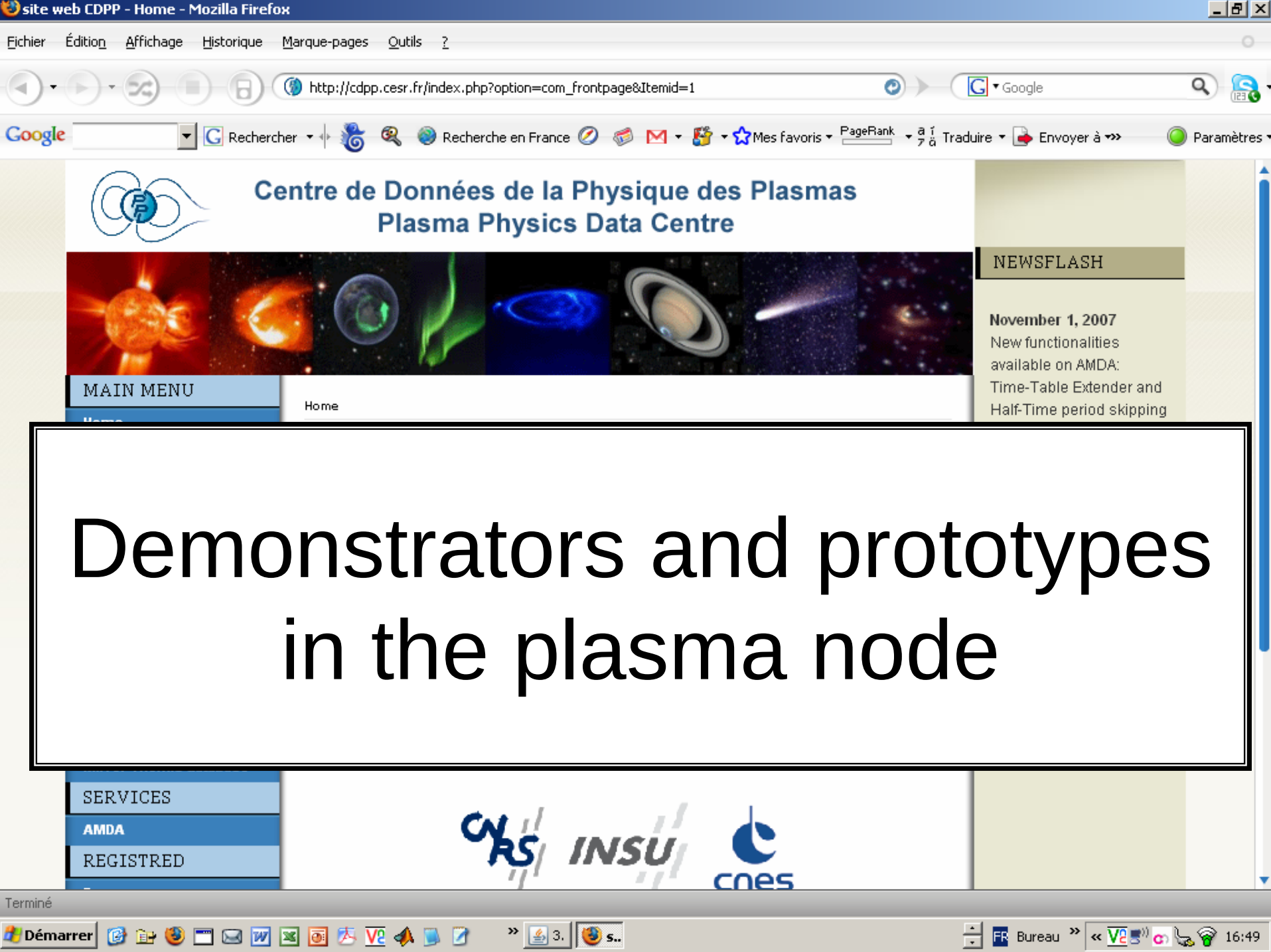


Demonstrators and prototypes in the plasma node

Main actions

- Registry demonstrator based on SPASE
- AMDA/IDIS: Scientific exploitation demonstrator
- 3DView Multi-Mission: a tool for spacecraft location and attitude in the solar system and around the planets

Registry demonstrator

Plasma Node Registry Demonstrator

– Set of XML descriptors of planetary plasma data (MAPSKP, *VEX*, *MEX*)

– Compliant with the SPASE data model 1.2.1

– eXist database (native XML, parameter level)

– Search engine (measurement type, region)

