PLANETOLOGY

DEVELOPMENTS OF DATA ARCHIVING, TOOLS AND SERVICES IN FRANCE

Alain Sarkissian

PARIS

AT IPSL: LMD, SA, LISA, CETP

At OBSPM: VO-PARIS, LESIA, IMCCE

At CEA: SAp

And also: IAS, IAP, IPGP, IDES ...

FRANCE

CDS (Strasbourg), LAM (Marseille)
Institut Carnot de Bourgogne (Dijon)

UTINAM (Besançon Observatory)
Laboratoire de Planétologie (Grenoble)
PALMS (Rennes), LPMA (Reims)
CESR (Toulouse), LPCE (Orléans)

- 20 Labs with data base related to planetology

- All recent space experiments data bases are represented

- Also simulation and laboratory data in support to planetary missions

- Also tools, web services, standard definition working groups,
  bibliography, name resolver, etc...

This presentation = a general overview of these activities

At IPSL

IPSL: Institut Pierre-Simon Laplace includes SA, LMD, LISA and CETP laboratories developing space experiments and atmospheric models related to planetary atmospheres.

N7 : Integrated and Distributed Information Service (IDIS)

ATMOSPHERE

I P S L

Europlanet
European Planetology Network

At Service d'Aéronomie (SA)

IDIS Atmosphere Node

Coordinators: Alain Sarkissian and Eric Chassefière (SA)

3 Science Cases
60 experts, 12 countries, 20 labs

Access: http://idis.ipsl.jussieu.fr

The Planetary Atmosphere Node of EUROPLANET


N7 : Integrated and Distributed Service (IDIS)
ATMOSPHERE
I P S L
Europlanet
Europlanet
IDIS Top Node
EUROVO
BDAP
IPSL
Service d'Aeronomie
APACHE
PSS
Home
SC 2.1: Titan Ion Chemistry
. Data
. Databases
. Models and models outputs
. Experts
. Bibliography
SC 2.2: Spectro of CH4
. Data
. Experts
. Bibliography
SC 2.3 : Spicam + GCM
. Data
. GCM simulations
. Experts
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Credits
Introduction to the thematic nodes of IDIS
This website is dedicated to the thematic field of Atmosphere 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 "Atmosphere" is hosted by the Centre de données of the Institut Pierre Simon Laplace (IPSL) and is established in close cooperation with the Service d'Aeronomie.
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 Atmosphere node will be to:
support collaborative work in the field of Atmosphere
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 Atmosphere are under construction:
Science case 2.1 : Titan Ion Chemistry
Science case 2.2 : Spectro of CH4
Science case 2.3 : Spicam + GCM
Science case 2.4 : Super-Rotation
Contact addresses for this IDIS node:
IPSL, Service d'Aéronomie
Route des Gatines, BP3
F-91371 Verrières-le-Buisson, France
Alain Sarkissian, (Alain.Sarkissian(at)aerov.jussieu.fr)
Eric Chassefiere, (Eric.Chassefiere(at)aerov.jussieu.fr)

IDIS N7 Atmosphere Node

IDIS Science Case

Titan Ion-Neutral chemistry

Leader : Pascal Pernot, LCP, Orsay, France
Co-leaders: Odile Dutuit LPG, Grenoble, France
Sébastien Lebonnois LMD, IPSL, France
Node coordinators: Alain Sarkissian SA, IPSL, France


