IDIS: progresses towards a Virtual Observatory in Planetary Science

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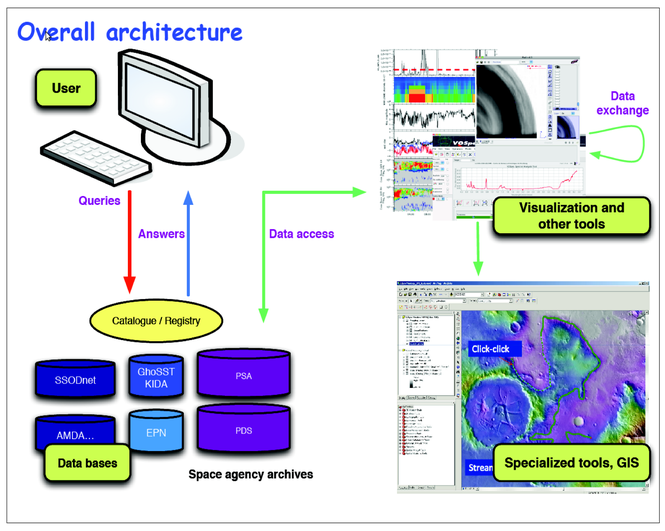
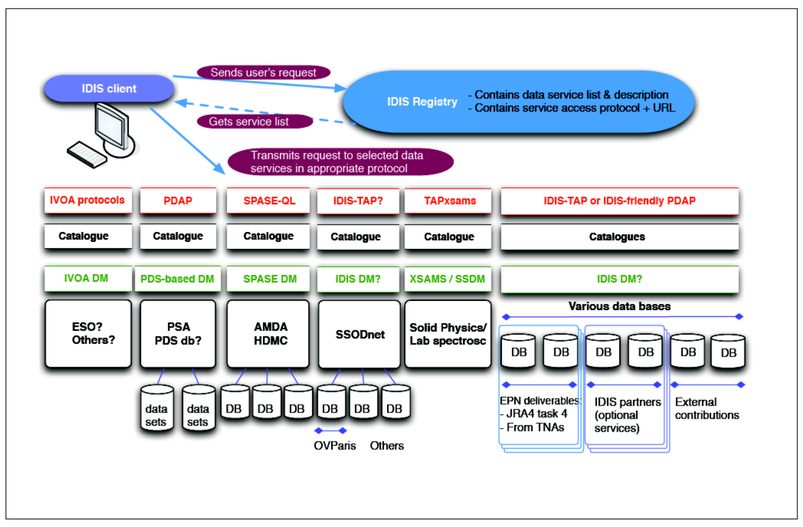
Abstract: The Integrated and Distributed Information Service (IDIS) is as a joint reasearch and service activity inside the Europlanet-RI FP7 program. Based on a network of thematic nodes, IDIS aims at building the basis of a Planetary Science Virtual Observatory (VO).

IDIS VO INFRASTRUCTURE

IDIS is building a planetary VO taking advantage of the Astronomical Virtual Observatory infrastructure and standards and applies it to planetary constraints. This includes knowledge and experience from SPASE in plasma physics.



IDIS has to handle various kinds of data protocols and fields. Here is a schematic description of the data scope of IDIS, and the principle of data access.



Planetary Data Model

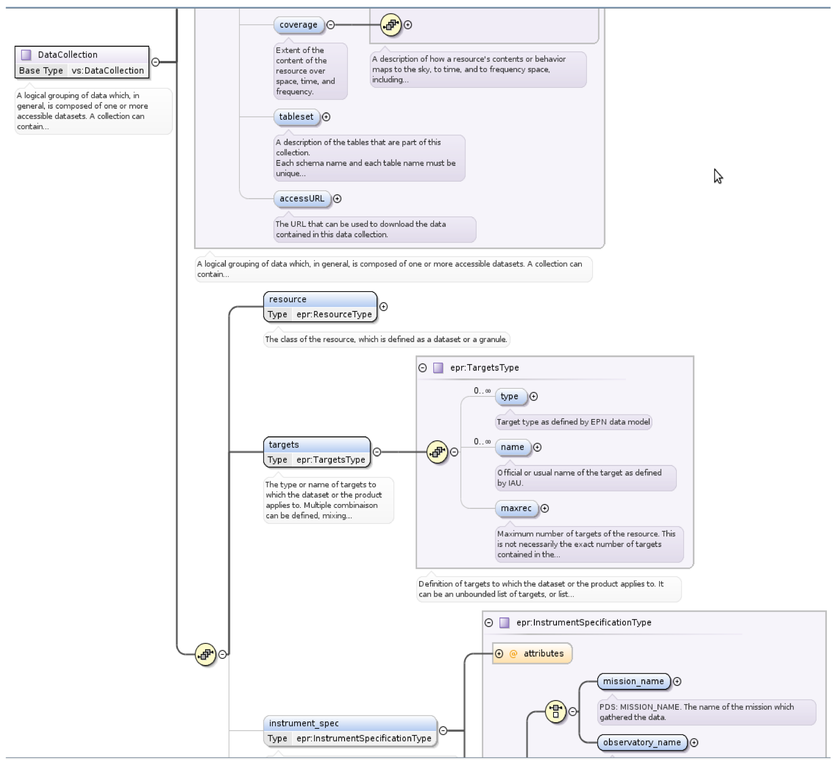
The Data Model (DM) is a master piece of a VO infrastructure. It defines the structure of data services, the content and context of data in a standard way. It also defines metadata describing the data content.