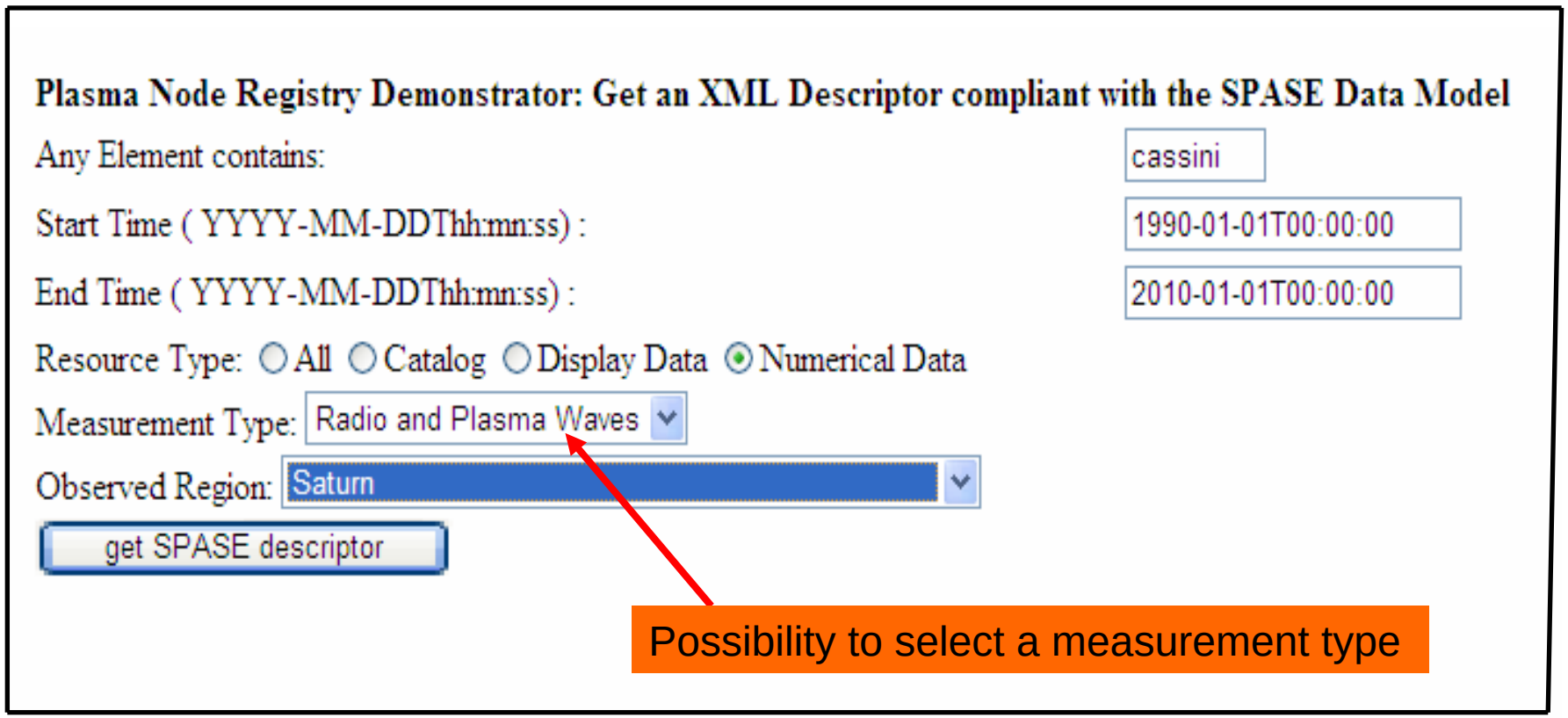
– Goals: demonstration and experimentation

Plasma Node Registry Search Engine

- Available @ : 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

Plasma Node registry Interface



Science demonstrator AMDA/IDIS

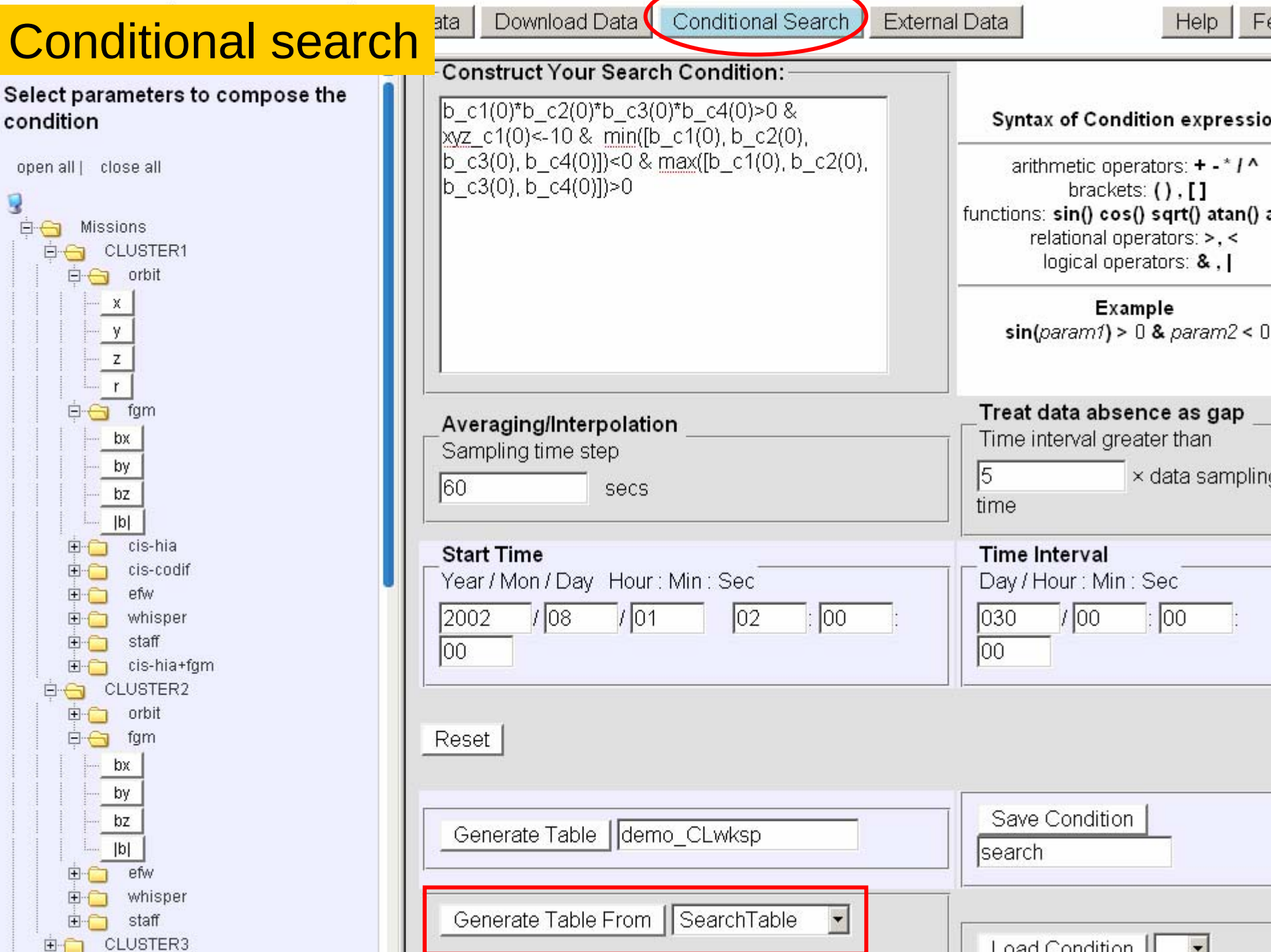
AMDA, Automated Multi-Dataset Analysis (http://cdpp-amda.cesr.fr)

