

# **EuroPlanet Integrated and Distributed Information Service (IDIS)**

**Maria Teresa Capria,  
G rard Chanteur, Walter Schmidt**

and the teams of the IDIS Nodes

**December 3, 2009**

**ESAC, Madrid, Spain – PV2009**



## EuroPlanet

Europlanet RI, launched in 2009, is a four year project supported by the European Union under the 7<sup>th</sup> Framework Program. It is the follow-on of a Coordination Action funded under FP6. Europlanet RI is an Integrated Infrastructure initiative aimed at developing and improving the cooperation between the different aspects of planetary sciences in Europe.

## What is IDIS?

The Integrated and Distributed Information Service (IDIS) is one of the key projects of Europlanet RI. It is a remote service facility infrastructure dedicated to the access, manipulation and modeling of data collected from past and future planetary missions, ground-based telescopes, laboratory and field facilities, sample collections. IDIS will offer additional tools to use, combine, analyse the data, and compare them to numerical simulation and model predictions.

## IDIS under FP7

At the end of Europlanet FP6, a portal and a series of on-lines services have been realized, together with a User Requirement Document giving the requirements for a future IDIS development. **Under Europlanet FP7, this portal will be made to evolve towards an information access system providing interoperability of a wide range of different information and data sources and access tools**, located in different data centers, including virtual observatory-like access services to data sets.

[www.europlanet-ri.eu](http://www.europlanet-ri.eu)

## IDIS structure

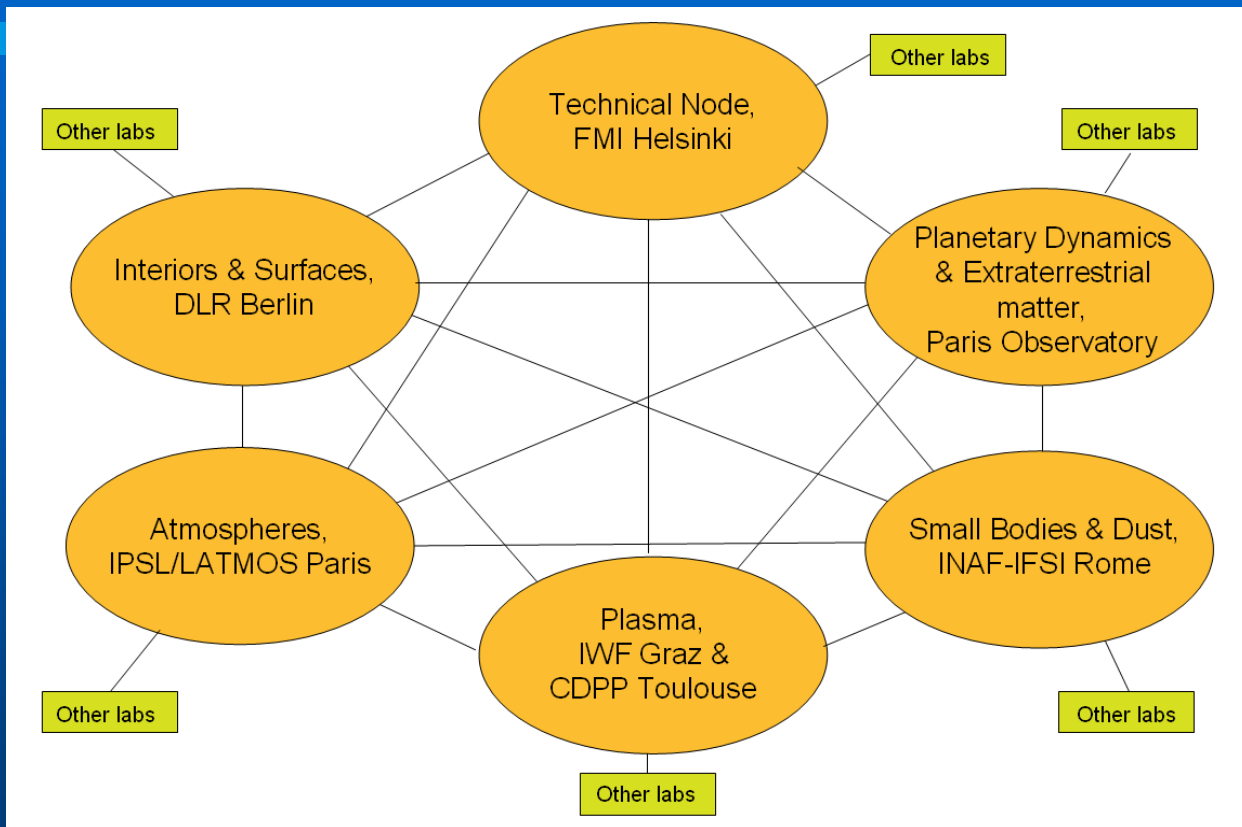
**IDIS is structured into a Service Activity (IDIS SA) and a Joint Research Activity (JR4).**

