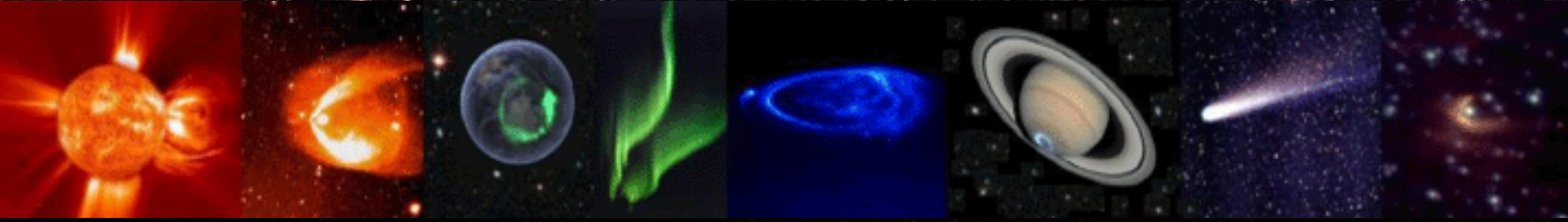
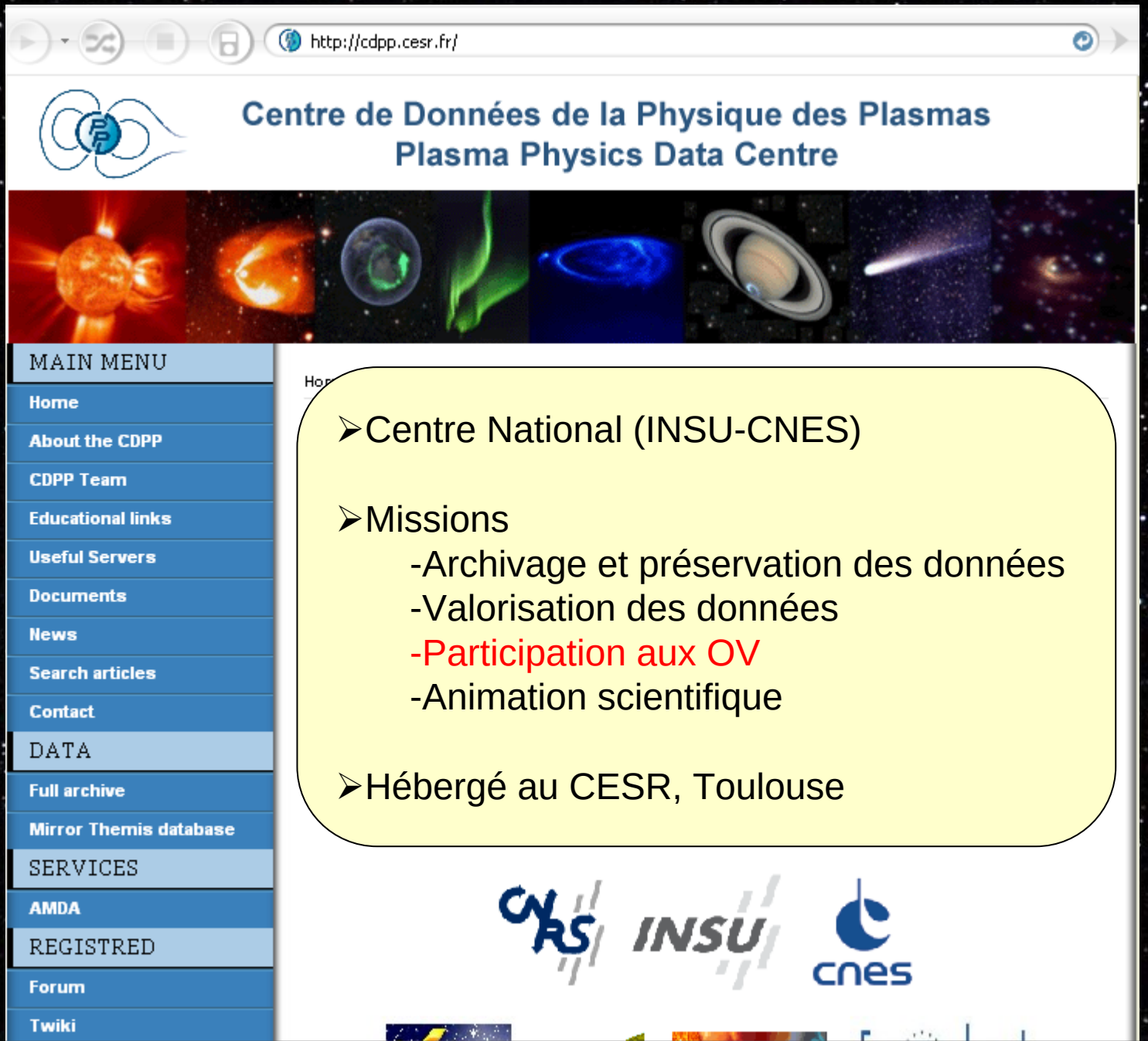


CDPP in Europlanet/IDIS FP6 and FP7

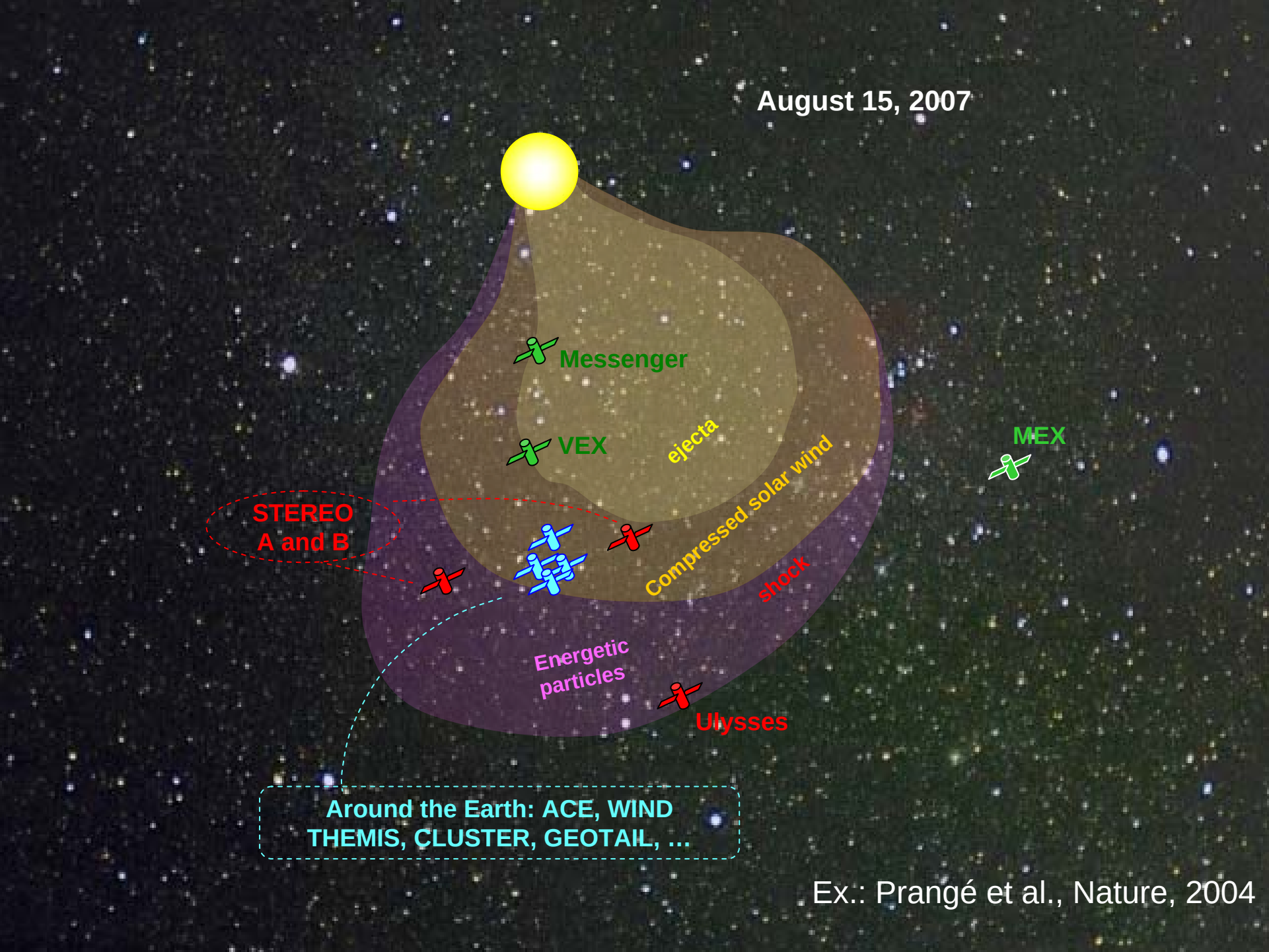
C. Jacquey, N. André, B. Cecconi, V. Génot, C. Briand