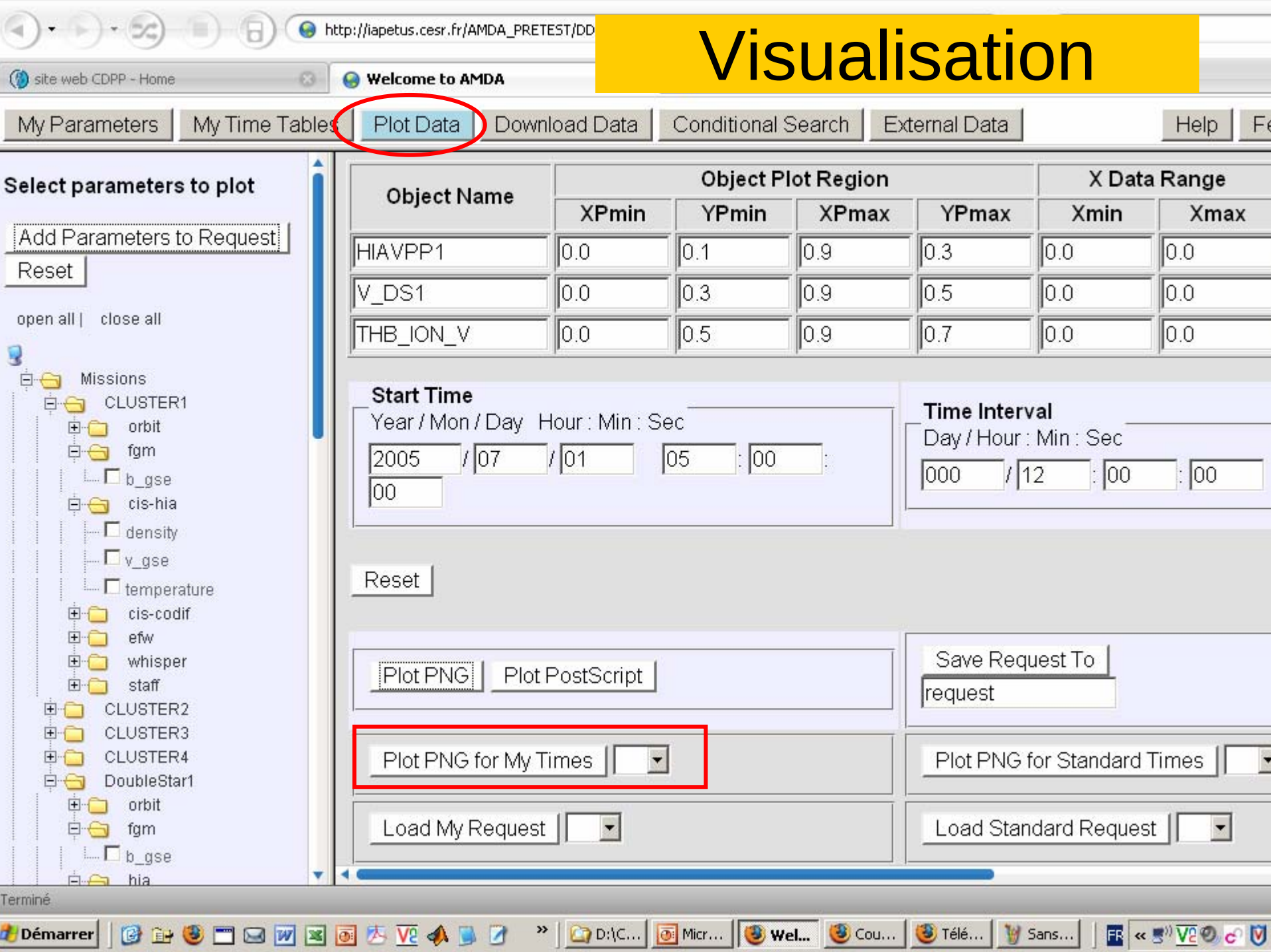
- Multi-spacecraft and multi-instrument data
  - -Visualisation
  - -user defined parameter computation
  - -Standard model computation
  - -Data and computed parameter extraction
  - -Event list production and management