[www.idis.europlanet-ri.eu](http://www.idis.europlanet-ri.eu)

**A continuous enhancement of the on-line offered capabilities will take place, thanks to the work of a set of supporting Joint Research Activities (JRAs).**

- **JRA-4**, the IDIS devoted JRA, will directly develop the tools necessary for this expansion, developing the necessary functionalities to access, analyze, manipulate, assimilate into models etc., any kind of planetary data.
- **JRA-1** will specialize on improving the basic scientific tools and models for the support to the preparation and operation of space planetary missions.
- **JRA-3** will for the first time lead an effort to collect and upgrade for general use advanced software tools such as numerical simulation models and advanced data analysis tools.

**The Service Activity is structured as 5 thematic Nodes + a Technical Node**




**Coordinator: Maria Teresa Capria (INAF, Rome, Italy)**  
**Deputy coordinator: Gérard Chanteur (CNRS, Paris, France)**  
**Technical Manager: Walter Schmidt (FMI, Helsinki, Finland)**

**The interaction with the community is of vital importance**



At the beginning of their existence, the thematic Nodes have been structured around a number of pre-defined science cases. They are now evolving towards more general contents.

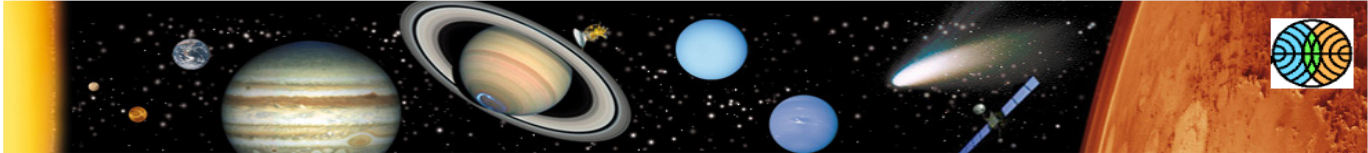
**The Nodes will receive inputs (resources) both from the other Europlanet activities and the scientific community.** These resources can have many forms: technical demonstrator reports, interactive catalogue access to computer models and analysis algorithms, routines enabled for high-performance computing...

Node  
manager:  
**Walter  
Schmidt**



**IDIS Integrated and Distributed Information System**  
Technical Node



IDIS TECH.NODE | INTERIORS & SURFACES NODE | ATMOSPHERES NODE | PLASMA NODE | SMALL BODIES & DUST NODE | PLANET. DYNAMICS

**EUROPLANET RI**

- Host Institute FMI
- IDIS Search
- Science Cases
- News
- Other Europlanet Activities
- IDIS Resources
- IDIS Documents
- Open Questions
- User Comments
- Credits

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**Page Updates**

November 13, 2009

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**Technical Node Site Counter**

206647

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**Service Login**

Username:

Password:

**Welcome to the EuroPlanet IDIS Technical Node Homepage**

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This is [www.idis.europlanet-ri.eu](http://www.idis.europlanet-ri.eu), the technical node of the **Integrated and Distributed Information Service** as part of the EuroPlaNet project, started with the support of the European Commission under the 6th Framework Program "Structuring the European Research Area" - Research Infrastructures Action.

Its development into an international research support environment is supported by the European Commission's 7th Framework Program, **Europlanet Research Infrastructure**, grant agreement 228319, as part of the Capacities Specific Programme / Research Infrastructures.

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**The EuroPlaNet Information Service**

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The EuroPlaNet information service provides access to lists of researchers, laboratories and data archives relevant for many aspects of planetary and space physics. Information can be accessed via search tools in the technical node or directly via services available in the different thematic nodes. Select any of the nodes presented in the link list above.