M. Gangloff, M. Bouchemit, E. Budnik, E. Pallier

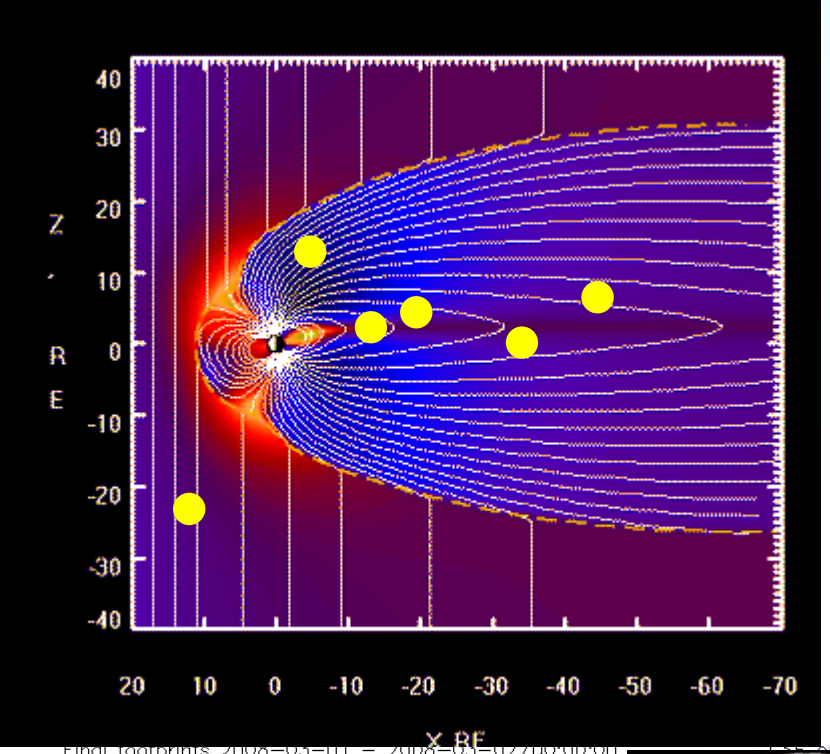
Le CDPP

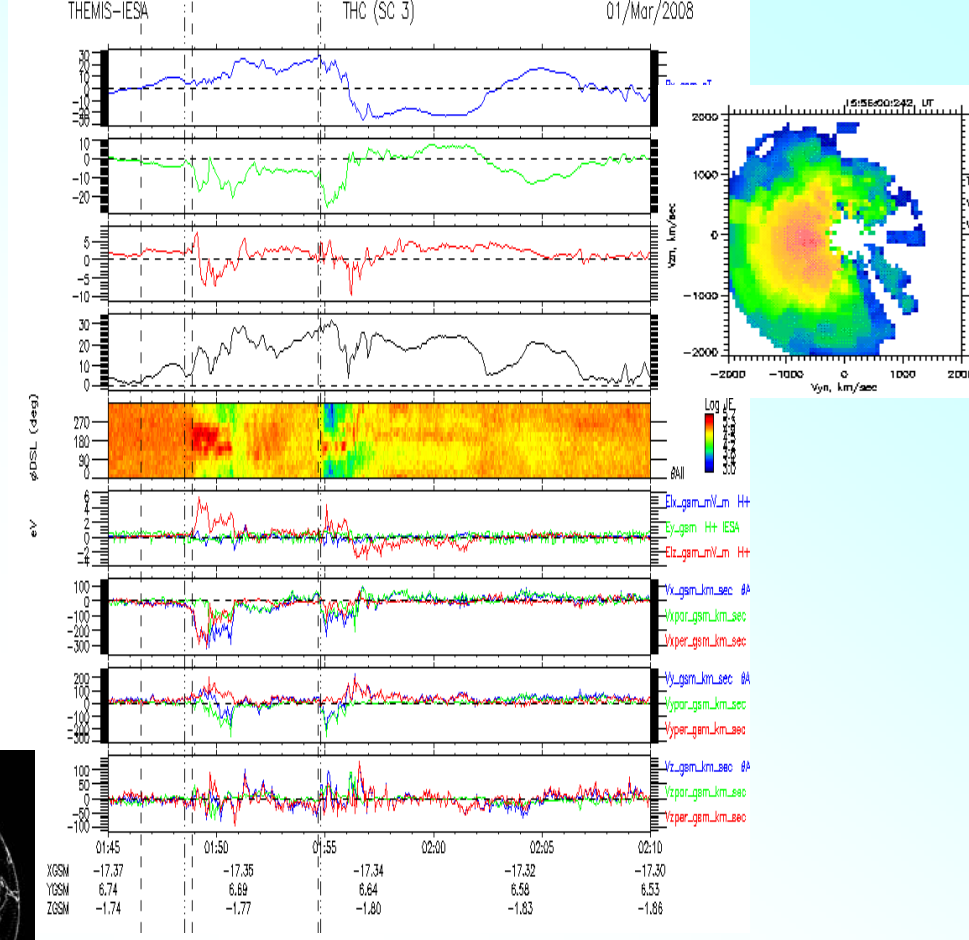


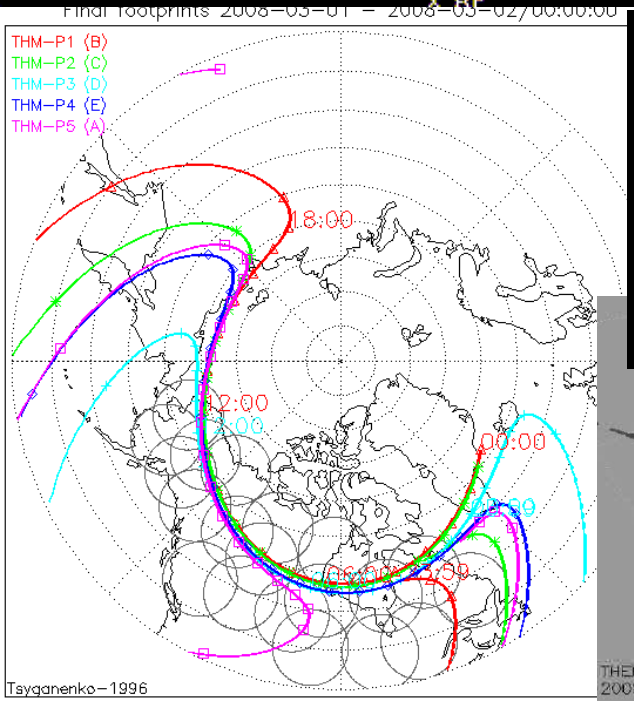
- Centre National (INSU-CNES)
- Missions
  - -Archivage et préservation des données
  - -Valorisation des données
  - -Participation aux OV
  - -Animation scientifique
- Hébergé au CESR, Toulouse

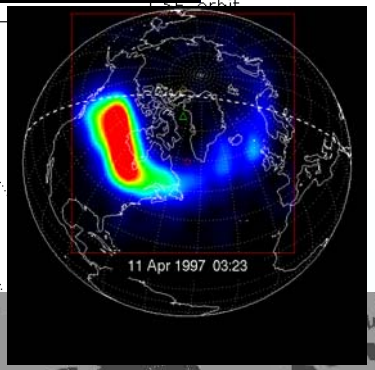


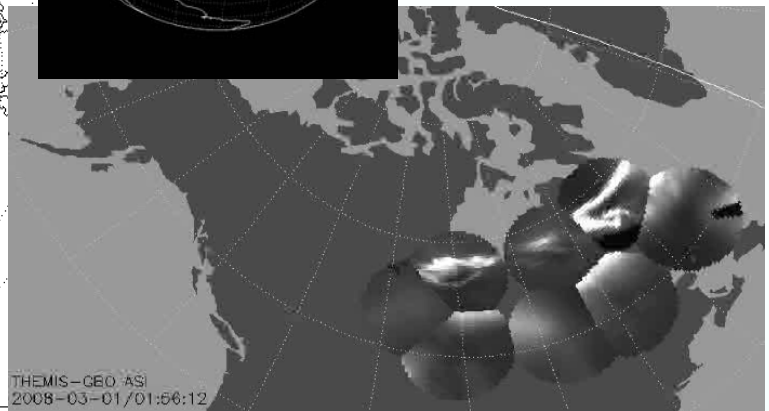
Ex.: Prangé et al., Nature, 2004

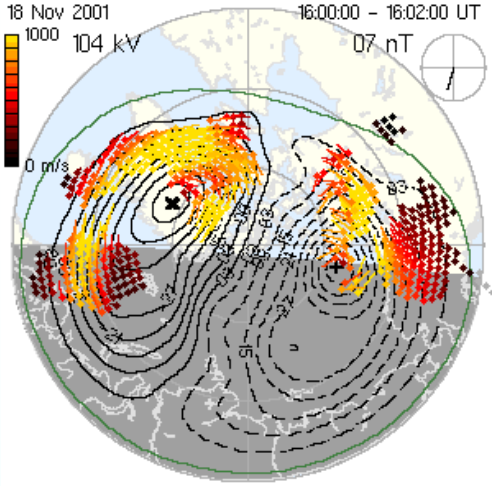

Z
R
E
X RE


THEMIS-IESA
THC (SC 3)
01/Mar/2008
Vzn, km/sec
Vyn, km/sec
Log eV
eV
φDSL (deg)
01:45
01:50
01:55
02:00
02:05
02:10
XGSM -17.37 -17.35 -17.34 -17.32 -17.30
YGSM 6.74 6.69 6.64 6.58 6.53
ZGSM -1.74 -1.77 -1.80 -1.83 -1.86

