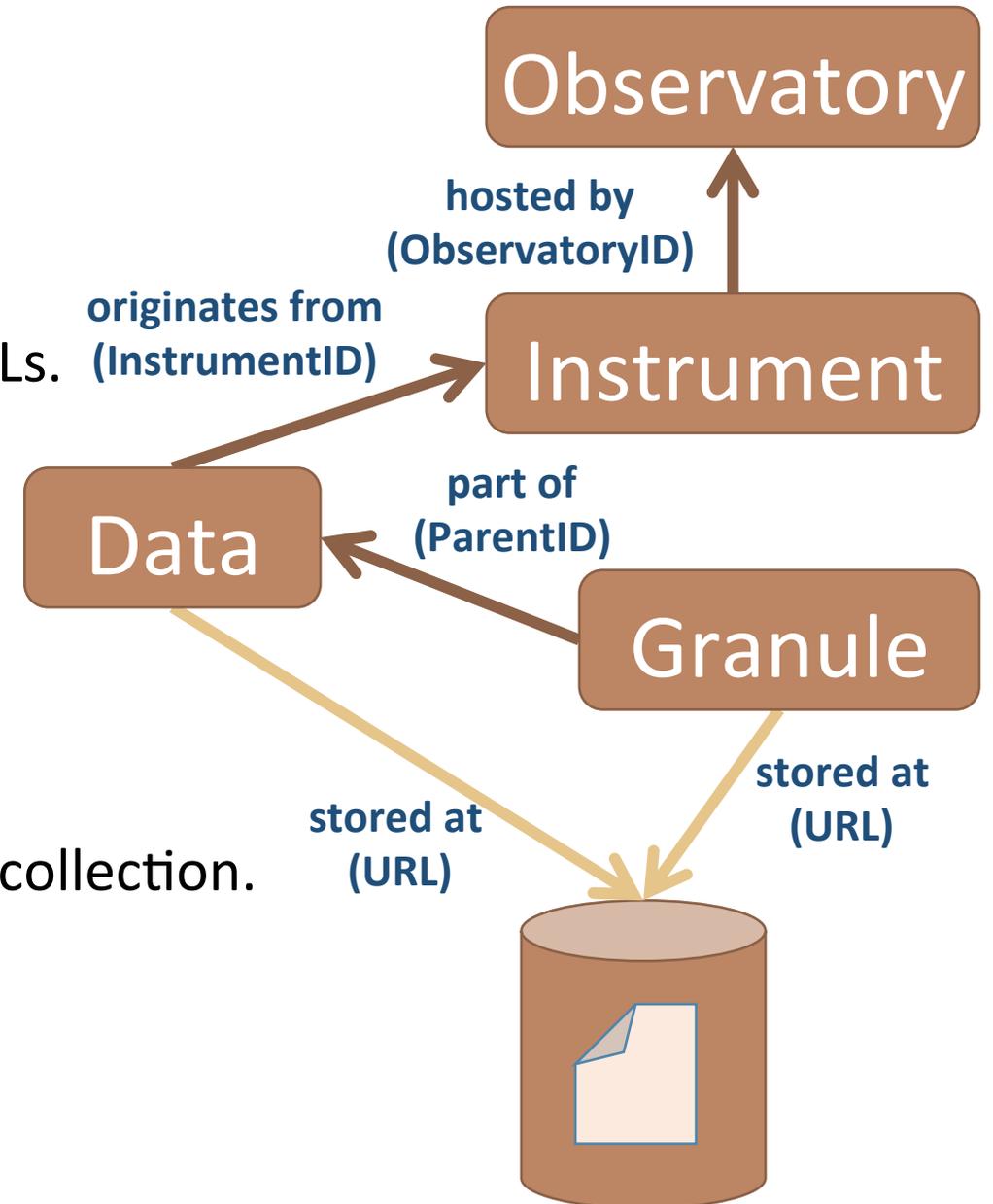
Organized in 2003 as an international consortium with an open invitation