**IDIS is built around six nodes** located in different European countries. Each node deals with a subset of the disciplines related to planetary sciences, works together with international experts in these fields and provides a wealth of information to the international planetary science community. IDIS is complemented by a set of other EuroPlaNet activities under the responsibility of separate institutions. Each activity maintains its own Web-site with cross-links pointing to the other elements of EuroPlaNet. General access is provided via the EuroPlaNet Homepage.

The intention of IDIS is to provide easy-to-use access to resources like people, laboratories, modeling activities and data archives related to planetary sciences. IDIS by itself is not a repository of original data but rather supports the access to various data sources. These include already now several data access centers working as Virtual Observatories. The final goal of IDIS is to provide Virtual Observatory tools for the access of data from laboratory measurements and ground- and space-based observations to modeling results, allowing combining as divergent data sources as feasible.



Sitemap

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**News**

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**30.11.-04.12.2009** ISSI Workshop Europlanet RI

**02.11.2009** User Comment service added

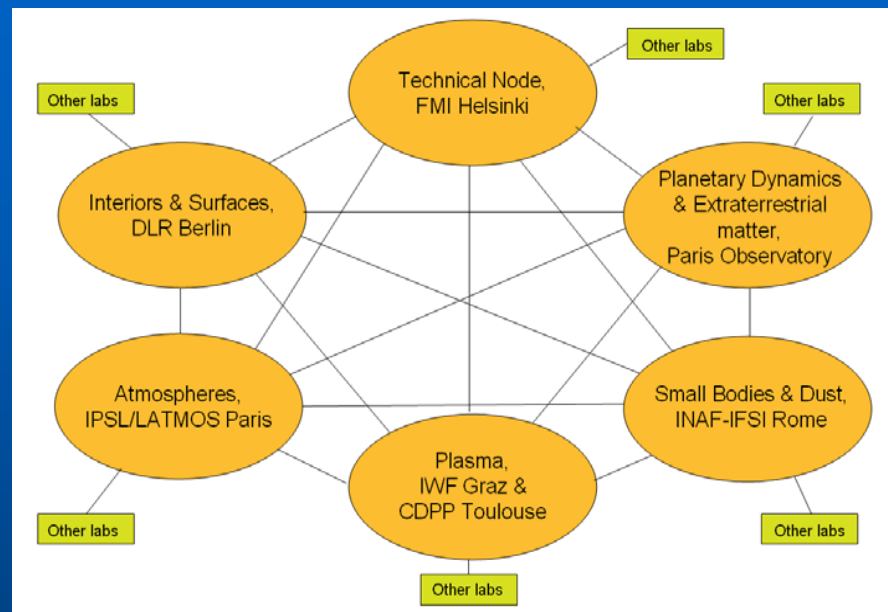
**07.10.2009** Resource access replaced by XML-based search tool

**29.08.2009** Web-site layout updated to Europlanet-RI standard

- Coordinate IDIS development and network activities

- Provide information about aspects of planetary sciences not related to one of the thematic nodes mainly in support of space missions:

- observations of potential targets
- laboratory measurements
- modeling activities for planning and mission control
- technical information for instrument designers



**Symmetrical Network Structure**

**TN as default gateway via**

<http://www.idis.europlanet-ri.eu/>



## Introduction to the thematic nodes of IDIS

This website is dedicated to the thematic field of *Interiors and Surfaces* as part of the Integrated and Distributed Information Service (IDIS) developed during the EUROPlaNet Project. In General the IDIS System is divided into four thematic nodes and one technical top node.

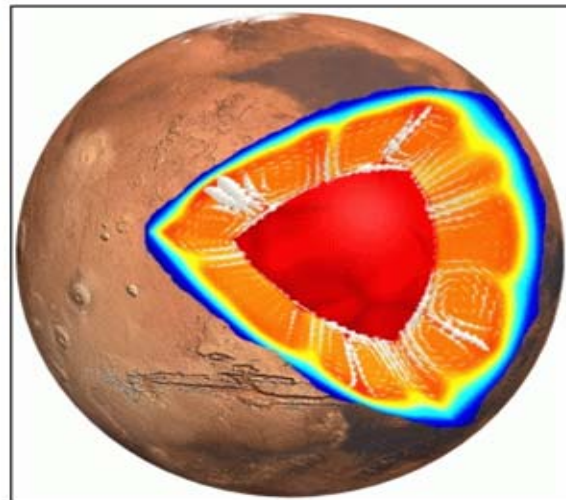
The EuroPlaNet IDIS thematic science node "Planetary Interiors and Surfaces" is hosted by the [Institute of Planetary Research of the Deutsches Zentrum für Luft- und Raumfahrt in Berlin Adlershof, Germany](#) and is established in close cooperation with the [Laboratoire de Planétologie et Géodynamique de Nantes](#).