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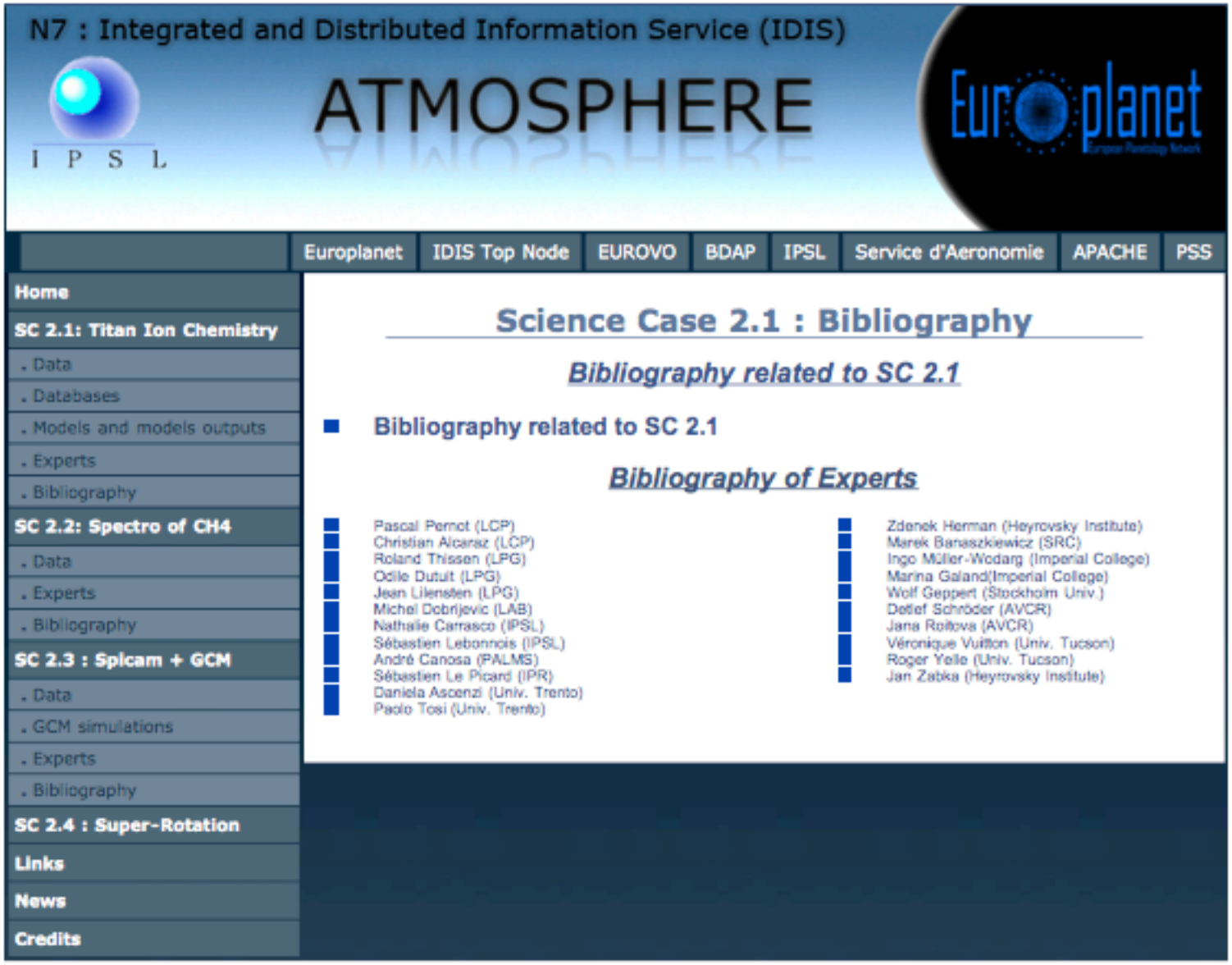
Science Case 2.1 : Databases
GAPHYOR
Content: Bibliographical database on the Properties of Atoms, Molecules, Gases and Plasmas, including Chemical Reactions
Creator(s): LPGP, Univ. Paris-Sud, Orsay, France
Comments:
References:
Medium: Database interface
Simplified form:
Enter formula with all elements counts (ex: C1H4 for CH4) and charge ("+","-" or nothing)
Formula:
Charge:
search
AMBDAS: Atomic and Molecular Bibliographical Database
Content: Atomic and Molecular Bibliographical Database
Creator(s): International Atomic Energy Agency, Nuclear Data Section/Atomic and Molecular Data Unit, Vienna, Austria
Comments:
References:
Medium: Database interface
OSU chemical database
Content:
Creator(s): Eric Herbst (Columbus University, Ohio, USA), updates by Valentine Wakelam (LAB, Univ. Bordeaux I, France) and Eric Herbst
Comments: Uncertainties are being introduced
References: Lee, Bettend & Herbst (1996, A&AS 119, 111); Smith, Herbst & Chang (2005, MNRAS 350, 323)
Medium: ".csv" file
UDFA: UMIST Database for Astrochemistry
