

Planetary Data Archiving Activities at the Italian Space Agency (ASI)

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4th IPDA SC meeting

ASI and planetary data archives

ASI has been involved, and is currently involved, with many planetary missions in cooperation with ESA, NASA and other agencies:

- Rosetta
- Cassini
- BepiColombo
- Mars Express
- Venus Express
- Juno
- DAWN
- Jupiter system mission (Cosmic Vision)

Both pre-launch and post-launch funding is assured to the instrument teams working on data archiving. Data are archived at PSA (Rosetta, Venus Express, Mars Express) and/or directly in PDS nodes in the case of NASA missions (Dawn, Juno).

ASI is formally asking to all the ASI-funded data providers to build PDS-compliant datasets and deliver them as agreed in the Data Management Plans.

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The ASI Science Data Center

The ASI Science Data Center (ASDC) is a facility established in November 2000. Following an agreement between ASI and ESA, the ASDC is located at the ESA establishment of ESRIN.

The ASDC main task is to support all ASI space missions dedicated to the Observation of the Universe in the management and in the long-term preservation of scientific data.

The ASDC personnel includes staff from ASI, from industry and a scientific component provided by the National Institute of Astrophysics (INAF) and the National Institute of Nuclear Physics (INFN).

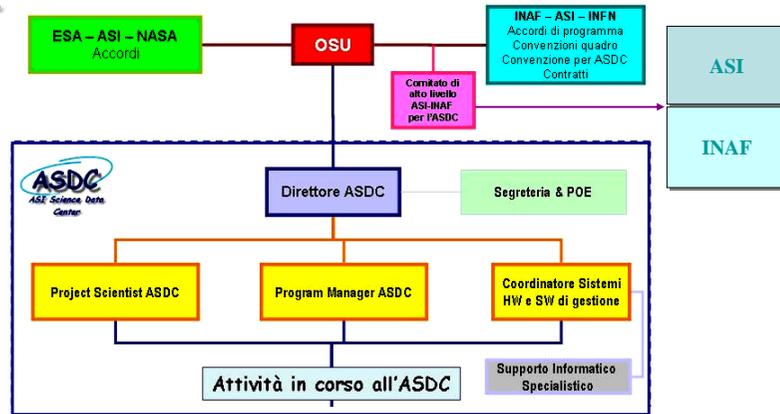
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The ASI Science Data Center Key features

- Common infrastructure and re-utilization of expertise from previous space missions: cost reduction.
- **Use of international standards (e.g. PDS, FITS, NASA-OGIP etc.) for all archives**
- Close cooperation of staff from ASI, industry and scientific personnel with ASI responsibility for the final products and services.
- High quality international environment and general infrastructures provided by ESA-ESRIN
- High level scientific activities carried out locally and in collaboration with local universities and international research teams.

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ASDC Organization (2009)



- P. Giommi** - Director ASDC
- E. Cavazzuti** - Deputy Director ASDC
- M. Ricci** - Responsible/coordinator of HX/SW activities
- S. Colafrancesco** - ASDC Project Scientist

Solar System Exploration I

ASDC hosts data from:

- VIMS on board Cassini;
- VIRTIS on board Rosetta;
- VIRTIS on board Venus Express.

All these data are available in the Solar System search engine.

ASDC also hosts data from:

- MARSIS on board Mars Express;
- SHARAD on board Mars Reconnaissance Orbiter;

and is involved in their distribution to the CO-Investigators.



ASDC Solar System Exploration Home Page

The on-line archive offers:

1. Several search modes, to help users in creating all kind of queries;
2. 3 different result tables, to make easy the choice among useful and unuseful files;
3. Java quick-look applet, which allow users to immediately explore the data files;
4. Links, for all instruments, to related pages, in order to get all available info about the selected instrument and the whole mission.

