

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

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ASI and planetary data archives

ASI has been involved, and is currently involved, with many planetary missions both with ESA and NASA: Rosetta, Cassini, BepiColombo, Mars Express, Venus Express....

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



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 (near future) the National Institute of Nuclear Physics (INFN).



ASDC

http://www.asdc.asi.it/ www.asdc.asi.it

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ASDC ASI Science Data Center ASDC

ASI
agenzia spaziale italiana

The ASI Science Data Center (ASDC) is a facility of the Italian Space Agency established in November 2000.

ASDC responsibilities

- Support ASI scientific missions for all matters concerning the management and the archival of scientific space data
- Generate and maintain a permanent data archive of all ASI scientific missions
- Act as the interface between the ASI scientific missions and the users' community
- Support the Italian (and the general) community in the field of data analysis and archival research
- Maintain a permanent scientific and technical expertise for the processing and interpretation of the data hosted
- Provide on-line access to the data hosted
- Host a copy of non-ASI public data archives that are of interest in the Italian scientific community
- Develop and maintain (also in collaboration with other institutions) software systems for the access, analysis and comparison of archival data
- Establish links with other data centers for the exchange of public data, software and expertise



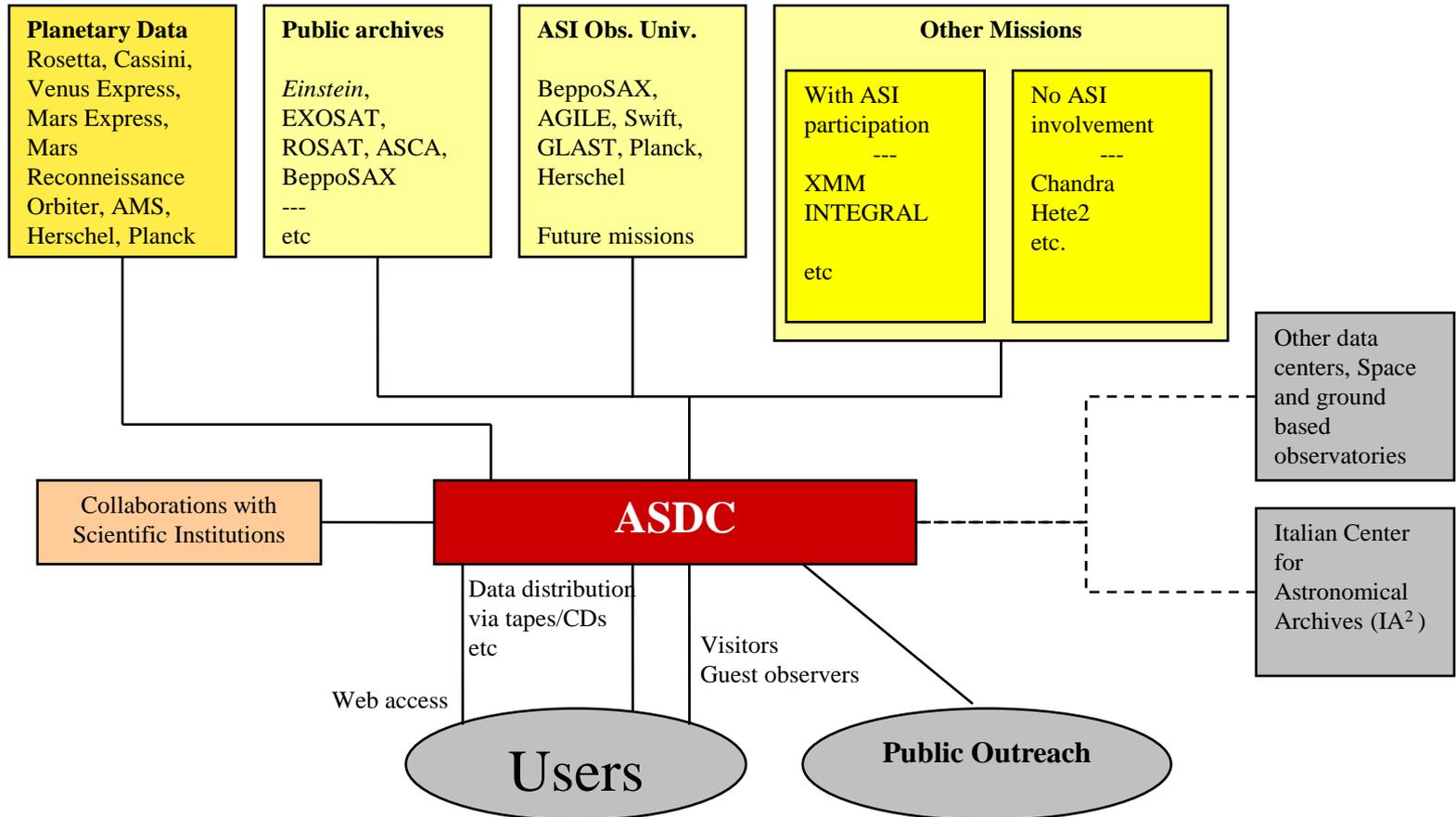
The ASDC is located at the European Space Agency's establishment of ESRIN, Frascati, Italy