Content:
Creator(s): T. Millar (Queen's University Belfast, UK) since 1995
Comments: No uncertainties
References: Millar, Farquhar & Willacy (1997, A&AS 121, 139); Le Teuff, Millar & Markwick (2000, A&A 146, 157)
Medium: Database interface / ".csv" file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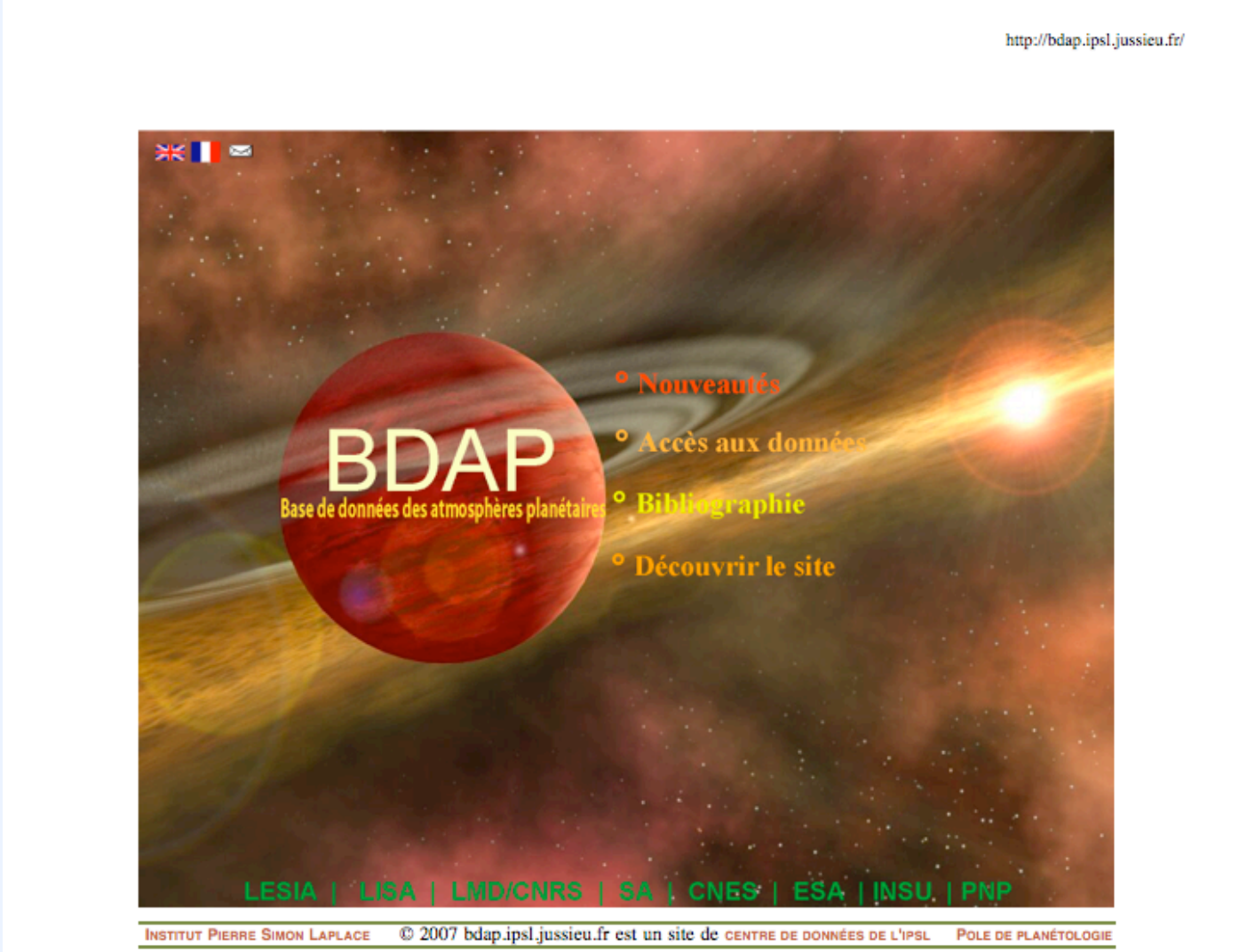
SC 2.4 : Super-Rotation
Links
News
Credits
Science Case 2.1 : Bibliography
Bibliography related to SC 2.1
Bibliography related to SC 2.1
Bibliography of Experts
Pascal Pernot (LCP)
Christian Alcaraz (LCP)
Roland Thissen (LPG)
Odile Dutuit (LPG)
Jean Lilensten (LPG)
Michel Dobrijevic (LAB)
Nathalie Carrasco (IPSL)
Sébastien Lebonnois (IPSL)
André Canosa (PALMS)
Sébastien Le Picard (IPR)
Daniela Ascenzi (Univ. Trento)
Paolo Tosi (Univ. Trento)
Zdenek Herman (Heyrovsky Institute)
Marek Banaszkiewicz (SRC)
Ingo Müller-Wodarg (Imperial College)
Marina Galand(Imperial College)
Wolf Geppert (Stockholm Univ.)
Detlef Schröder (AVCR)
Jana Roitova (AVCR)
Véronique Vuitton (Univ. Tucson)
Roger Yelle (Univ. Tucson)
Jan Zabka (Heyrovsky Institute)