Italy-UK bilateral meeting ASDC ASI 26 April 2007

Example of offered services: MARSIS data

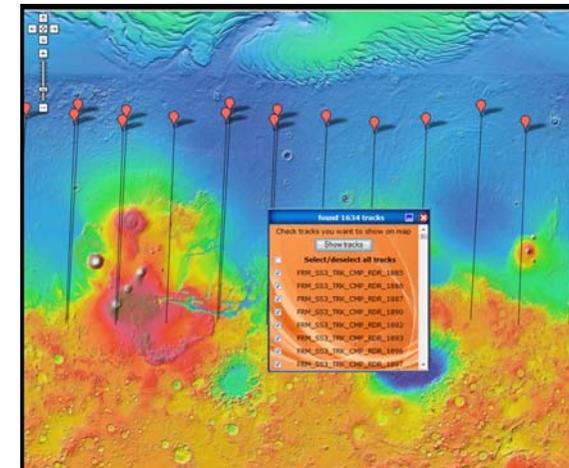
Displays altitude of points on the map by a color scale

Displays coordinates on Mars surface of the cursor position

Allows the selection of the

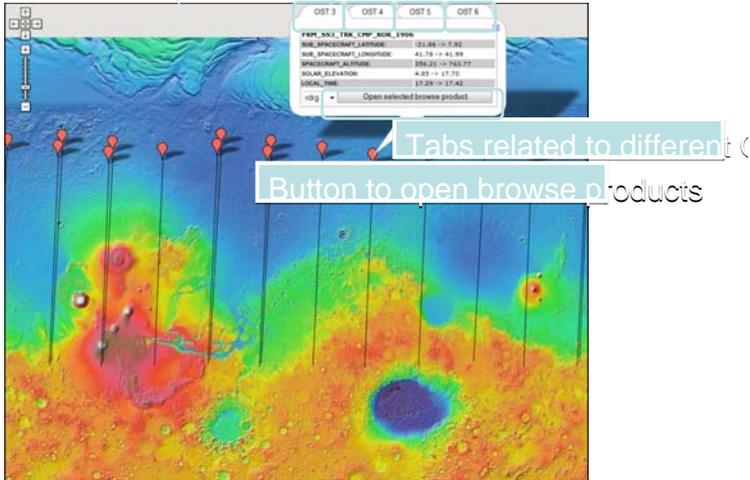
The search panel contains the form which allows the user to search for tracks. The user can fill one or more fields related to different geometrical parameters.

Search result – 1 (Tracks visualization)



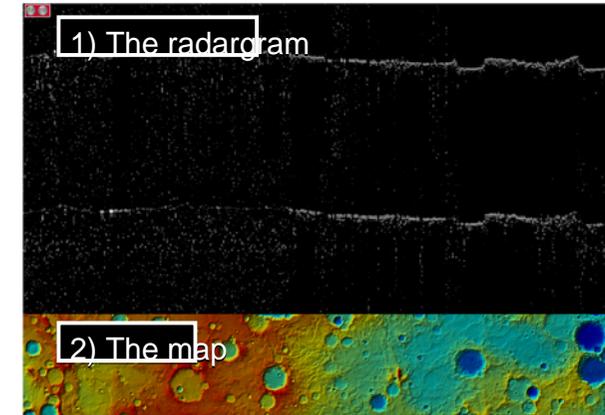
At the end of the search process, the system shows a box which allows the selection of tracks that will be displayed. The user can manually select one or more tracks or select all of them. Here only few tracks have been displayed.

Search result – 2 (Track info)



At the end of the search process, the system shows a box which allows the selection of tracks that will be displayed. The user can manually select one or more tracks or select all of them. Here only few tracks have been displayed.

Search result – 3 (browse products)



Each *browse product* contains 2 components:

- 1) The radargram contains the echoes received by the instrument during the exploration of a region. Such echoes are transformed in a grey-scale matrix.
- 2) The map represents the region of the map related to the radargram.

The future

- A project scientist expert in planetary sciences will be appointed
- Support to Herschel/Planck and more planetary data sets
- Full integration with Virtual Observatory