The IDIS DM working group tries to identify all the metadata relevant to the data used by the Planetary science community, in order to build a unified DM for the various datasets of Europlanet science nodes.

From this work and the study of other DM (SPASE, IVOA) the result has been fit into an extension of ObsCore and Characterization from IVOA.

This semantic model allows to be IVOA-compatible with large possibilities of extensions in a structured schema.

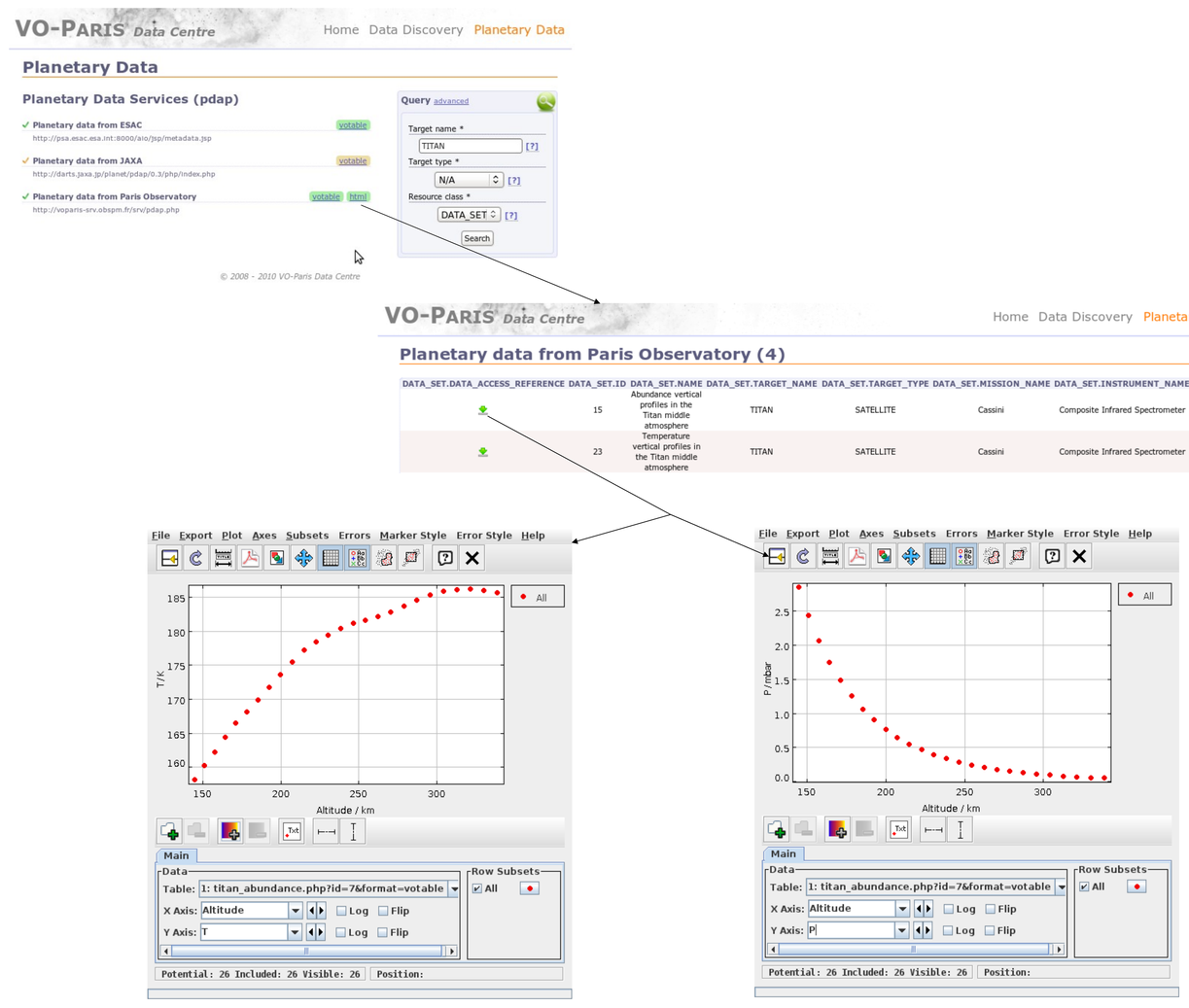
The detail of IDIS DM shows its relation with the IVOA DM.



Planetary Data Access Layer

IDIS will have to use different protocols to access the data :

- PDAP, defined by the space agencies to access PDS / PSA databases. IDIS has proposed extensions to PDAP, to allow a broader access to multiple data. First tests have been made by CDPP and VOParis to implement this protocol. A portal is accessible at http://voparis-srv.obspm.fr/portal/ipda.php
- TAP-VAMDC to access solid spectroscopy data from the GhoSST data service.
- IDIS-TAP is directly derived from TAP, the IVOA Table Access Protocol (TAP) designed to access tabular data and catalogues. This very generic protocol is designed for relational databases access. It supports different query languages (Astronomical data query language ADQL is mandatory). This generic protocol can be associated with a DM like IVOA ObsTap. We propose to associate it with the IDIS-DM to form an IDIS-Tap.



Example of DAL in IDIS using PDAP the portal and TOPCAT as a visualization tool

Conclusion

IDIS aims at prototyping a planetary science VO, allowing to discover datasets of interest for a given request in terms of target, time interval, or instrumentation. A Data Model is developed to describe IDIS' broad range of dataset. PDAP is already implemented and a web portal is up and running.