At SA

http://bdap.ipsl.jussieu.fr : Portal for data and tools related to planetary atmospheres at IPSL.



PROGRA^2 data base

E. Hadamcik (Service d'Aéronomie)

- **PRopriétés Optiques des GRains Astronomiques et Atmosphériques**
- Mesurements of light scattering on parabolic flights **(A300 of CNES**)
- A lot of phase functions since 1994 (particles physical properties)
- LPCE (Orléans) and Service d'Aéronomie (Verrières-le-Buisson)
- Data to be stored at ICARE at Université de Lille (www-icare.univ-lille1.fr)

At LISA

http://www.lisa.univ-paris12.fr/GPCOS/SCOOPweb/lesmoleculesdeSCOOP.htm

LISA GPCOS

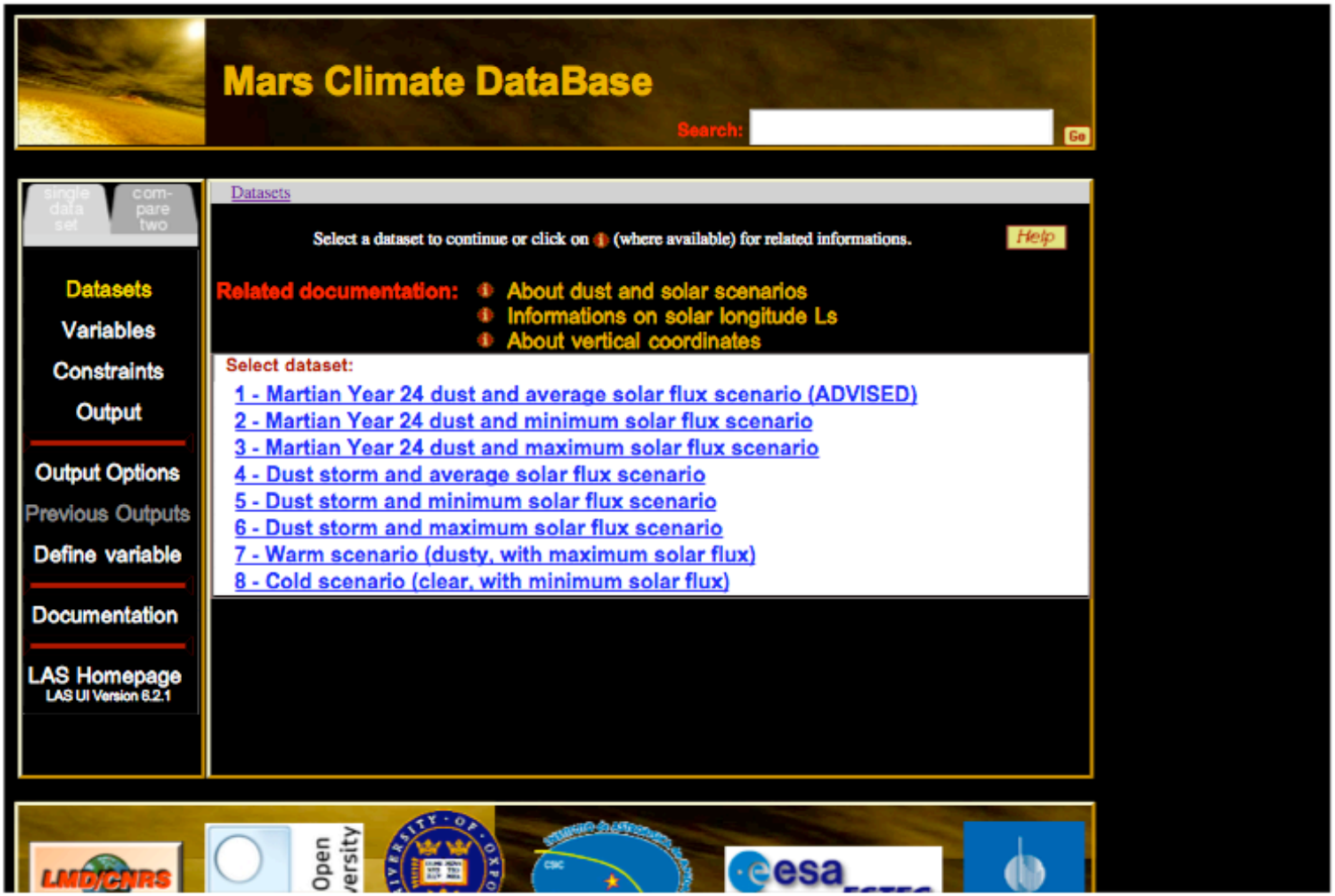
lisa

Titan's spectroscopic database

Molecules		Spectral domain	
		Mid-UV	IR
Hydrocarbons			
C_2H_2	Acetylene		
CH_3C_2H	Methylacetylene		
CH_2CCH_2	Allene		
CH_2CHCCH	Vynilacetylene		
Polyynes			
C_4H_2	Diacétylène		
C_6H_2	Triacétylène		

At LMD

Mars: http://johnson.lmd.jussieu.fr:8080/las/servlets/dataset



At LMD

Titan : http://web.lmd.jussieu.fr/titanDbase/

GCM TITAN DATABASE

Institut Pierre-Simon Laplace
- Laboratoire de Meteorologie Dynamique, Jussieu, Paris, France
- Service d'Aeronomie, Verrieres-le-Buisson, France

Project developed by:

Pascal RANNOU pra@aero.jussieu.fr
Frédéric HOURDIN hourdin@lmd.jussieu.fr
Sébastien LEBONNOIS Sebastien.Lebonnois@lmd.jussieu.fr
David LUZ luz@despace.obspm.fr

We have developed in the last decade a two dimensional version of the LMD Titan General Circulation Model. This model accounts for multiple coupling occuring on Titan between dynamics, haze, chemistry and radiative transfer. It was successful at explaining many observed features related to atmosphere state (wind, temperature), haze structure and chemical species distributions. An important step in our knowledge about Titan has now been taken with the Cassini mission and Huygens descent on Titan. In this context, we want to make the results of our model available for the scientific community which is involved in the study of Titan. Such a tool should also be useful for interpreting ground based telescope observations.

Our results are presented here as an atmospheric database, in an ASCII file database.wrk (around 28 Mo).
To use it, two methods are proposed:
- Use the Fortran routines ready to read the database
- Get and install the Graphical User Interface (GUI) package

But first, you may want to get and read the User's Guide.

These files are available below. Up-to-date versions are:
- User's Guide: online january 17, 2006.
- database: 1.5, online end november 2007
- GUI: 1.0, online end december 2005