- Automated and semi-automated (visual) search on the content of the data

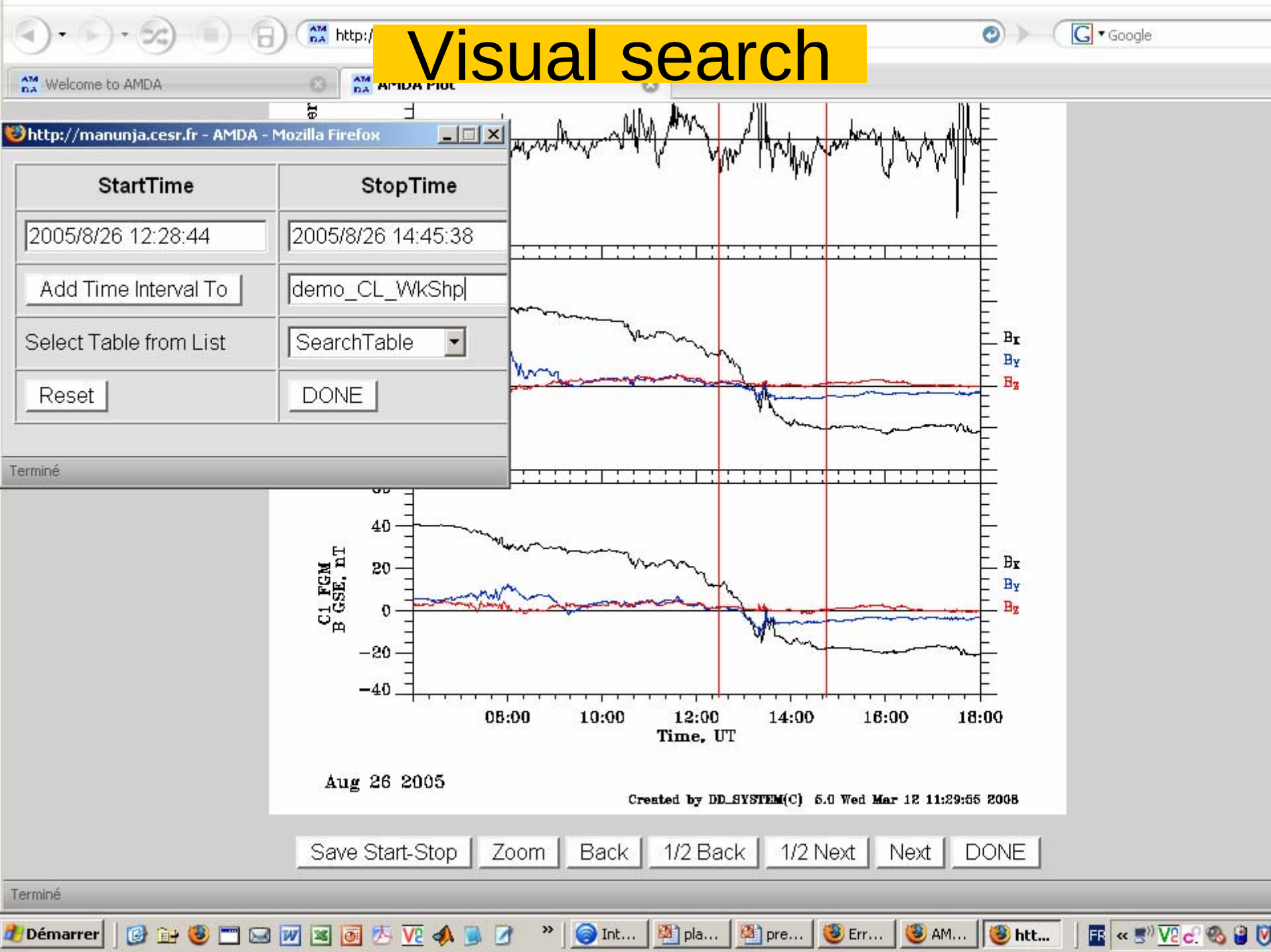
- Access to **external databases** (now: CDAWeb, CDPP, MAPSKP, SKR, *VEX-MAG, HST images, MEDOC solar data*, …)

Conditional search




http://iapetus.cesr.fr/AMDA_PRETEST/DD
Visualisation
site web CDPP - Home
Welcome to AMDA
My Parameters
My Time Tables
Plot Data
Download Data
Conditional Search
External Data
Help
Select parameters to plot
Add Parameters to Request
Reset
open all | close all
Missions
CLUSTER1
orbit
fgm
b_gse
cis-hia
density
v_gse
temperature
cis-codif
efw
whisper
staff
CLUSTER2
CLUSTER3
CLUSTER4
DoubleStar1
orbit
fgm
b_gse
hia
Object Name
Object Plot Region
XPmin
YPmin
XPmax
YPmax
X Data Range
Xmin
Xmax
HIAVPP1 0.0 0.1 0.9 0.3 0.0 0.0
V_DS1 0.0 0.3 0.9 0.5 0.0 0.0
THB_ION_V 0.0 0.5 0.9 0.7 0.0 0.0
Start Time
Year / Mon / Day Hour : Min : Sec
2005 / 07 / 01 05 : 00 : 00
Time Interval
Day / Hour : Min : Sec
000 / 12 : 00 : 00
Reset
Plot PNG
Plot PostScript
Save Request To
request
Plot PNG for My Times
Plot PNG for Standard Times
Load My Request
Load Standard Request
Terminé
Démarrer

Visual search



Managing Time-Tables

http://iapetus.cesr.fr/AMDA_PRETEST

My Parameters | My Time Tables | Plot Data | Download Data | Conditional Search | External Data | Help