for anyone in the community to participate.
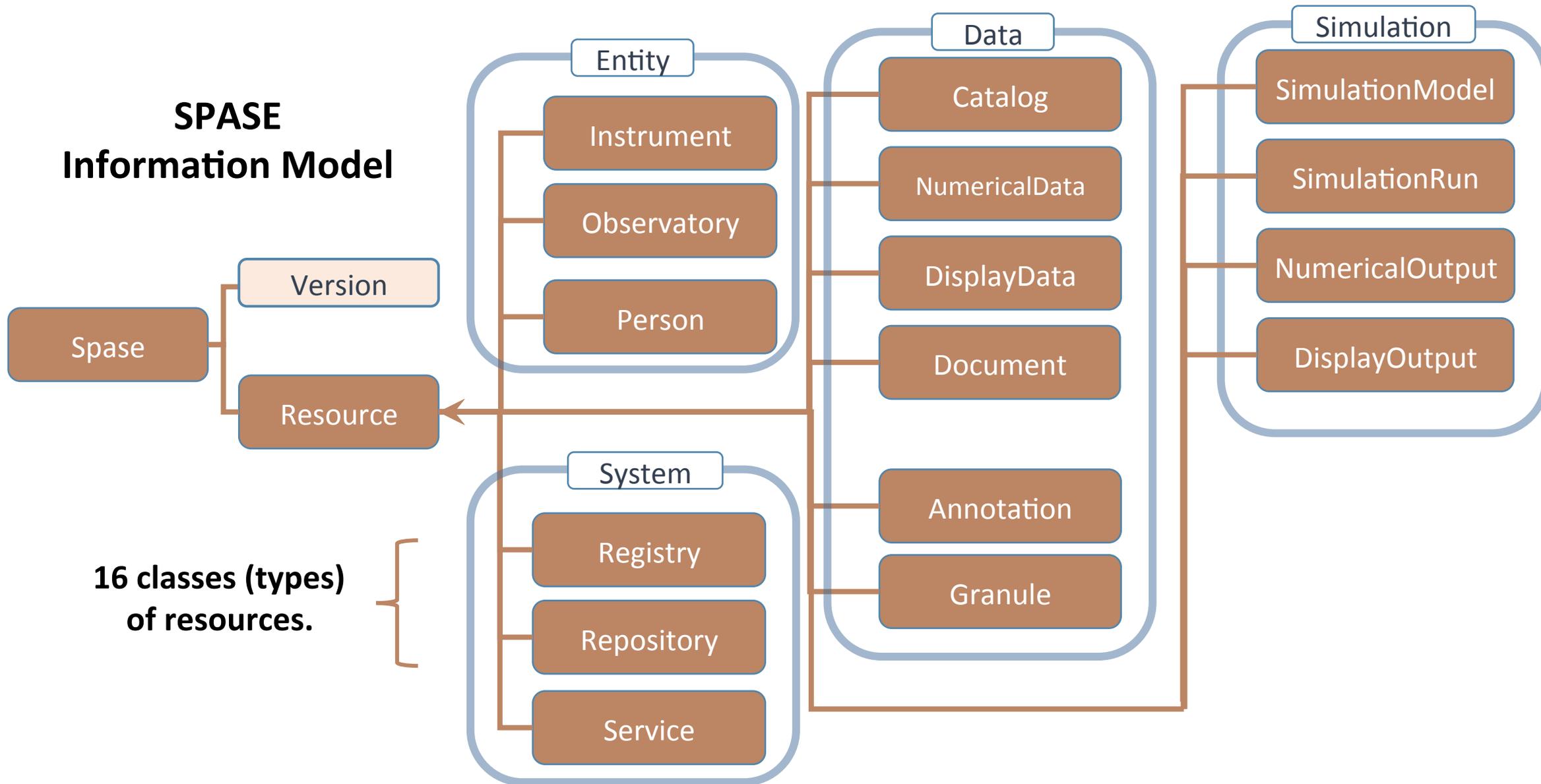
http://spase-group.org