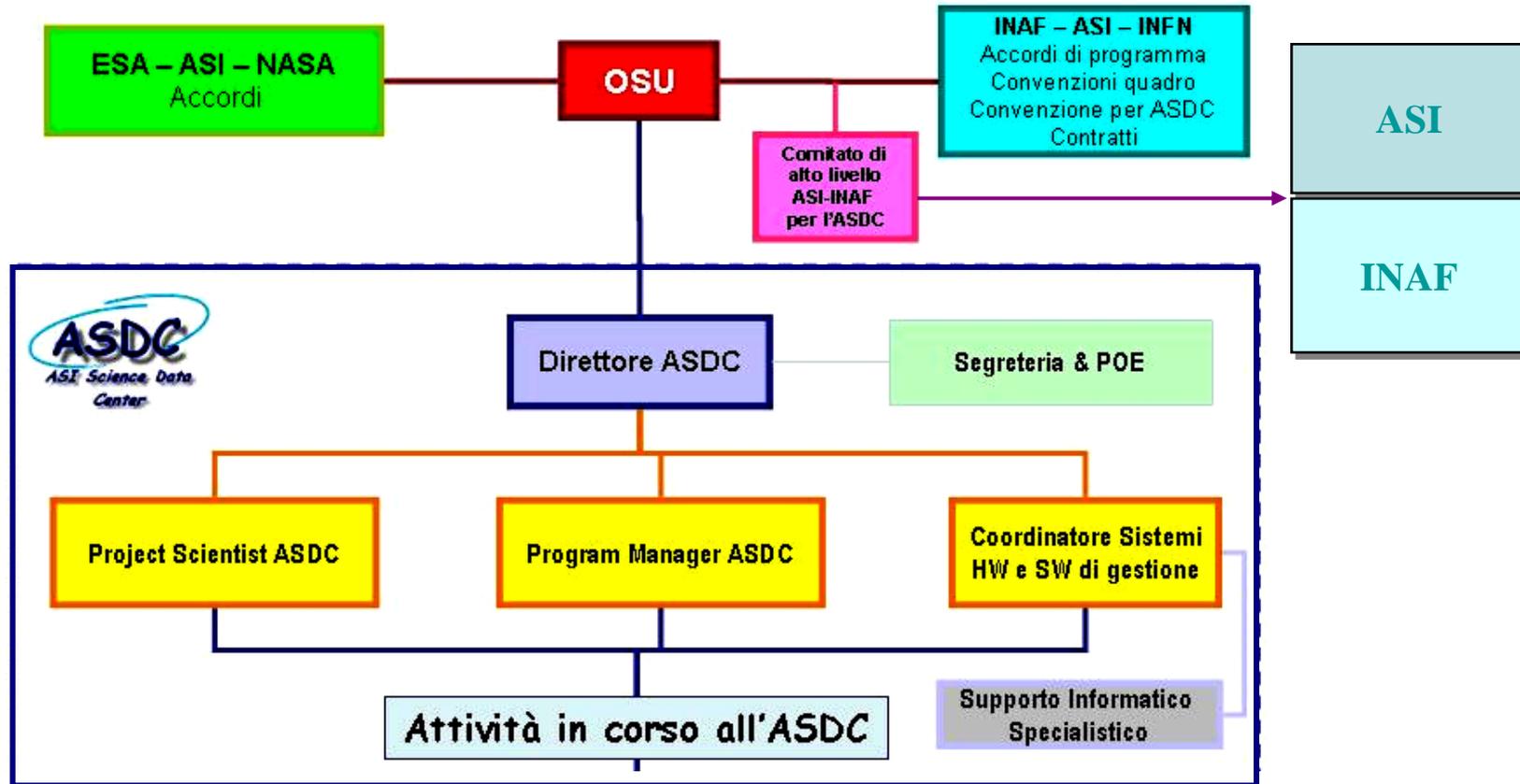
The ASI Science Data Center

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.



ASDC Organization (2008)



P.Giommi - Director ASDC

E. Cavazzuti - Deputy Director ASDC

M. Ricci - Responsabile/coordinator of HX/SW activities

S. Colafrancesco – ASDC Project Scientist



The ASDC in the international context

The ASDC is complementary to a number of similar international facilities

- ESA-ESAC, Spain,
- Chandra Science Center (USA)
- Leicester Database and Archive Centre (LEDAS) (UK)
- CDS Strasbourg (France)
- MPE Data Center (Germany)
- INTEGRAL Science Data Center (Switzerland)

Multimission Data Centers (USA) :
NASA/HEASARC (high-energy astrophysics)
Hubble Archive (UV, Optical)
NASA/IPAC (IR)
NRAO-VLA (radio),

The ASDC makes data available to the world-wide community through a Multi-Mission Interactive Archive