The four EuroPlaNet IDIS thematic science nodes (Planetary Surfaces and Interiors, Atmospheres, Plasma Science and Small Bodies) are dedicated to open a web window to the status of solar system research and provide an effective information management system for scientists and interested persons about solar system knowledge, databases and scientific tools.

The main aim of the Planetary Interior and Surface node will be to:

- support collaborative work in the field of planetary interiors and surfaces
- provide information about data bases and scientific tools in this field
- establish an scientific information management
- define and develop Science Cases regarding IDIS

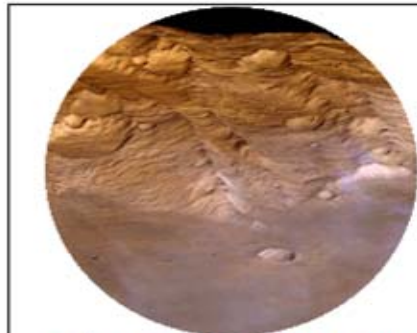
Actually the specific **science cases** related to planetary interiors and surfaces are under construction:



DLR  
Institute PF  
Search  
Tectonics on Mars  
Terrestrial Analogues  
Enceladus  
[The DLR Svalbard Campaign](#)

HRSC  
Our Solar System  
News  
Sitemap  
Credits  
Links

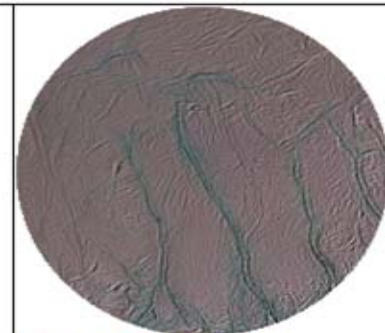
Scientific  
manager:  
**R. Jaumann**  
Technical  
manager:  
**T. Roatsch**



Science Case: Tectonics on Mars



Science Case: Terrestrial Analogues

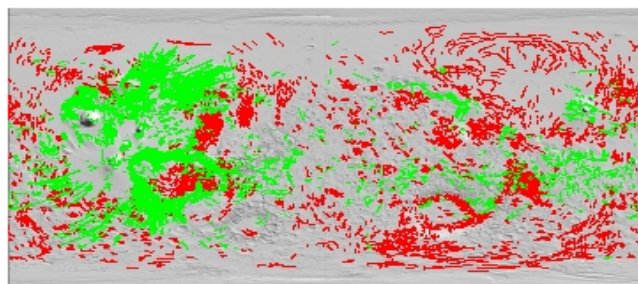


Science Case: Enceladus

# Tectonics on Mars

- DLR
- Institute PF
- Search
- Tectonics on Mars**
- Overview
- Interactive Fault Map**
- Interior
- Surface
- Open Questions
- Links and Resources
- Terrestrial Analogues
- Enceladus
- The DLR Svalbard Campaign
- HRSC
- News
- Sitemap
- Credits
- Links

## Interactive Fault Map



**Feature:** Click on the top left corner and then on the bottom right corner to select a rectangle in the map

**Note:** All search criterion are AND-jointed

**Legend:** Click [here](#) for a useful description of all search criterion

**Shape files:** The global fault inventory is also available in shape file format suitable for use in ArcGIS or GRASS. For access please click [here](#).