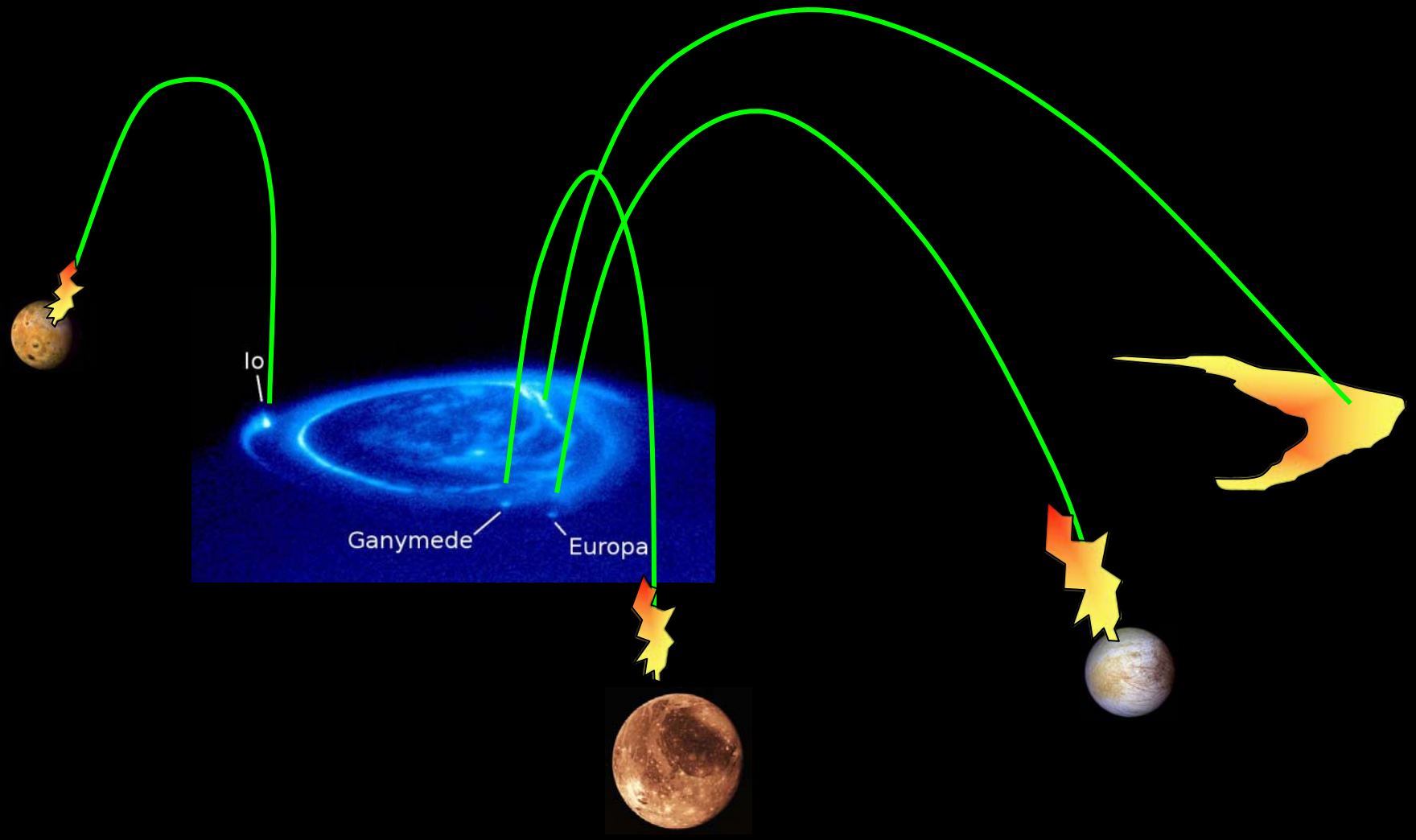

THM-P1 (B)
THM-P2 (C)
THM-P3 (D)
THM-P4 (E)
THM-P5 (A)
18:00
12:00
00:00
06:00
Tsyganenko-1996


11 Apr 1997 03:23


THEMIS-GBO AS
2008-03-01/01:56:12


18 Nov 2001
16:00:00 - 16:02:00 UT
1000
104 kV
07 nT
0 m/s

Challenges of a VO of planetology (1)



Type de données

- Le temps (datation des mesures) est le premier paramètre de recherche et d'identification des données :

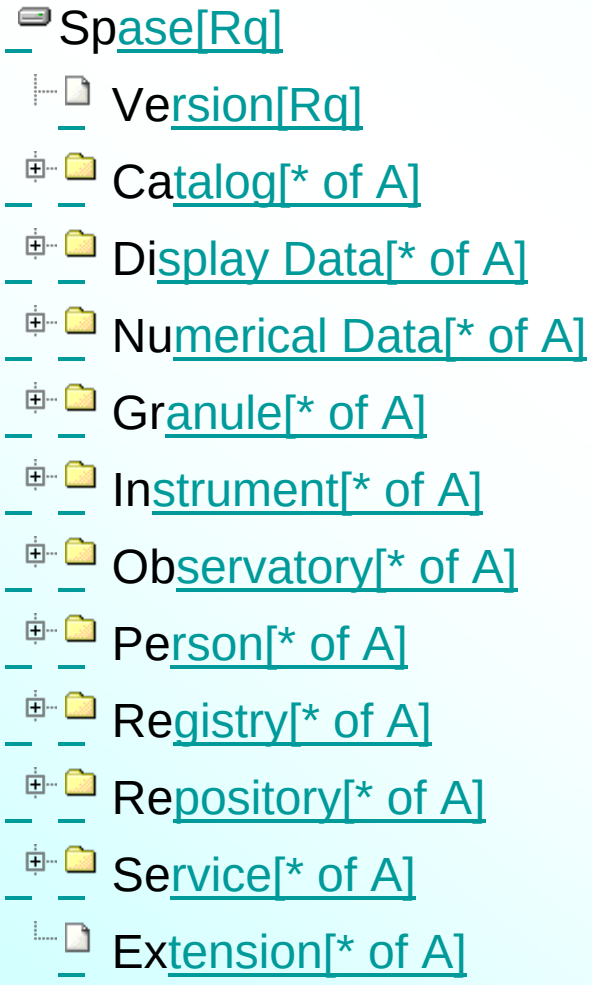
  Time span $\Leftrightarrow$ Search cone

- Données:

1. Images (datées), films
2. Série temporelles, 1D, 2D, 3D, Nx3D
3. Paramètres combinés
4. Données de simulation

- Standard: SPASE : modèle de données structuré

SPASE



Consortium international:

- Définition des standards
- Offre d'outils

Le modèle SPASE

- Modèle structuré « dépliable »
- Associé à un dictionnaire spécifique aux plasmas spatiaux
- Accepte des « extensions »
- Descend jusqu'aux niveaux « granule » et « paramètre »

CDPP in EuroPLANET/FP6

CDPP in EuroPLANET/FP6

- Co-leader (avec IWF, Graz) du Noeud Plasma d'Europlanet/IDIS

- Analyse de cas d'utilisation, définition des spécifications de l'OV à développer (User Requirements)

- mini VO demonstrator
  - -Searchable registry demonstrator based on SPASE
  - -AMDA/IDIS: Scientific exploitation demonstrator using VO concepts and technics

- 3DView Multi-Mission: a tool for spacecraft location and attitude in the solar system and around the planets to be interoperable

Goals:

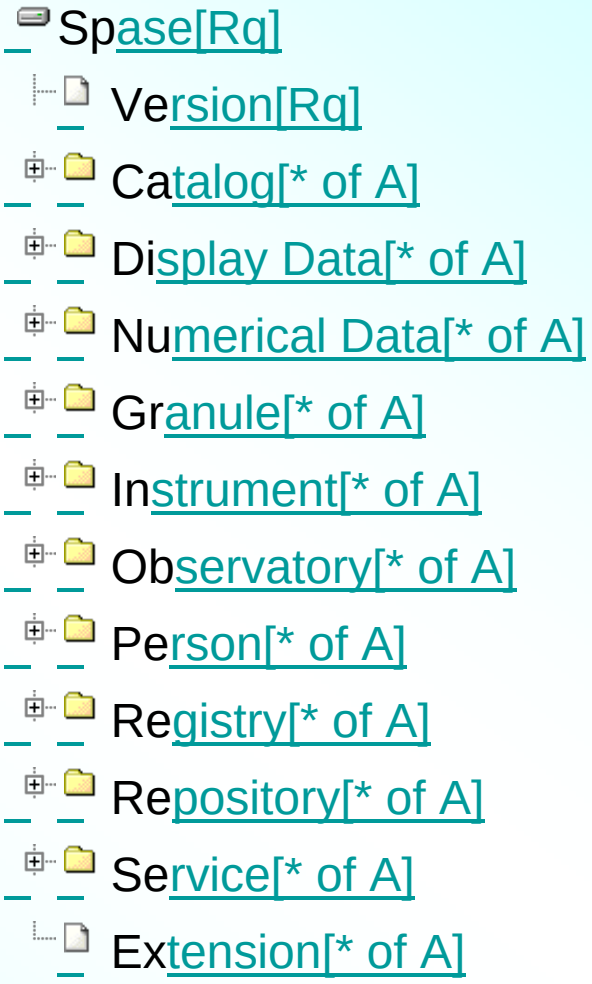
- -Experiment for data description in VO context
- -Experiment for data access in VO context
- -Experiment for VO architecture
- -Experiment for data exploitation in VO context

Registry demonstrator

SPASE (Space Physics Archive Search and Extract)

http://www.spase-group.org/

- A datamodel (a way –standardised and structured- for describing data)
- A dictionary for solar and space physics data
- Tools (generator, editor, validator of descriptors, harvestor, parser, …)



Web-services on MAPSKP

MAPSKP: database of key-parameters of CASSINI plasma data (http://mapskp.cesr.fr/)

Descriptors of all MAPSKP dataset

- -compliant to the SPASE datamodel (v 1.2.1)
- -Managed in an eXist database

Web-services:

- -get available data
- -Get DataSet Info URL
- -Get DataSet URLs
- -Update Start/Stop

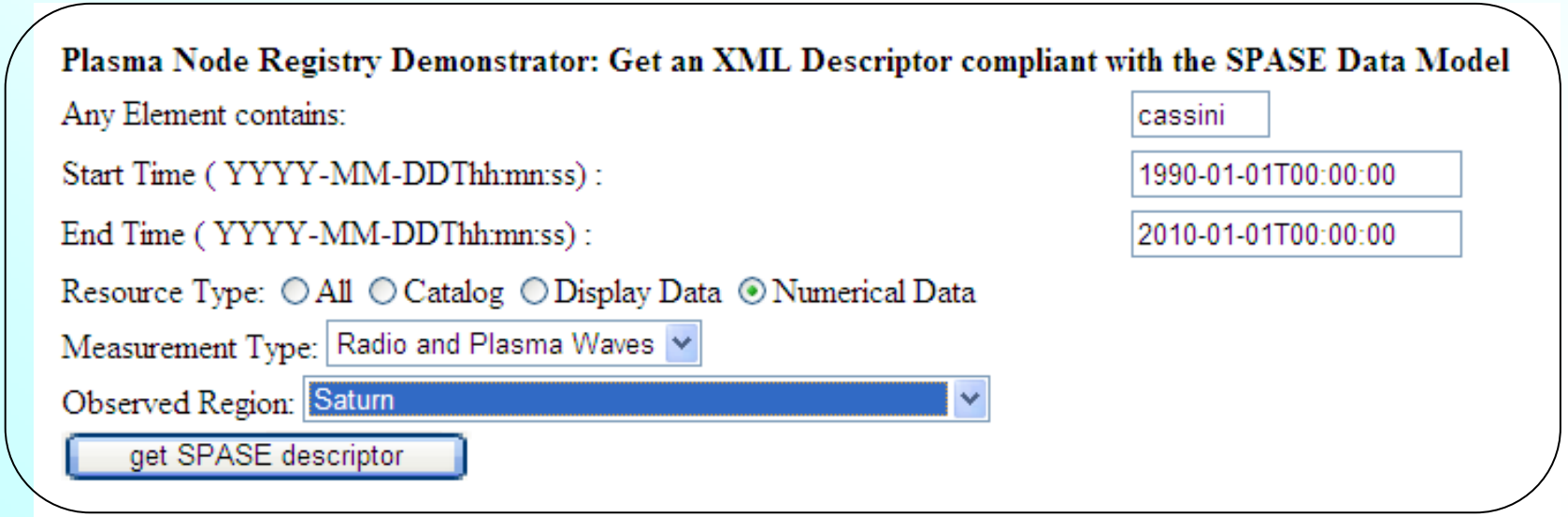
Searchable Registry Demonstrator

- Set of XML descriptors of planetary plasma data (MAPSKP, *VEX*, *MEX*)
- Compliant with the SPASE data model (v 1.2.1)
- eXist database (native XML, parameter level)
- Search engine (measurement type, region)
- Goals: demonstration and experimentation

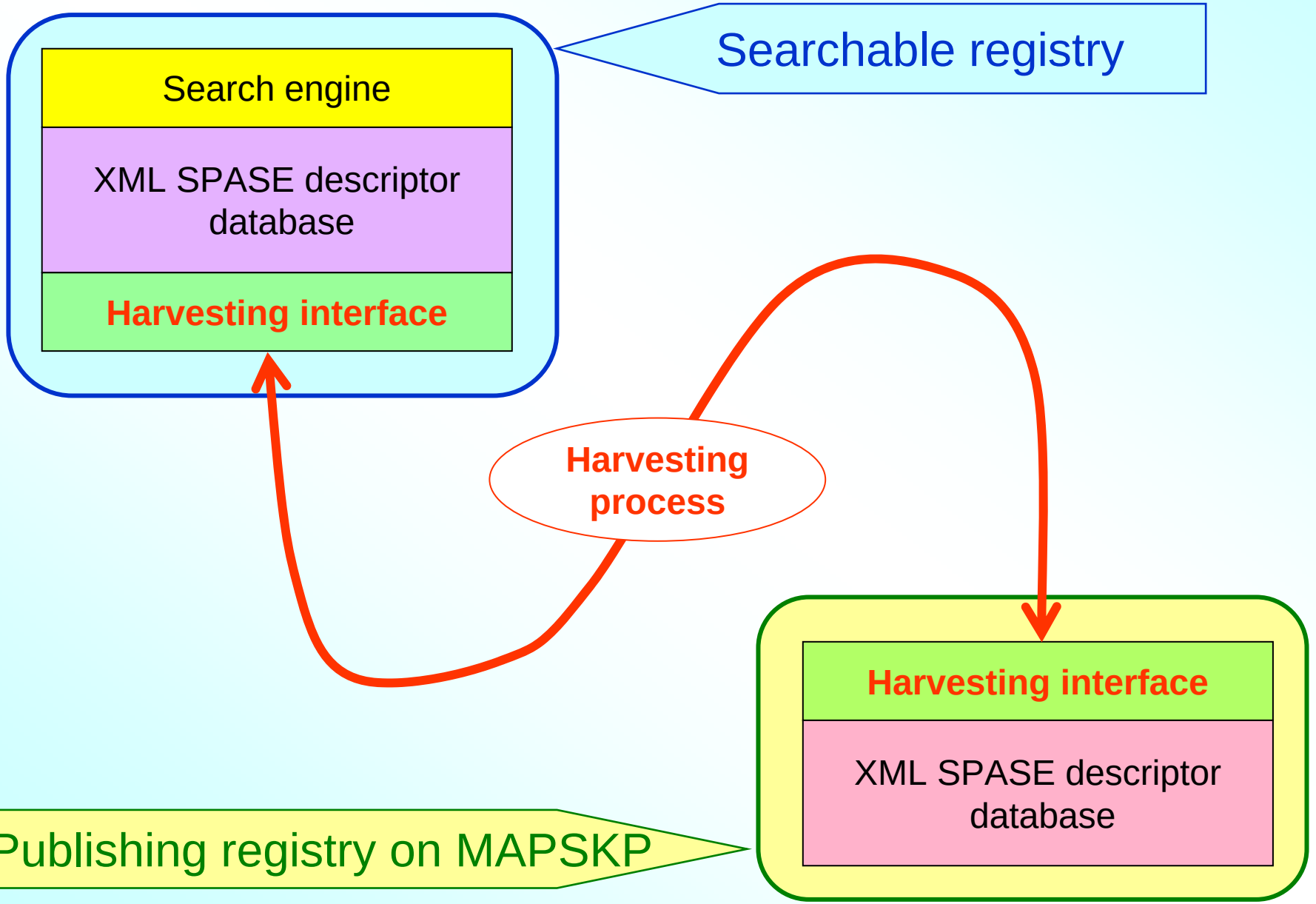
Registry Search Engine

(http://cdpp-spase.cesr.fr:8800/exist-1.1.1/xquery/PlasmaNodeRegistry.xql)

- Search criteria:
  - Time span
  - Measurement type
  - Observed region
  - Resource type (numerical data , display data or catalog)
- Response:
  - Spase Xml descriptor
  - Possibility to use XSL style sheet to customize presentation