My WorkSpace

MY TIME TABLES

demo2

Download Time format:
YYYY-MM-DDThh:mm:ss

Download File format:
vot xml ← Text or XML VOTable

Compression:
gzip zip

Upload Time Table from Local Machine

Construct/Modify Your Time Table

Table Name
demo2

Date of Generation
Tue Mar 11 16:34:45 2008

Description
V_I_THC(0)*V_I_THB(0)<-400

Source
AMDA Search

Number of Intervals
116

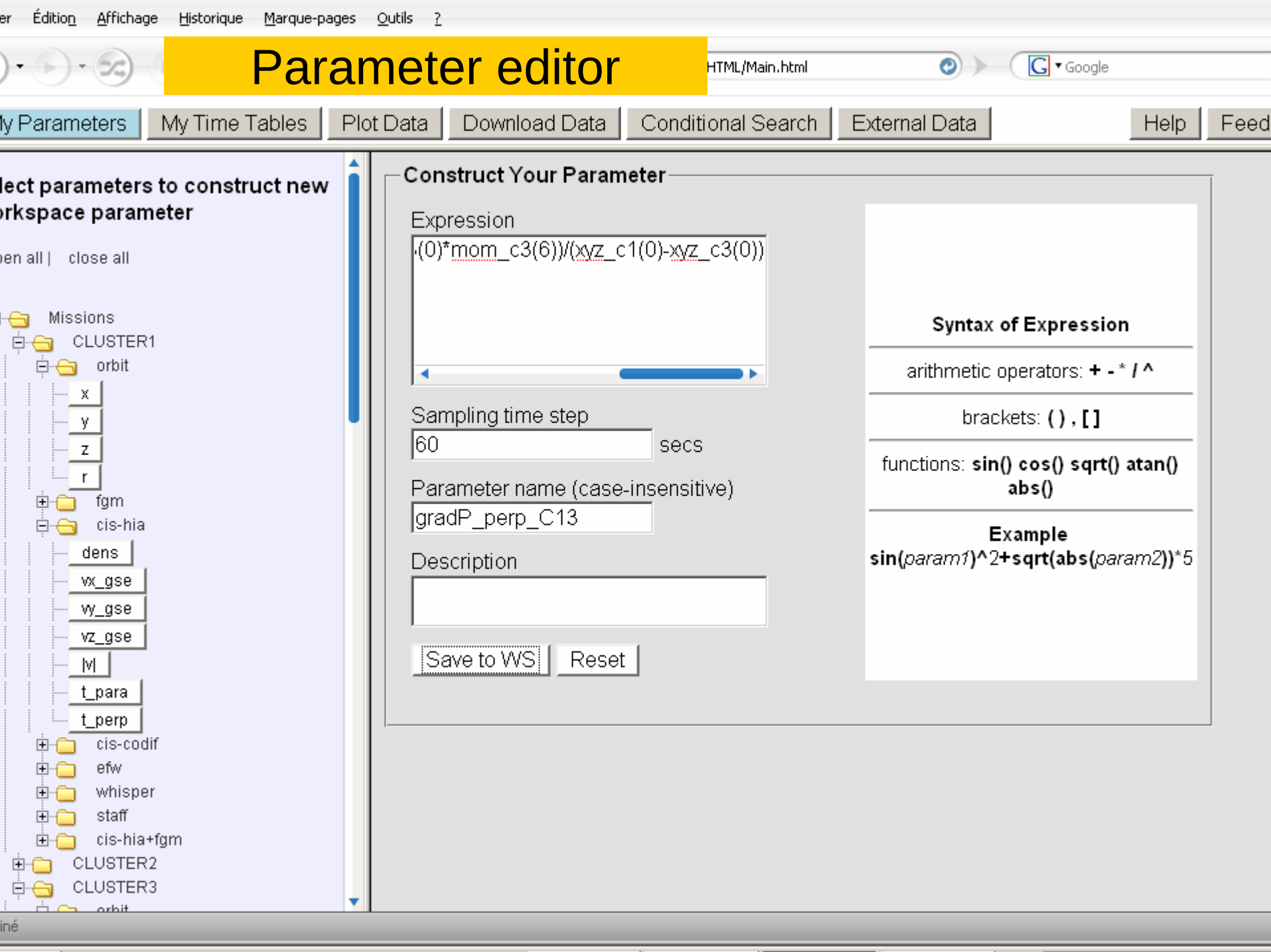
Extend Intervals (min)
0

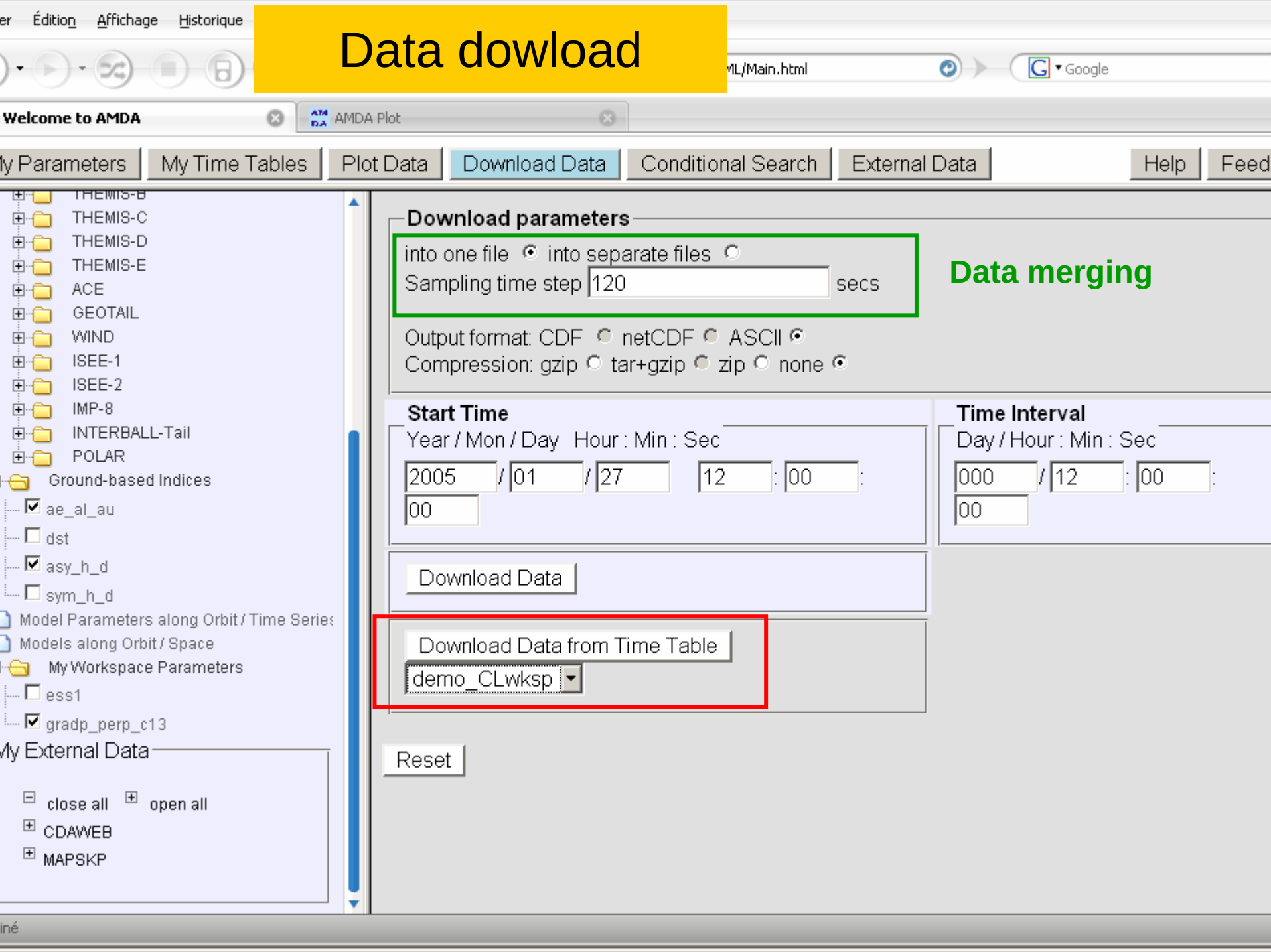
Save to WS | Reset

StartTime - StopTime yyyy-mm-ddThh:mm:ss yyyy-mm-ddThh:mm:ss
2008-02-01T00:00:00 2008-02-01T00:04:00 -- 1
2008-02-01T00:32:00 2008-02-01T00:37:00 -- 2
2008-02-01T01:23:00 2008-02-01T01:28:00 -- 3
2008-02-01T01:36:00 2008-02-01T01:39:00 -- 4