**Search:**       Compressions and extensions     Only compressions     Only extensions

Longitude<sub>1</sub>:     Latitude<sub>1</sub>:        Longitude<sub>2</sub>:     Latitude<sub>2</sub>:   

Age start:        Age end:        Group:

Length min:     Length max:   

Searching for data in the region between 0/0 and 0/0

**Compressions:** (results are purple)

*ID Group Subgroup Min Age Max Age Length*

Nothing found in this region

**Extensions:** (results are yellow)

*ID Group Subgroup Min Age Max Age Length*

Nothing found in this region

Save all result as ASCII-file (right click on the link and use the "Save As"-function)

Scientific coordinator:  
**A. Sarkissian**

**Europlanet IDIS Integrated and Distributed Information System Atmospheres Node**

Host Institute: **IPSL**  
 Europlanet **FP6**  
 Europlanet RI **FP7**  
 Home  
 Search  
**SC 2.1: Titan Ion Chemistry**  
 Data  
 Databases  
 Models and models outputs  
 Experts & Bibliography  
 Open Questions  
**SC 2.2: Methane Spectrosc.**  
 Data  
 Experts & Bibliography  
 Open Questions  
**SC 2.3: Mars Global Climate**  
 Data  
 GCM simulations  
 Experts & Bibliography  
 Open Questions  
**SC 2.4: Venus Super-rotation**  
 Data  
 Experts & Bibliography  
 Open Questions  
 News  
 Links  
 Site Map  
 Credits

**Introduction to the thematic nodes of IDIS**

This website is dedicated to the thematic field of *Atmospheres* as part of the Integrated and Distributed Information Service (IDIS) developed during the EUROPlaNet Projects FP6 and FP7. In General the IDIS System is divided into five thematic nodes and one technical top node.

The EuroPlaNet IDIS thematic science node "Atmospheres" is hosted by the L'Observatoire de Versailles Saint-Quentin-en-Yvelines (OVSQ) of the Institut Pierre Simon Laplace (IPSL) and is established in close cooperation with the Laboratoire ATMosphère, Milieux, Observations Spatiales (LATMOS)(ex. Service d'Aéronomie).

The five EuroPlaNet IDIS thematic science nodes (Planetary Surfaces and Interiors, Atmospheres, Plasma Science, Small Bodies and Planetary Dynamics) are dedicated to open a web window to the status of solar system research and provide an effective information management system for scientists and interested persons about solar system knowledge, databases and scientific tools.

The main aim of the Atmospheres node will be to:

- support collaborative work in the field of Atmospheres
- provide information about databases and scientific tools in this field
- establish a scientific information management
- define and develop Science Cases regarding IDIS

Actually the specific **science cases** related to Atmospheres are under construction:

**Science case 2.1 : Titan Ion Chemistry**  
**Science case 2.2 : Methane Spectroscopy**  
**Science case 2.3 : Mars Global Climate**  
**Science case 2.4 : Venus Super-rotation**

**Contact addresses for this IDIS node:**  
 IPSL, LATMOS (ex. Service d'Aéronomie)  
 Route des Gatines, BP3  
 F-91371 Verrières-le-Buisson, France  
 (Alain.Sarkissian[at]aerov.jur)  
 (Eric.Chassignon[at]aerov.jur)



UNIVERSITE DE VERSAILLES  
SAINT-QUENTIN-EN-YVELINES

Scientific coordinators:  
**W. Baumjohann**  
 and  
**N. André**  
 Technical managers:  
**F. Topf**  
 and  
**M. Gangloff**



IDIS Integrated and Distributed Information Service  
**Plasma Node**



IDIS TECH. NODE | INTERIORS & SURFACES NODE | ATMOSPHERES NODE | PLASMA NODE | SMALL BODIES & DUST NODE | PLANET. DYNAMICS NODE

## EUROPLANET RI

Host Institute **IWF**  
 Partner Institute **CDPP**  
**NEWS & EVENTS**

### SEARCH (NEW)

**SC 3.1** - Solar wind and aurorae

**SC 3.2** - Internal electro-dynamics at giant planets

**SC 3.3** - Icy moons: magnetospheric interactions

**SC 3.4** - Planets at extreme conditions

## AMDA 1.0

**MAPSKP REGISTRY**  
**NRI**  
**Node Resource Inventory**

## MEETINGS

**PLASMA NODE TEAM**

**USEFUL LINKS**

**SITEMAP**

**Site Access Counter**

## Introduction to the thematic nodes of IDIS

This website is dedicated to the thematic field of *Plasma Physics* as part of the **Integrated and Distributed Information Service (IDIS)** developed during the EUROPlaNet Project. In General the IDIS System is divided into five thematic nodes and one technical top node. **All nodes can be reached via the top menu.**

This thematic node is hosted by the **IWF Graz** and is established in close cooperation with **CDPP Toulouse**, which also takes part to the EUROPlaNet Project.