Sponsored by NASA and used or adapted by the international community and by other U.S. agencies (NOAA).

Modular Metadata

- Describe each unique resource once.
  - Assign a universally unique identifier
  - Metadata is connected to data through URLs.
- Then use associations to provide
  - Provenance, scientific context and location of sampled data.
- Like kinds of data are described as collections of files.
  - A "Granule" describes a member (file) of a collection.
  - An accessor can conceal file boundaries.

Observatory

**hosted by
(ObservatoryID)**

**originates from
(InstrumentID)**

Instrument

**part of
(ParentID)**

Data

Granule

**stored at
(URL)**

**stored at
(URL)**

SPASE Information Model

16 classes (types) of resources.

Details at: http://spase-group.org/data/

Simulation Extensions

A set of extensions for describing simulation models, runs and the resulting data (numerical or display) have been endorsed by the SPASE consortium. The SPASE Simulation Extensions were originally developed by the Integrated Medium for Planetary Exploration (IMPEx) project, a European Union (EU) Seventh Framework Programme sponsored project.

Simulation Resources

SimulationModel: Description of a simulation model that includes type of numerical scheme, versions, spatial application, input parameters and output parameters.

SimulationRun: Description of a simulation run, including the code ID, the run spatial and temporal description, and all the relevant inputs.

NumericalOutput: Numerical values created by a simulation run and stored in a specified format.

DisplayOutput: A graphical representation of data created by a simulation run wherein the underlying numeric values are not (readily) accessible for analysis. Examples are line plots and spectrograms.

Metadata Tools

SPASE Resource Tools (http://spase-group.org/tools/resource)

A set of command-line applications to generate, validate, referentially check, use and organize resource descriptions written in SPASE XML.

New Node version:

npm install spase-resource-tools -g

SPASE XML Editor (http://spase-group.org/tools/xmleditor/)

A web based editor for generating SPASE descriptions.

New version coming soon.

Document Generator (http://release.igpp.ucla.edu/igpp/docgen/)

A document generator based on Apache Velocity.

Simulation Data Environments

Integrated Medium for Planetary Exploration (IMPEx): An infrastructure to bridge the gap between observational data bases and scientific modelling tools, enabling their joint interconnected operation for the better understanding of related physical phenomena. http://impex-fp7.oeaw.ac.at/

3DView/CDPP: A science tool that offers immediate 3D visualization of spacecraft position and attitude, planetary ephemerides, as well as scientific data representation (observations and models). http://3dview.cdpp.eu/

Hybrid Web Archive (HWA): Numerical model platform for global hybrid simulations of planetary plasma interactions. http://hwa.fmi.fi/

Community Coordinated Modeling Center: a multi-agency partnership to enable, support and perform the research and development for next-generation space science and space weather models. http://ccmc.gsfc.nasa.gov/

Heliophysics Data Enviroment (HPDE): An integrated environment based on the principals of

- Open Source
- Open Systems
- Open Data

to enable sharing and collaboration in space physics research.

Public Metadata Registries

https://github.com/hpde

ASWS	**Australian Space Weather Services (ASWS)**
CCMC	**Community Coordinated Modeling Center (CCMC)**
CSSDP	**Canadian Space Science Data Portal (CSSDP)**
ESA	**European Space Agency (ESA)**
ISWI	**International Space Weather Initiative (ISWI)**
GBO	**Ground Based Observatories (GBO)**
JAXA	**Japan Aerospace Exploration Agency (JAXA)**
NOAA	**National Oceanic and Atmospheric Administration (NOAA)**
SMWG	**SPASE Metadata Working Group (SMWG)**
	The community location for entities such as persons, observatories, instruments, repositories, registries and services.
VSPO	**Virtual Space Physics Observatory (VSPO)**
VSO	**Virtual Solar Observatory (VSO)**

Summary

The SPASE information model is a community developed standard that supports associating standard metadata to both observational and simulation data. It is an open standard that encourages open data and the free exchange of information. It has been adopted by many organizations and is a key part of NASA's Heliophysics Data Environment (HPDE).