Next step: a VO type architecture



Registry demonstrator

Science exploitation demonstrator: AMDA, Automated Multi-Dataset Analysis

(http://cdpp-amda.cesr.fr)

- *Automated access to data*
- *Dealing with parameters, without caring about files*
- *Multi-spacecraft and multi-instrument data*

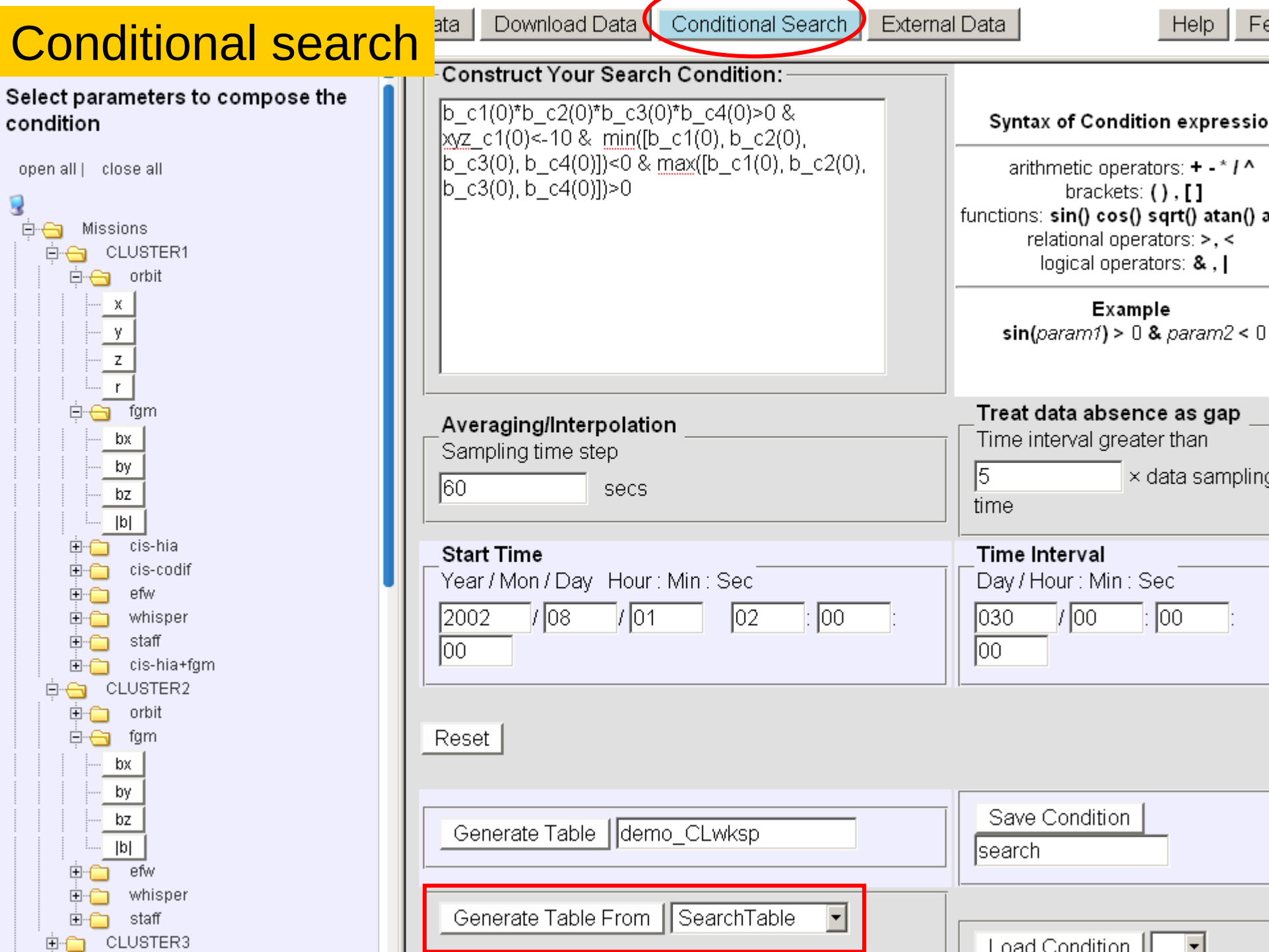
➢Functionalities

-Visualisation
-user defined parameter computation
-Standard model computation
-Data and computed parameter extraction
-Event list production and management

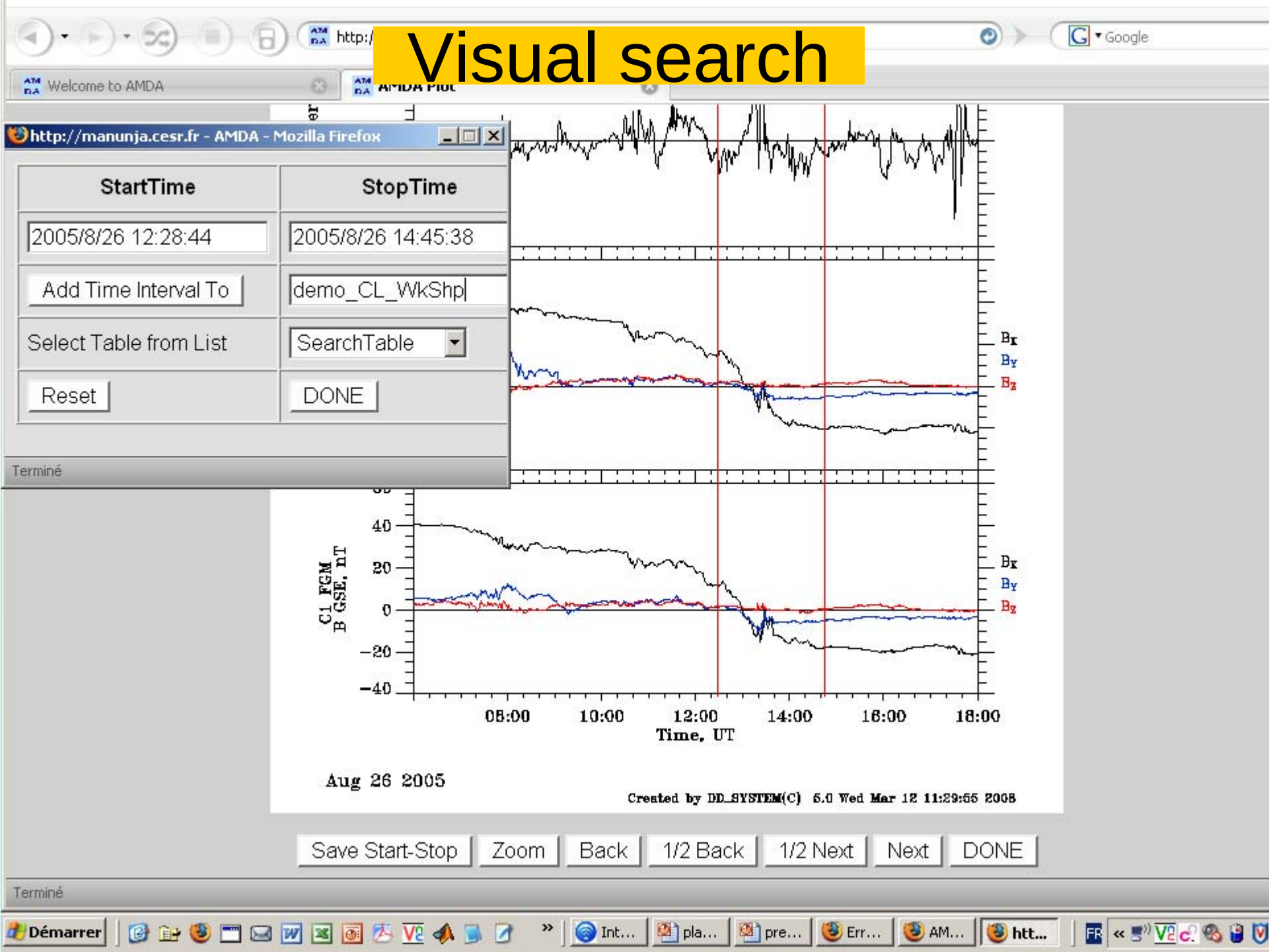
➢Automated or visual search on the content of the data

➢Access to **external databases** (now: CDAWeb, CDPP, MAPSKP, SKR, *VEX-MAG, HST*, …)