1. **IWF** (Space Research Institute) Graz: <http://www.iwf.oeaw.ac.at/>
2. **CDPP** (Plasmas Physics Data Centre) Toulouse: <http://cdpp.cesr.fr/>

A general description about the **IDIS - Science Cases** can be found here: **(Details)**

Here you can find a list of potential **participants** at the Plasma Node: **(Details)**

### The main Aims of the Plasma Node will be to:

- Establish collaborative work in the field of Plasma Science at first within the EUROPlaNet participants,
- Exchange well established databases and scientific tools,
- Collect knowledge of effective Information Management,
- Define and precise Science Use Cases regarding IDIS.

A listing of the **Node's responsible areas** can be found here: **(Details)**

### There are three "side-projects" running in the focus of Plasma Node:

1. Administration of the Plasma Node homepage platform.
2. Extension of the CDPP/AMDA-Tool (Automated Multi-Dataset Analysis) for Planetary Science.
3. Development of a node related resource inventory and an according search engine.

A Summary of the **overall EuroPlaNet Aims** can be found here: **(Details)**

**The Development of IDIS** into an international research support environment is supported by the European Commission's 7th Framework Program, **Europlanet Research Infrastructure**, grant agreement 228319, as part of the Capacities Specific Programme / Research Infrastructures.

## News & Events

Upcoming event:

**EPSC2009 (Details)**

Date: 14/09/2009 -

18/09/2009

Location: Kongresshotel  
 Potsdam, Germany

**25/06/2009:** Webpage  
 Layout changed according to  
 FP7 guidelines.

## Page Updates

**31/08/2009**

◆ Science fields covered by the Planetary Plasma Node:

- ◆ Solar and interplanetary space physics
- ◆ Planetary magnetospheric
- ◆ Radio astronomy and Astronomy in general
- ◆ Exoplanets and planetary evolution
- ◆ Laboratory plasma physics
- ◆ Space weather

◆ Access to following data bases:

All plasma related dataset measured by current and recent space missions available in **AMDA** as well as the full CDPP archive

◆ Virtual Observatory access:

Heliospheric Integrated Observatory (**HELIO**); Virtual Space Physics Observatory (**VSPO**); Virtual Magnetospheric Observatory (**VMO**); Virtual Solar Observatory (**VSO**)

**Responsibilities  
and area of  
expertise:**

● **Tools offered to the community:**

**AMDA at CDP (Automated Multi-Dataset Analysis)**

◆ **Planetary plasma data**

Cassini MAPS KP at Umich/CESR  
MEX ASPERA IMA & ELS at CESR/IRF  
VEX ASPERA IMA & ELS at CESR/IRF  
**VEX MAG at Graz**