The screenshot shows a web browser window displaying the ASDC Multi-Mission Interactive Archive. The browser's address bar shows the URL <http://www.asdc.asi.it/>. The page features a navigation menu on the left with options like Home, ASDC Info, Missions, Interactive Data Archives, ASDC Source Catalogs, Tools, and Related Links. A search form is prominently displayed in the center, including a text input for source names or RA/DEC coordinates, a search type selector (Coordinates, Time, Parameter, Class), and various search parameters like Name Resolver (LOCAL, SIMBAD, NED), Radius (5 arcmin), Output sorted by (RA, DEC), and Max lines retrieved (300). A 'Submit' button is located at the bottom right of the search form. The ASDC logo and the ASI logo (Agenzia Spaziale Italiana) are also visible on the page.

ASDC hosts data from:

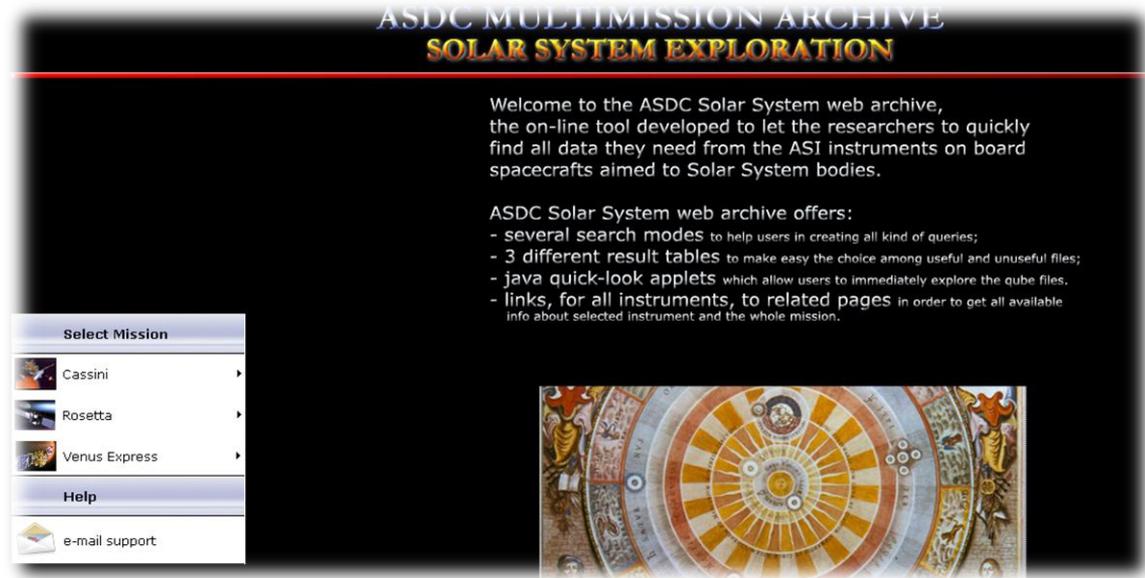
- VIMS on board Cassini;
- VIRTIS on board Rosetta;
- VIRTIS on board Venus Express.