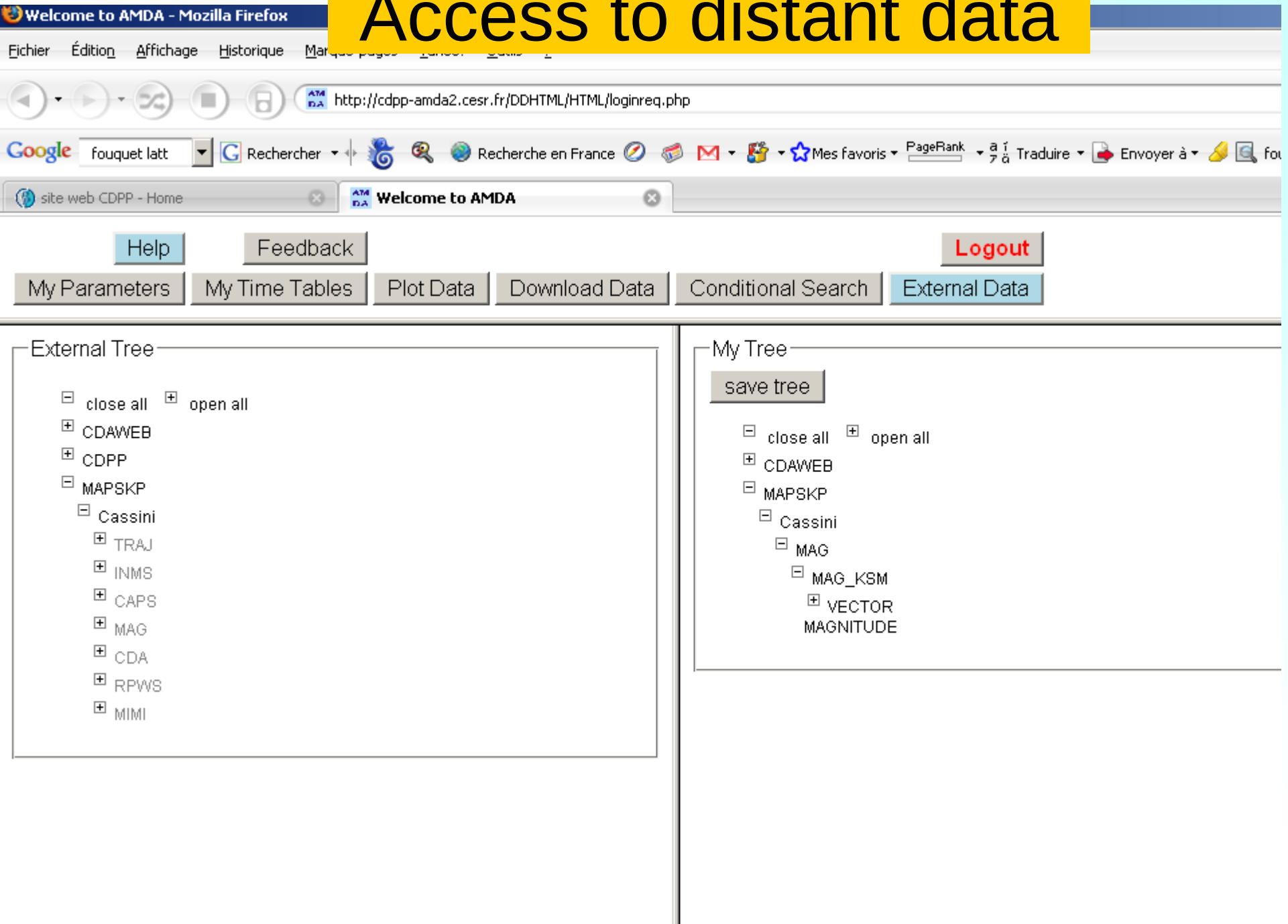
Conditional search



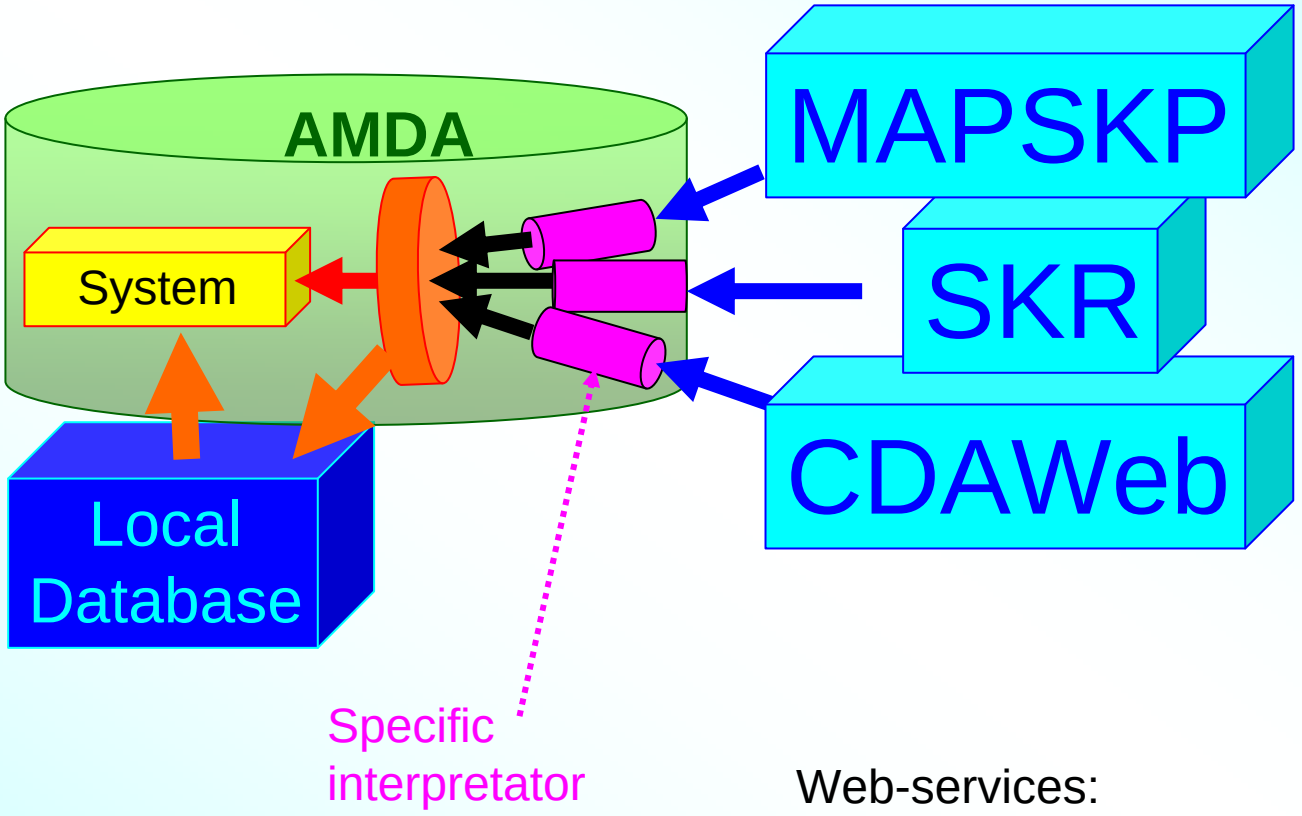
Visual search



Access to distant data



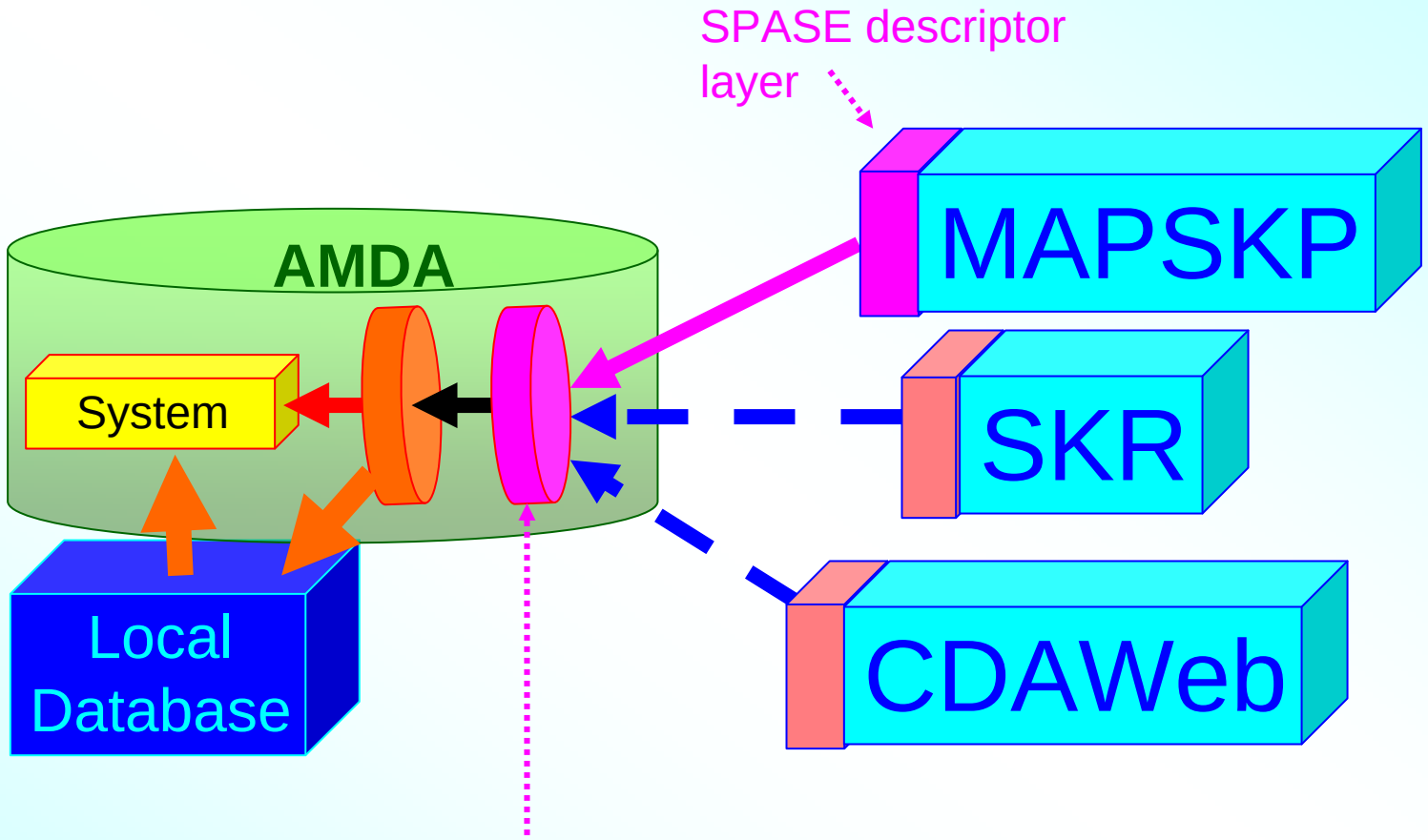
AMDA/IDIS V1.