USER'S GUIDE

In pdf format: users_guide.pdf

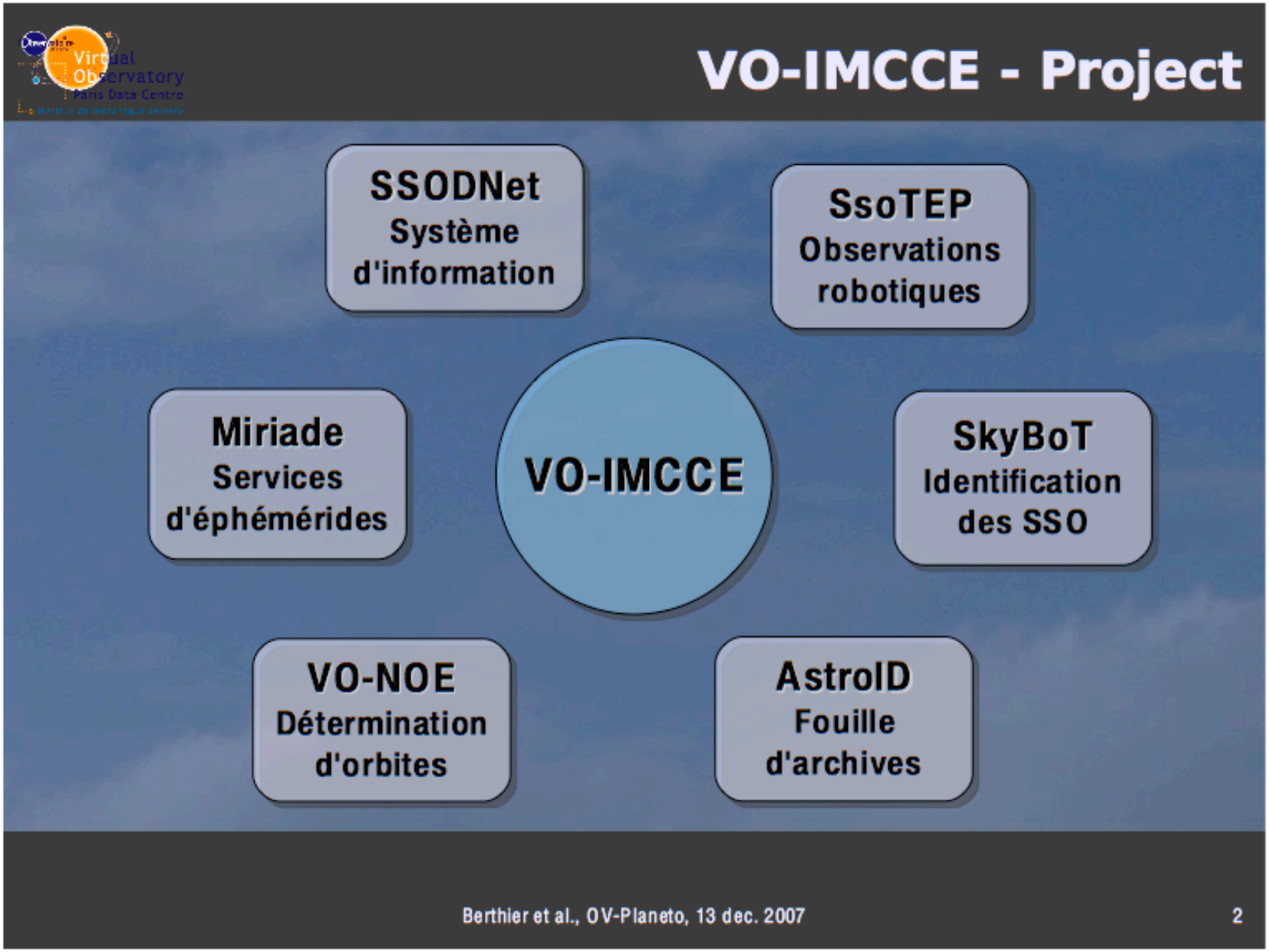
In postscript format: users_guide.ps

DOWNLOAD THE DATABASE

At OBSPM
VO-PARIS DATA CENTRE
Marie-Lise Dubernet and William Thuillot

http://vo-web.obspm.fr/
at VO-Paris Data Centre
(OBSPM) Virtual Observatory activities
Definition of standards, Data Model, Interoperability and VO tools for planetology


Outils & Services VO
de l'IMCCE
Virtual
Observatory
Paris Data Center
J. Berthier, W. Thuillot, F. Vachier, V. Lainey
IMCCE - Observatoire de Paris - CNRS, France
(berthier@imcce.fr)



Tools for planetology, including atmosphere (occultations)

LESIA

Cometary Data Base :

- radical OH, observations RT/Nançay since 1973 (Jacques Crovisier)
- **project** : molecular observations at millimetric wavelength (HCN, CO, CS, ...)
  (Dominique Bockelee-Morvan)

Molecular Data Base (Jacques Croviser)

IR and radio, *http://www.lesia.obspm.fr/~crovisier/basemole/*

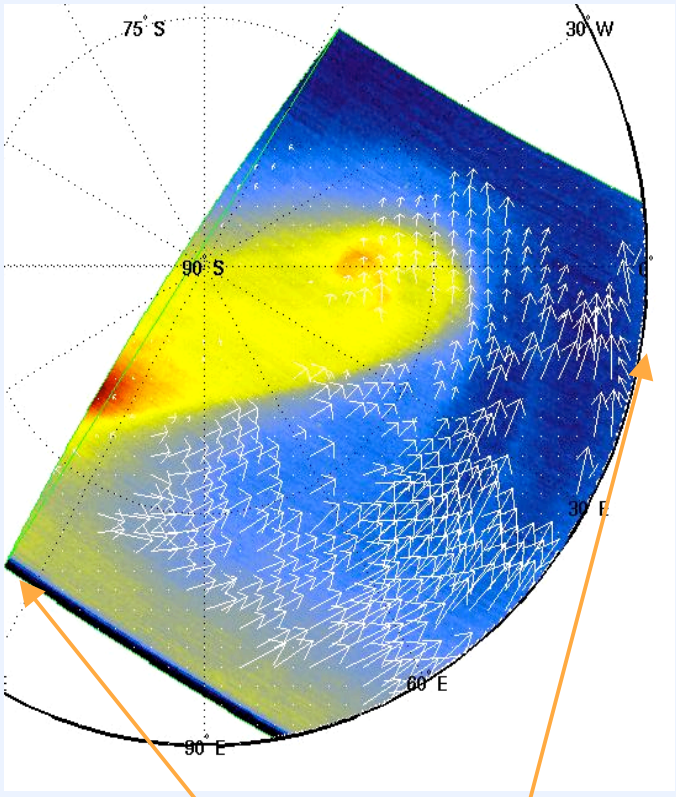
Project data base for planetary atmospheres :