2008-02-04T10:56:00 2008-02-04T11:03:00 -- 5
2008-02-04T11:34:00 2008-02-04T11:36:00 -- 6
2008-02-04T11:40:00 2008-02-04T11:45:00 -- 7
2008-02-04T11:47:00 2008-02-04T11:50:00 -- 8
2008-02-04T12:03:00 2008-02-04T12:06:00 -- 9
2008-02-04T12:10:00 2008-02-04T12:13:00 -- 1
2008-02-04T12:59:00 2008-02-04T13:03:00 -- 1
2008-02-04T13:32:00 2008-02-04T13:40:00 -- 1
2008-02-04T13:55:00 2008-02-04T14:01:00 -- 1
2008-02-04T15:05:00 2008-02-04T15:19:00 -- 1
2008-02-04T16:06:00 2008-02-04T16:09:00 -- 1
2008-02-04T16:12:00 2008-02-04T16:17:00 -- 1
2008-02-04T16:53:00 2008-02-04T16:55:00 -- 1
2008-02-04T17:41:00 2008-02-04T17:52:00 -- 1
2008-02-04T17:54:00 2008-02-04T18:11:00 -- 1
2008-02-04T18:33:00 2008-02-04T18:36:00 -- 2
2008-02-04T18:50:00 2008-02-04T18:54:00 -- 2