January  
2010

◆ **Earth's magnetospheric data**

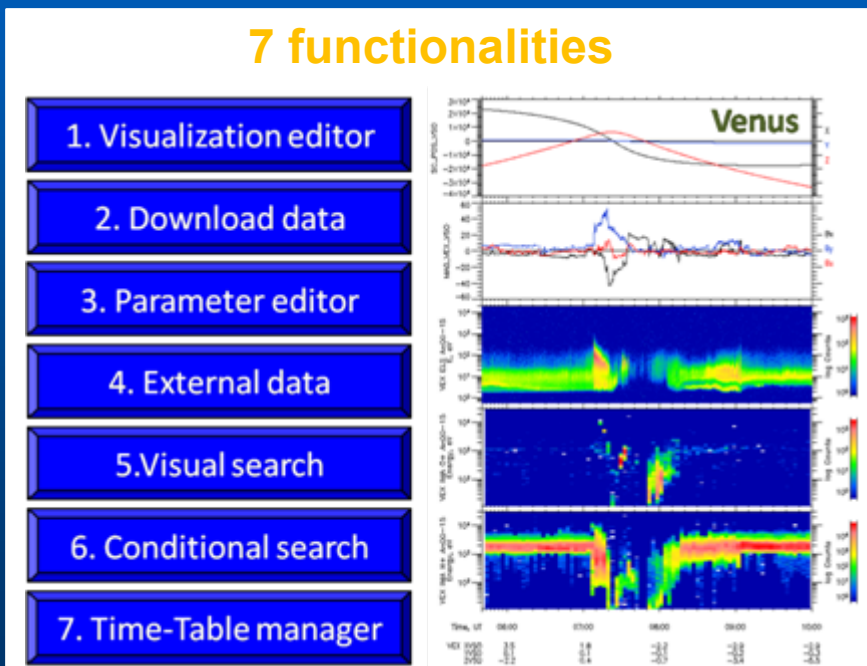
e.g., CDAweb, Themis, Cluster

◆ **Solar wind / heliospheric data**

e.g., Stereo, Ulysses

◆ **Radar data (EISCAT) & Geomagnetic indices**

**7 functionalities**



**amda@cesr.fr**

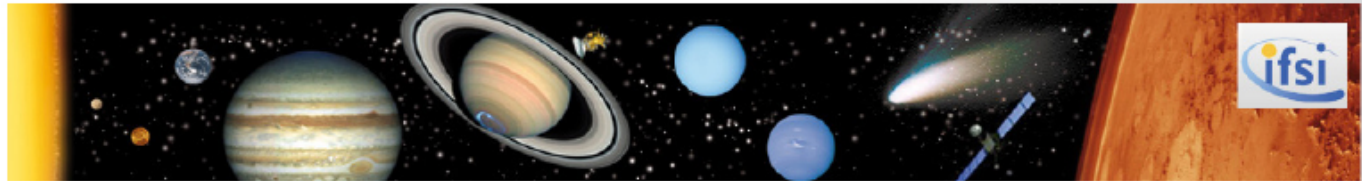
Scientific coordinator:  
**M.C. De Sanctis**

Technical manager:  
**F. Carraro**

Europlanet N7 - Small bodies Node



IDIS Integrated and Distributed Information System  
Small Bodies and Dust Node



[IDIS Tech. Node](#) | 
 [Interiors & Surfaces Node](#) | 
 [Atmospheres Node](#) | 
 [Plasma Node](#) | 
 [Small Bodies and Dust node](#) | 
 [Planetary Dynamics Node](#)

[Home](#)

[IFSI/INAF](#)

**Science Case 4.1: Relative Contribution to Zodiacal Cloud**

[Overview](#)  
[Objectives](#)  
[Resources](#)

**Science Case 4.2: Gas and Dust emission of comet Churyumov-Gerasimenko during Rosetta mission**

[Overview](#)  
[Objectives](#)  
[Resources](#)

**SBDN Resources**

[SBDN Search](#)

[Comet Nuclei Model](#)

[Virtual Meteor Observatory](#)

[News](#)

[Links](#)

[SiteMap](#)

## Introduction to the thematic Nodes of IDIS

The EuroPlaNet information service provides access to lists of researchers, laboratories and data archives relevant for many aspects of planetary and space physics. Information can be accessed via search tools in the top node or directly via services available in the different thematic nodes.

The IDIS Small Bodies and Dust Node (SBDN in the following) aims at becoming a focus point in the fields of Solar System's minor bodies and interplanetary dust by providing the community with a central, user friendly resource and service inventory and contact point. The EuroPlaNet IDIS thematic science node "Small Bodies and Dust Node" is hosted by the Istituto di Fisica dello Spazio Interplanetario and is established in close cooperation with the Istituto di Astrofisica Spaziale. Both these institutes are part of the Istituto Nazionale di Astrofisica (INAF).



The main aim of the **Small Bodies and Dust Node** will be to:

- support collaborative work in the field of Small Bodies and Dust
- provide information about data bases and scientific tools in this field
- establish an scientific information management
- define and develop Science Cases regarding IDIS

**Letter to the experts: Call for your collaboration!!!**

Scientific coordinator:  
**S. Erard**



The screenshot shows the website for the Planetary Dynamics Node. At the top, there is a banner with the Europlanet logo and the text "A European Research Infrastructure for Planetary Science". To the right of the banner are the European Union flag and the "SEVENTH FRAMEWORK PROGRAMME" logo. Below the banner is a navigation menu with the following items: IDIS Tech. Node, Interiors & Surfaces Node, Atmospheres Node, Plasma Node, Small Bodies & Dust Node, and Planet. Dynamics Node. The main content area features a section titled "Introduction to the thematic nodes of IDIS" with a paragraph explaining the website's purpose and the IDIS system. Below this is another paragraph mentioning the hosting facility at Paris Observatory. On the left side, there is a sidebar menu with categories: EUROPLANET RI (Host Institute: Obs. de Paris, Search), DATA RESOURCES (Meteorites & lunar samples, Ices & minerals spectra, Ephemeris), SERVICES (SKYBOT, SSODNET, Other services), TOOLS (Visualisation tools, Utilities), VO-PARIS PORTAL (Query form, Exoplanets, Databases), and LINKS. At the bottom of the main content area, there is a diagram of the solar system showing the orbits of the planets around the Sun.