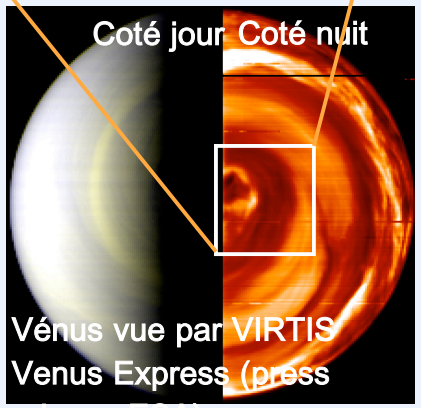
- *Venus* : wind profiles from Venus Express (David Luz)
- *Titan* : Temperature profiles and aerosol from Cassini/CIRS

The Dynamics of Venus atmosphere with Venus Express

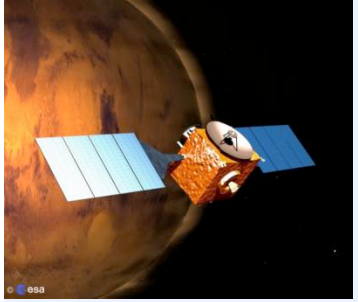
Cartography of the dynamics VIRTIS data analysis (PI P. Drossart - LESIA):

- Development and use of automated procedure to follow a tracer on VIRTIS images for wind determination;
- Wind fields in 2D at cloud basis (1.7, 2.3 mm) and at 60 km (5.0 mm)
- Combinaison of wind measurements and temperature fields (thermic winds) on nigth side of the planet (60-90 km).





Vénus vue par VIRTIS Venus Express (press release ESA)



IAS

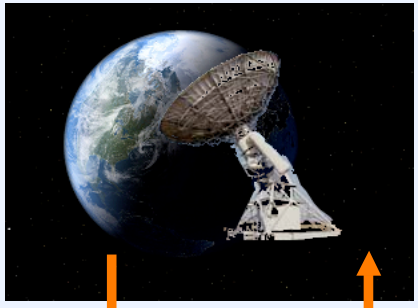
Centre de données spatiales des surfaces planétaires : Expérience MEx/OMEGA

Institut d'Astrophysique Spatiale
Université Paris-Sud

François Poulet, J.-P. Bibring (PI)
N. Roche (CDD CNES), G. Poulleau (responsable IDOC),
Y. Langevin, B. Gondet, M. Berthé

ESA/MEx
operational and data processing

Omega (2003 =>2007+) :
- 1000 observations
- 250 Go
HRSC : Images associated 2 To