Web-services:

- Content of the database?
- Get the descriptors
- Get data (url list)

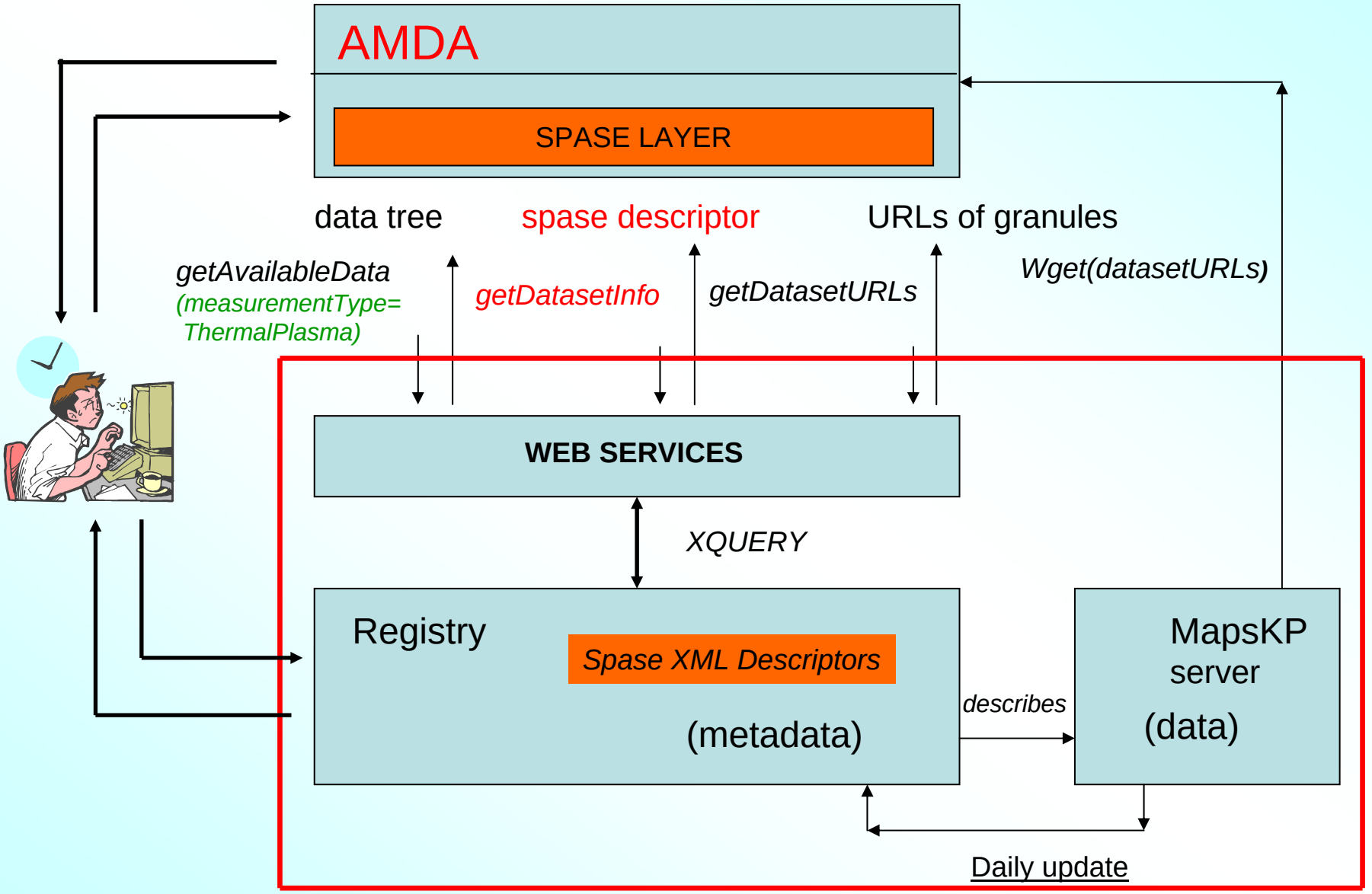
AMDA/IDIS V2. SPASE compliant



Web-services:

- Content of the database?
- Get the descriptors
- Get data (url list)