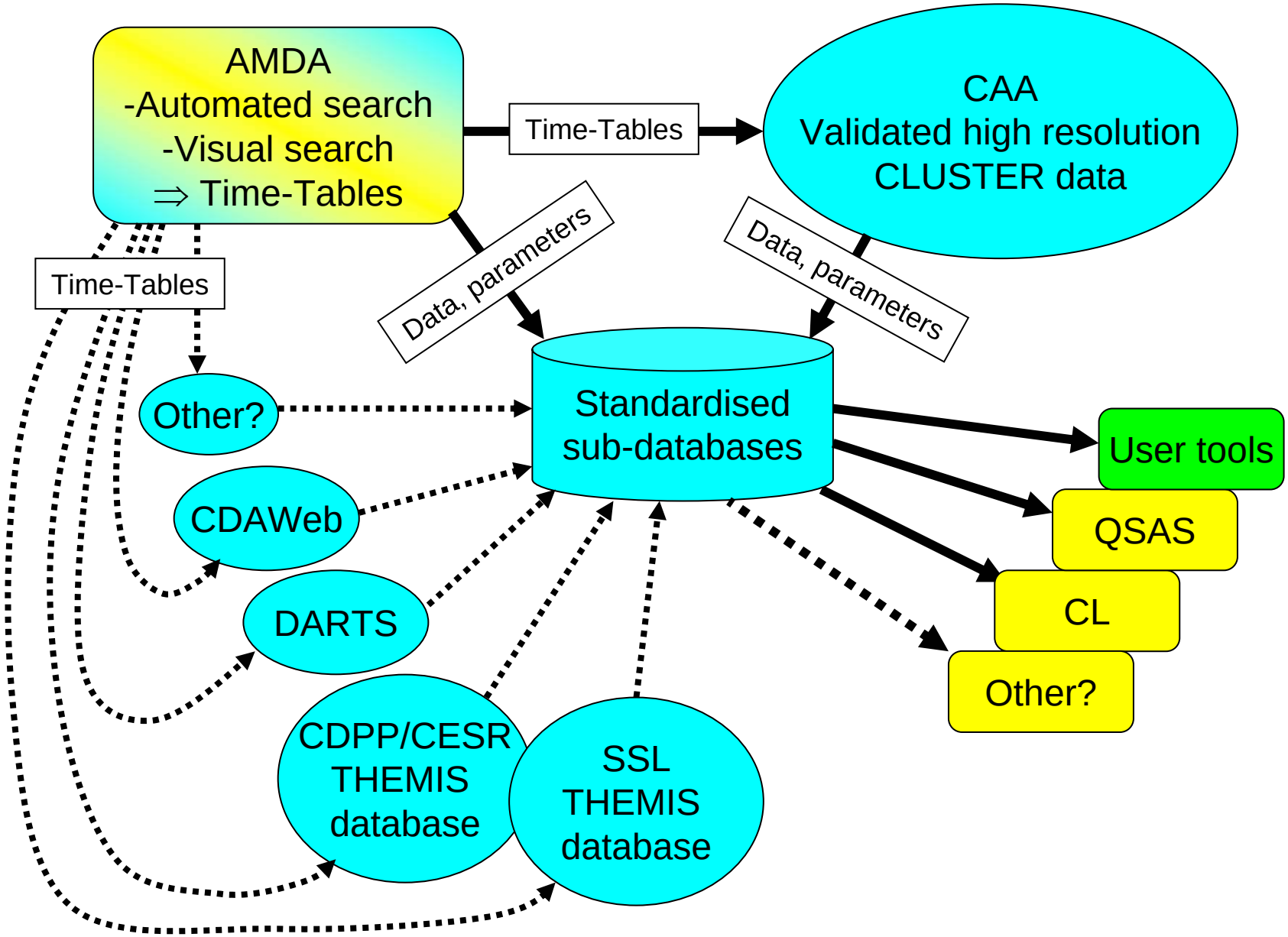
Terminé

Démarrer

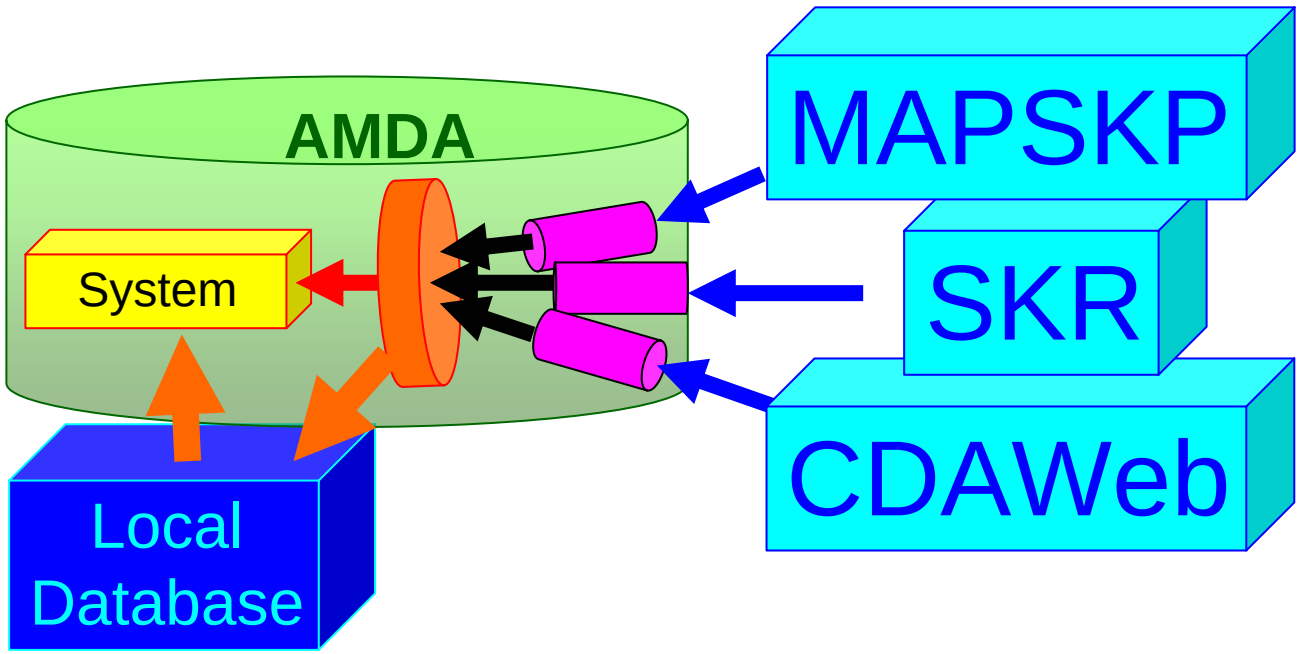

Édition Affichage Historique Marque-pages Outils ?
Parameter editor
HTML/Main.html
Google
My Parameters
My Time Tables
Plot Data
Download Data
Conditional Search
External Data
Help
Feed
lect parameters to construct new
orkspace parameter
pen all | close all
Missions
CLUSTER1
orbit
x
y
z
r
fgm
cis-hia
dens
vx_gse
vy_gse
vz_gse
|v|
t_para
t_perp
cis-codif
efw
whisper
staff
cis-hia+fgm
CLUSTER2
CLUSTER3
Construct Your Parameter
Expression
(0)*mom_c3(6))/(xyz_c1(0)-xyz_c3(0))
Sampling time step
60
secs
Parameter name (case-insensitive)
gradP_perp_C13
Description
Save to WS
Reset
Syntax of Expression
arithmetic operators: + - * / ^
brackets: ( ) , [ ]
functions: sin() cos() sqrt() atan() abs()
Example
sin(param1)^2+sqrt(abs(param2))*5


Data dowload
Welcome to AMDA
AMDA Plot