## External resources

- Links to selected resources  
(Planetary dynamics, Spectroscopy, Meteorites & samples)
- Will link to Europlanet-derived resources in these fields  
(e.g. from TNA3)

## Virtual-Observatory tools

- Links to selected tools
- Visualization (IVAO-compliant)
- Data access (IDL PDS library)
- SkyBoT (dynamical ephemerides / target resolver)
- SSODnet (pseudo-VO system connecting selected DB)

## Local services

- Ephemerides from IMCCE
- Exoplanets Encyclopedia from LUTH
- Observational DB from LESIA:

Comet spectroscopy, atmospheric profiles,  
Projects: CCD imaging, TNO properties

## Local databases

**JRA-4 plays a pivotal role in transforming the current IDIS service activity into a Planetary Virtual Observatory**, preparing essential tools so that the Planetary Science community can interrogate the relevant datasets and visualise the results in a simple and effective way.

The key objectives of this JRA are:

- 1.To produce “data models” that will allow planetary scientists to make use of them in coordinated fashion.**
- 2.To define the standards required to enable the services provided by SA IDIS to work in an interoperable fashion.**
- 3.To provide “added value” services to users that go beyond the provision of raw datasets, bringing the interrogation process much closer to the actual scientific aims of European planetary scientists.**
- 4.To generalise the experience gained from the development of the Observatoire de Paris SkyBoT (Sky Body Tracker) virtual observatory service for ephemerides to the other datasets provided by SA IDIS.**

## JR 4 IDIS STRUCTURE

Coordinator: Gérard Chanteur (CNRS, Paris, France)

Deputy coordinator: Maria Teresa Capria (INAF, Rome, Italy)

■ Task 1 Coordination of IDIS (CNRS, INAF)

Coordination with SA IDIS and with other JRAs, especially 1 & 3

■ Task 2 Interoperable Data Access (CNRS/CESR, INAF)

Data Model, tools to build descriptors of resources and interoperable access layers, selected VO services

■ Task 3 Added Value Services (DLR, VO-Paris)

VO tools for 2D data, software to access PDS archives and so on

■ Task 4 New Databases (CNRS/LPG, DLR)

Generic infrastructure, spectroscopic databases, chemical kinetics database

## Task 2

**Task 2 will establish the basis allowing the evolution of SA-IDIS towards a future VO for planetary sciences. It** will also provide a web-based general inventory of resources associated with a search engine. This inventory will allow users to search resources based on general keywords.

## Task 3

Task 3 will work in close conjunction with Task 2 to enable users to extract information from several data sets and compare them. **It will develop interactive tools, which facilitate the retrieval of data set for given regions, times, or data types.** It will create interfaces for existing databases that currently have complex query and access procedures, making them widely accessible by the Planetary Science community.

## Task 4

**Task 4 will develop a generic infrastructure of spectroscopic databases for solids (ices, minerals, organic molecules, extraterrestrial and synthetic organic matter).** This infrastructure will be VO compliant and will enable the implementation of added value services as web services. Three specific databases will be developed on this infrastructure during the present contract : **UV-to-FIR transmission spectroscopy of ices and organics, UV-to-NIR bidirectional reflection spectroscopy of solid surfaces (planetary analogue materials), and NIR-MIR Emission spectroscopy of minerals.**

**The  
interaction  
with the  
community  
is of vital  
importance**

## How could IDIS be useful for the scientific community

- ✿ **Locate resources for your research projects**
- ✿ **Get support data and useful software for data analysis**
- ✿ **Combine data from different sources**
- ✿ **Locate modelling teams and useful facilities in your research area**
- ✿ **Offer wide advertisement for your own resources and capabilities**
- ✿ **New cooperation possibilities with so far unknown teams**