+ NASA/MRO/CRISM

ESOC
DDS

Nav.
Data

Tech.
Data

Sci.
Data

L0 Data

Télécommandes

ESA/
PSA

L1b Data

IDOC

PIPELINE

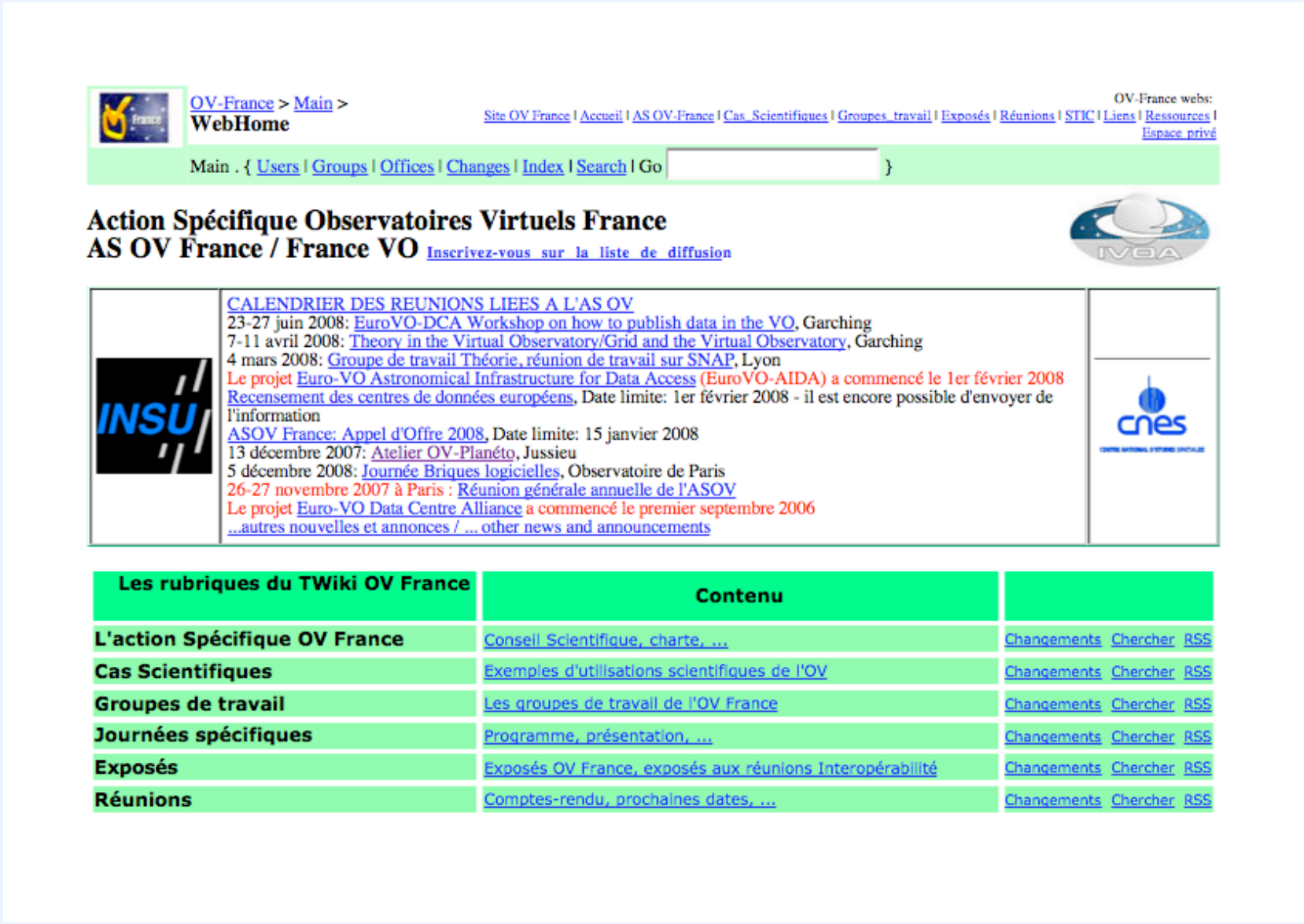
L2 Data

Tech.
Data

Sci.
Data

Science Teams

Archive



OV-France > Main > WebHome

OV-France webs: Site OV France | Accueil | AS OV-France | Cas_Scientifiques | Groupes_travail | Exposés | Réunions | STIC | Liens | Ressources | Espace_privé

Main . { Users | Groups | Offices | Changes | Index | Search | Go }

Action Spécifique Observatoires Virtuels France
AS OV France / France VO Inscrivez-vous sur la liste de diffusion

CALENDRIER DES REUNIONS LIEES A L'AS OV
23-27 juin 2008: EuroVO-DCA Workshop on how to publish data in the VO, Garching
7-11 avril 2008: Theory in the Virtual Observatory/Grid and the Virtual Observatory, Garching
4 mars 2008: Groupe de travail Théorie, réunion de travail sur SNAP, Lyon
Le projet Euro-VO Astronomical Infrastructure for Data Access (EuroVO-AIDA) a commencé le 1er février 2008
Recensement des centres de données européens, Date limite: 1er février 2008 - il est encore possible d'envoyer de l'information
ASOV France: Appel d'Offre 2008, Date limite: 15 janvier 2008
13 décembre 2007: Atelier OV-Planéto, Jussieu
5 décembre 2008: Journée Briques logicielles, Observatoire de Paris
26-27 novembre 2007 à Paris : Réunion générale annuelle de l'ASOV
Le projet Euro-VO Data Centre Alliance a commencé le premier septembre 2006
...autres nouvelles et annonces / ... other news and announcements

Les rubriques du TWiki OV France	Contenu	
L'action Spécifique OV France	Conseil Scientifique, charte, ...	Changements Chercher RSS
Cas Scientifiques	Exemples d'utilisations scientifiques de l'OV	Changements Chercher RSS
Groupes de travail	Les groupes de travail de l'OV France	Changements Chercher RSS
Journées spécifiques	Programme, présentation, ...	Changements Chercher RSS
Exposés	Exposés OV France, exposés aux réunions Interopérabilité	Changements Chercher RSS
Réunions	Comptes-rendu, prochaines dates, ...	Changements Chercher RSS

VO-France: The French Virtual Observatory initiative, supported by INSU and CNES, cover several disciplines: astronomy, planetology, solar-terrestrial relations, astrophysics. It is a member of the International Virtual Observatory Alliance (IVOA) which is at present focused on the astronomical Virtual Observatory.

Programmes and spectroscopic data base at Institut Carnot de Bourgogne (Dijon)

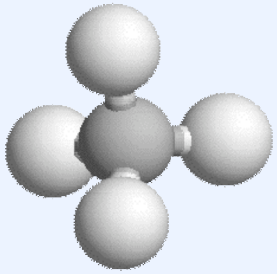
XTDS & SPVIEW : computations and spectral analysis

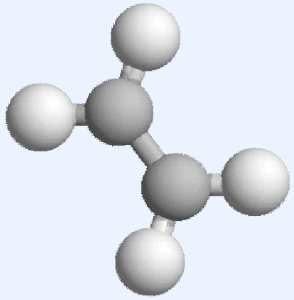
Spectroscopy of methane (CH_4)

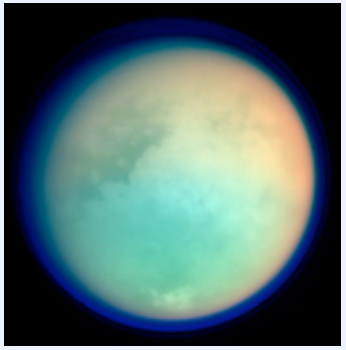
Spectroscopy of ethylene (C_2H_4)

Vincent BOUDON, Christian WENGER, Maud ROTGER, Tony GABARD, Jean-Paul CHAMPION, Michel Loëte

Institut Carnot de Bourgogne – UMR 5209 CNRS-Université de Bourgogne, 9 Av. A. Savary, BP 47870, F-21078 DIJON, France