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:

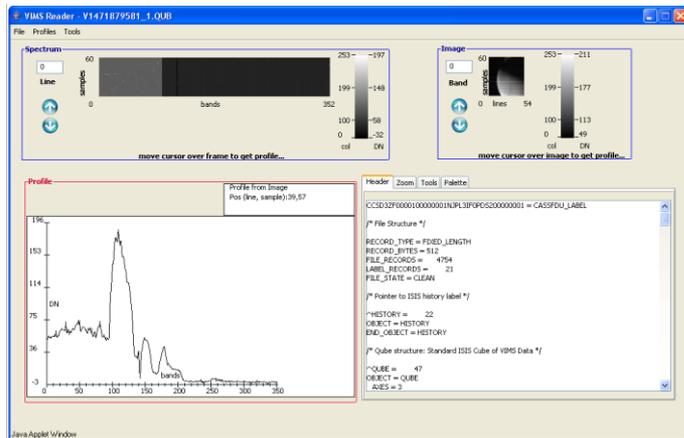
1. Several search modes, to help users in creating all kind of queries;
2. 3 different result tables, to make easy the choice among useful and unuseful files;
3. Java quick-look applet, which allow users to immediately explore the data files;
4. Links, for all instruments, to related pages, in order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

Single-keyword form

ASDC MULTIMISSIION ARCHIVE SOLAR SYSTEM EXPLORATION
Query Results

DATATYPE	FILENAME	OBS SESSION	PATH	SPIKES	TARGET NAME	CORE ITEMS (S,B,L)	POWER STATE FLAG	OBSDATE
RAW	V1352959095_3.QUB	C23_PDS/	JUPITER/JDISK/	-	JUPITER	32,352,32	ON, ON	2000-11-15
RAW	V1352959519_3.QUB	C23_PDS/	JUPITER/JDISK/	-	JUPITER	64,352,32	ON, ON	2000-11-15
RAW	V1352960331_4.QUB	C23_PDS/	JUPITER/JDISK/	-	JUPITER	32,352,22	ON, ON	2000-11-15
RAW	V1352977230_4.QUB	C23_PDS/	JUPITER/JDISK/	-	JUPITER	64,352,32	ON, ON	2000-11-15

Rows result table



Java quick look applet

The future

- Support to new missions e.g.
 - Herschel/Planck (from 2008)
 - AMS (under discussion)
 - Simbol-X (Italy-France) (2014)
 - HXMT/Polar-X (Italy-China) (2013?)
 - Public data from new ESA/NASA/Jaxa missions
 - More planetary data
- Full integration with Virtual Observatory
- Increase cooperation with other international facilities (ESRIN, ESAC, INFN? etc.)



MOU between ESA and Italian ministry of University and Research

1. The Parties hereto confirm their willingness to pursue their respective efforts to ensure the reinforcement of the role of ESA/ESRIN by assigning to it new activities, in addition to those it already performs, and by establishing new roles and reinforcing the present roles, as follows :

Earth observation

Integrated applications

Launchers

Exploration

Other areas

MOU between ESA and Italian ministry of University and Research

Exploration

- ESRIN to host an ASI/ESA Open Institute for Space Exploration (OISE) which will focus on:
 - Keeping a strong link, throughout a strong relationship,
 - with the EU FP7 activities,
 - with the national activities of the European countries (inside EU and ESA);
 - with the other fairing space agencies all over the world for the development of an integrated worldwide exploration strategy, following the GES framework for exploration;
 - Monitoring the exploration activities in ESA and the Member States in order to assure synergies and coherent approaches to exploration;
 - Initiating, animating, maintaining and coordinating a network of centres of excellence in support of European space exploration goals and objectives, with specific attention to the GIS and analogs networks, still to be developed in other agencies, integrating ASDC also in these activities;

On the long term, the existence of the Italian ASDC must also be fully exploited in order to increase the synergy with other main space fairing nations.