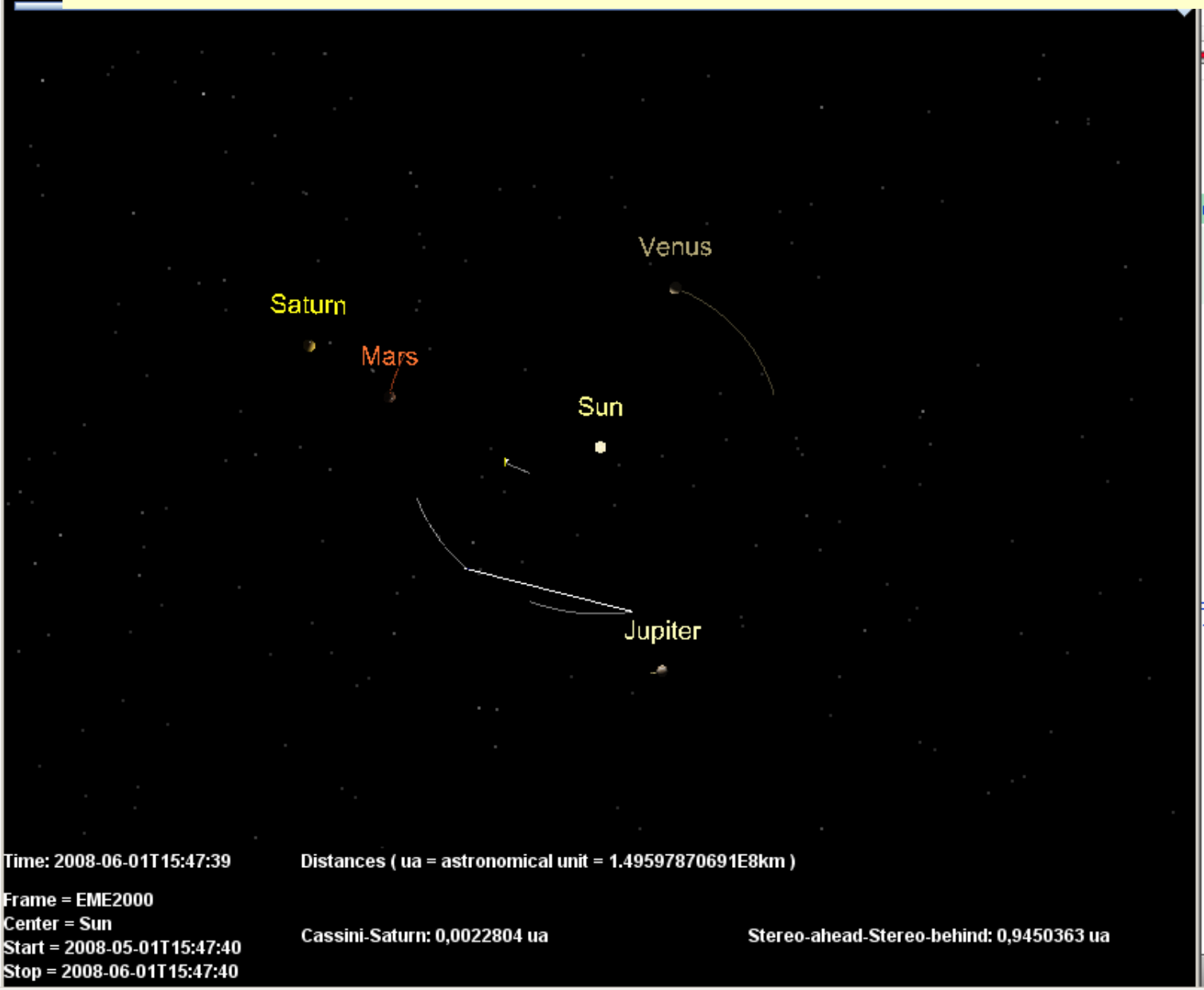
AMDA/IDIS EuroPlaNet/Plasmas



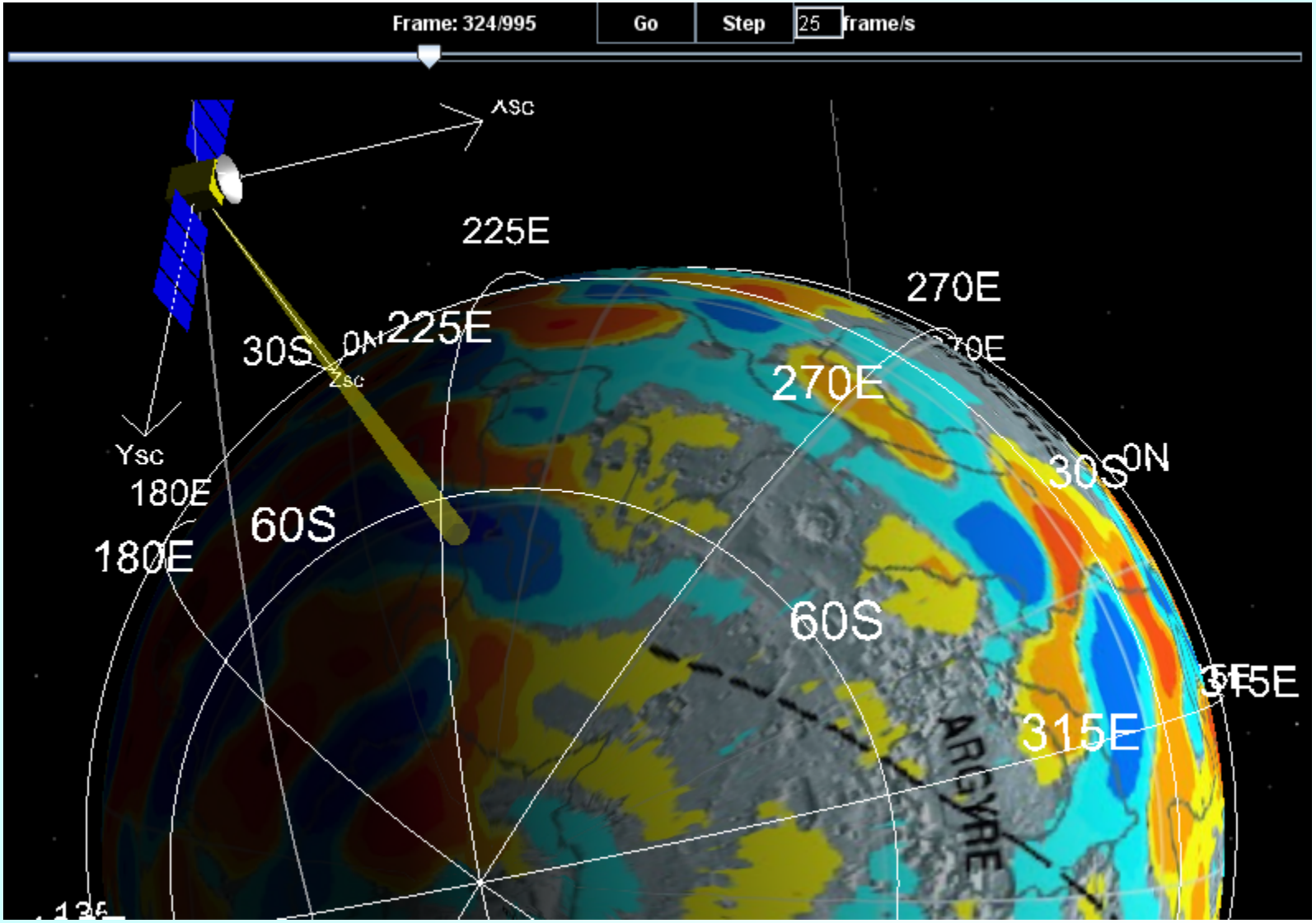
3DView Multimission

http://mm3dview.dyndns.org/

3DView-multimission/ Heliophysics



3DView-multimission: Planetology



CDPP in EuroPLANET/FP7

CDPP in EuroPLANET/FP7

Recherche (responsable tâche-2 JRA/IDIS):

- Définition du modèle de données », jusqu'au niveau « jeu » (Level 1)
  - -Analyse des standards existants versus cas d'utilisation
  - -Développement de prototypes et test sur cas d'utilisation
  - -Développement d'outils « DataModel, Registry, Harvesting, … »
- Développement d'interfaces
  - -autres OV (HELIO, IVOA, SPASE-US…)
  - -Bases de Données « externes » (Spectro, Chimie…)
- Searchable registry et searchable inventory

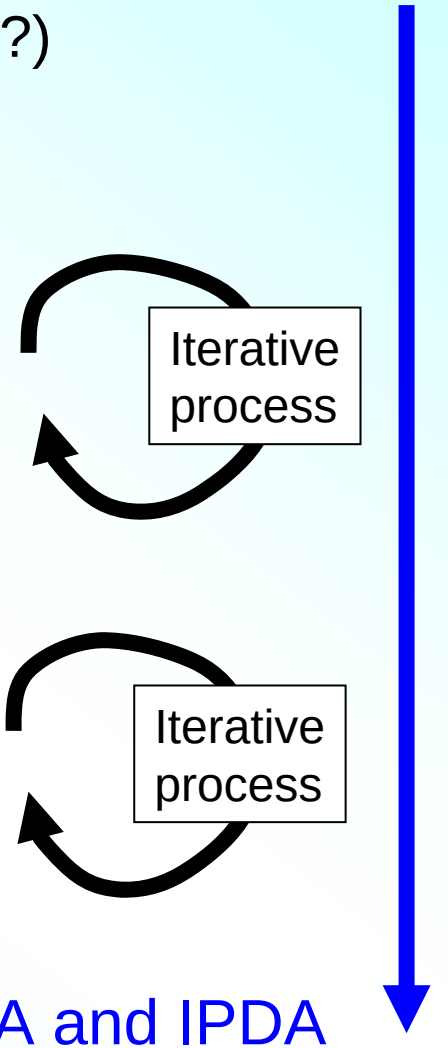
Services:

- Co-leader (avec IWF, Graz) du Noeud Plasma d'Europlanet/IDIS
- Mise à disposition des outils « DataModel, Registry, Harvesting, … »
- AMDA/IDIS
- 3DView/Interopérable

Diffuser et développer la culture OV dans la planétologie au niveau européen

FP7, JRA: Datamodel, process

1) Analysis of the user requirements (Hierarchy ???)
2) Study of the existing standards (IVOA, SPASE)
3) Preliminary options
4) Datamodel prototype development
5) Datamodel prototype testing versus use cases
6) Assessement/improvment
7) Stabilising temporary version
8) Developing tools (data description, verifyer, registry building, harvesting, request builder…)
9) VO-prototype development
10) VO-prototype testing
11) Assesment/improvment
12) Stabilising temporary version



Continuous interaction with PSA and IPDA

Interface with other Vos and « external » database

V0s on Solar Physics, Heliophysics, Astronomy
« External » databases: spectroscopy, chemistry, …

- Up to the dataset (measurement type) level

- Only possible if external resources use well defined standards

- The target will be limited. It is a secondary objective. Keys of priority relate to scientific needs and level of interoperabilty of external resources

Post-Doc

- Performing pluri-disciplinary studies $\Rightarrow$ performing real use case
- Analysing their needs
- Participating in datamodel and dictionary definition
- Testing the datamodel and the built system against their needs in their studies
- Interacting with the community and getting feedback and inputs
- Promoting IDIS, hopefully through papers

Roles of the scientists

- Participating in datamodel and dictionary definition
- Interacting with the community and getting feedback and inputs
- Promoting IDIS, hopefully through papers

Anticipated participants

- Core team: CDPP, INAF, IWF, others?…
- “to be sollicited” support: ESTEC, CNES
- Strong collaboration with ESAC/PSA expected
- Strong collaboration with other tasks expected

Targeted expert sollicitation:

- Collaborations (Bepi-Rosetta): DLR, MPS (OSIRIS), INAF (SYMBOL-X), Heildelberg (dust)
- Collaborations GIOTTO: PSA, CDPP/CESR, …
- Ground observations (LAM database, …)
- Others…

- Continuous interaction with IPDA