Laboratoire de Planétologie Grenoble

Data Base for Spectroscopy of Solids

Bernard SCHMITT
and Pierre Volcke
Laboratoire Planétologie de Grenoble

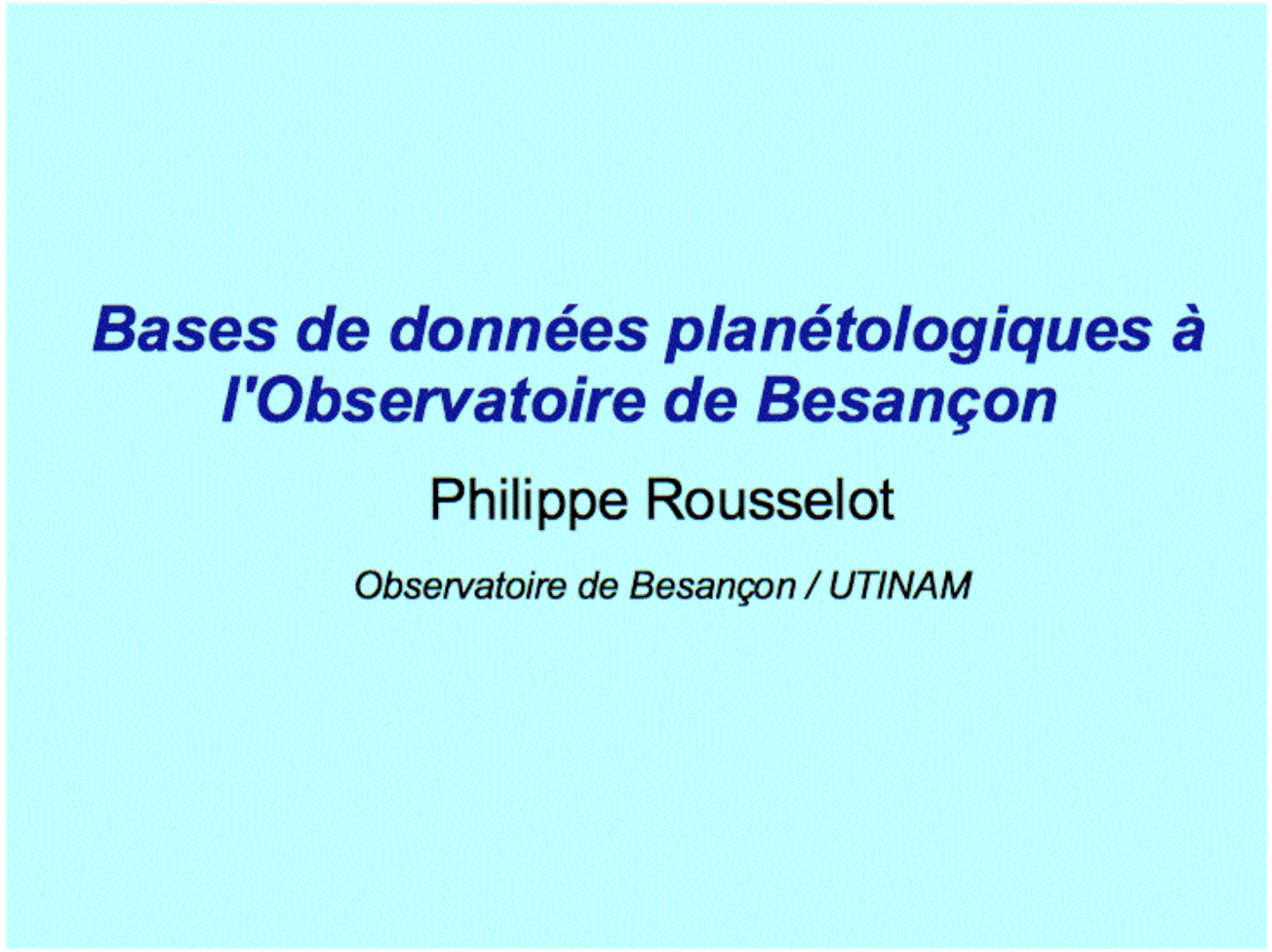
For the analysis of spectroscopic observation and for ground-based, in situ or space based spectro-imaging, and for cosmo-material studies in laboratories

- **Visible-far IR Spectroscopy by transmission**

  (spectra, optical constants, vibrational modes and frequencies

- **Visisible-IR Spectroscopy of surfaces by reflexion bidirectionnal**
  (bidirectional spectra,reflectance functions and diffusion parametres...)
- **Micro-spectrometry Raman and Fluorescence (excitation UV/vis)**

- **Spectro-imaging by infrared microscopy**



Actually two data bases for planetology related to Kuiper objects

An orbital data base

Photometric data base

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

UNIVERSITÉ DE RENNES 1

Atelier "Valorisation des données en Planétologie"
6 Décembre 2006
Observatoire de Paris – France

Réactivité Chimique de C_2 et C_4H en phase gazeuse à très basses températures: application aux atmosphères de Titan et des Planètes Géantes

André CANOSA

PALMS
Physique des Atomes, Lasers, Molécules et Surfaces

UNIVERSITE DE RENNES 1
PHYSIQUE DES ATOMES LASERS MOLECULES ET SURFACES
Equipe "Astrochimie Expérimentale", Unité Mixte de Recherche du C.N.R.S. N° 6627
Campus de Beaulieu, Bâtiment 11C, 35042 RENNES CEDEX - FRANCE