My Parameters
My Time Tables
Plot Data
Download Data
Conditional Search
External Data
Help
Feed
THEMIS-C
THEMIS-D
THEMIS-E
ACE
GEOTAIL
WIND
ISEE-1
ISEE-2
IMP-8
INTERBALL-Tail
POLAR
Ground-based Indices
ae_al_au
dst
asy_h_d
sym_h_d
Model Parameters along Orbit / Time Series
Models along Orbit / Space
My Workspace Parameters
ess1
gradp_perp_c13
My External Data
close all
open all
CDAWEB
MAPSKP
Download parameters
into one file
into separate files
Sampling time step 120 secs
Data merging
Output format: CDF netCDF ASCII
Compression: gzip tar+gzip zip none
Start Time
Year / Mon / Day Hour : Min : Sec
2005 / 01 / 27 12 : 00 : 00
Time Interval
Day / Hour : Min : Sec
000 / 12 : 00 : 00
Download Data
Download Data from Time Table
demo_CLwksp
Reset

First step: producing sub-databases corresponding to the time-tables



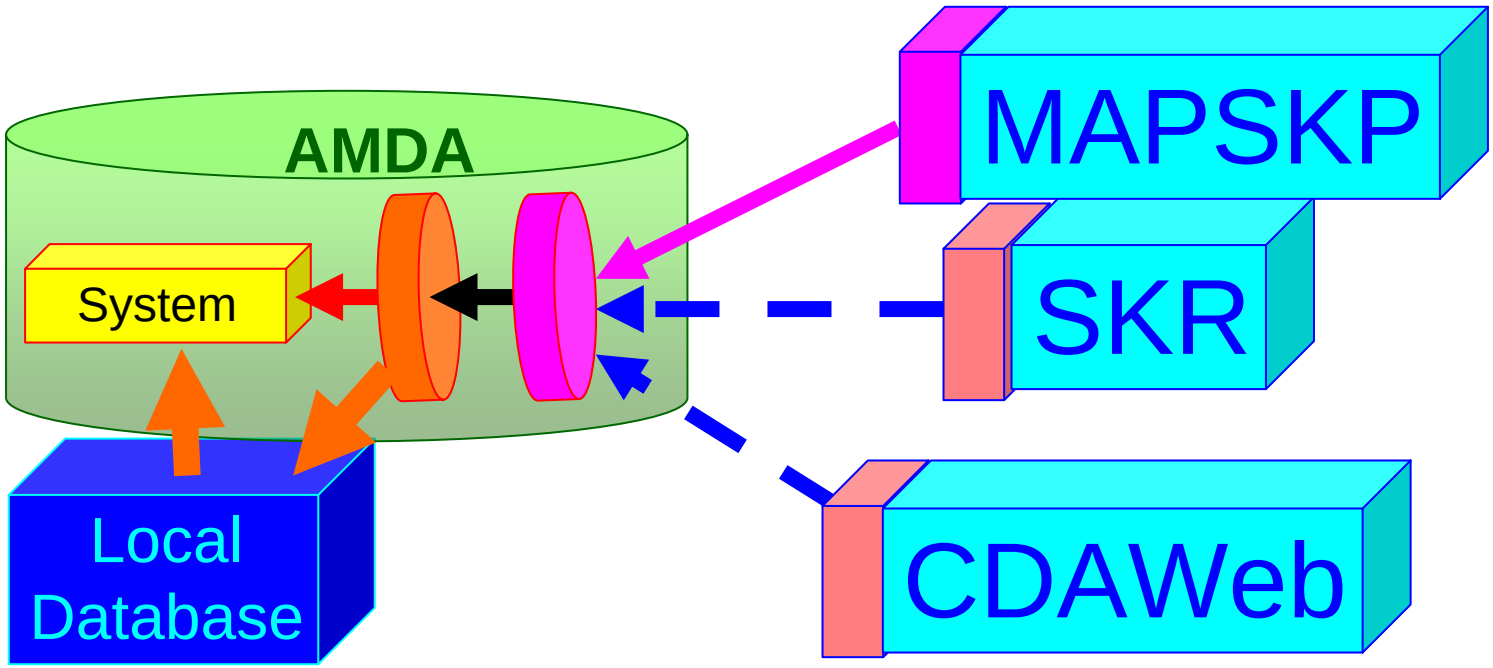
AMDA/IDIS V1.



Web-services:

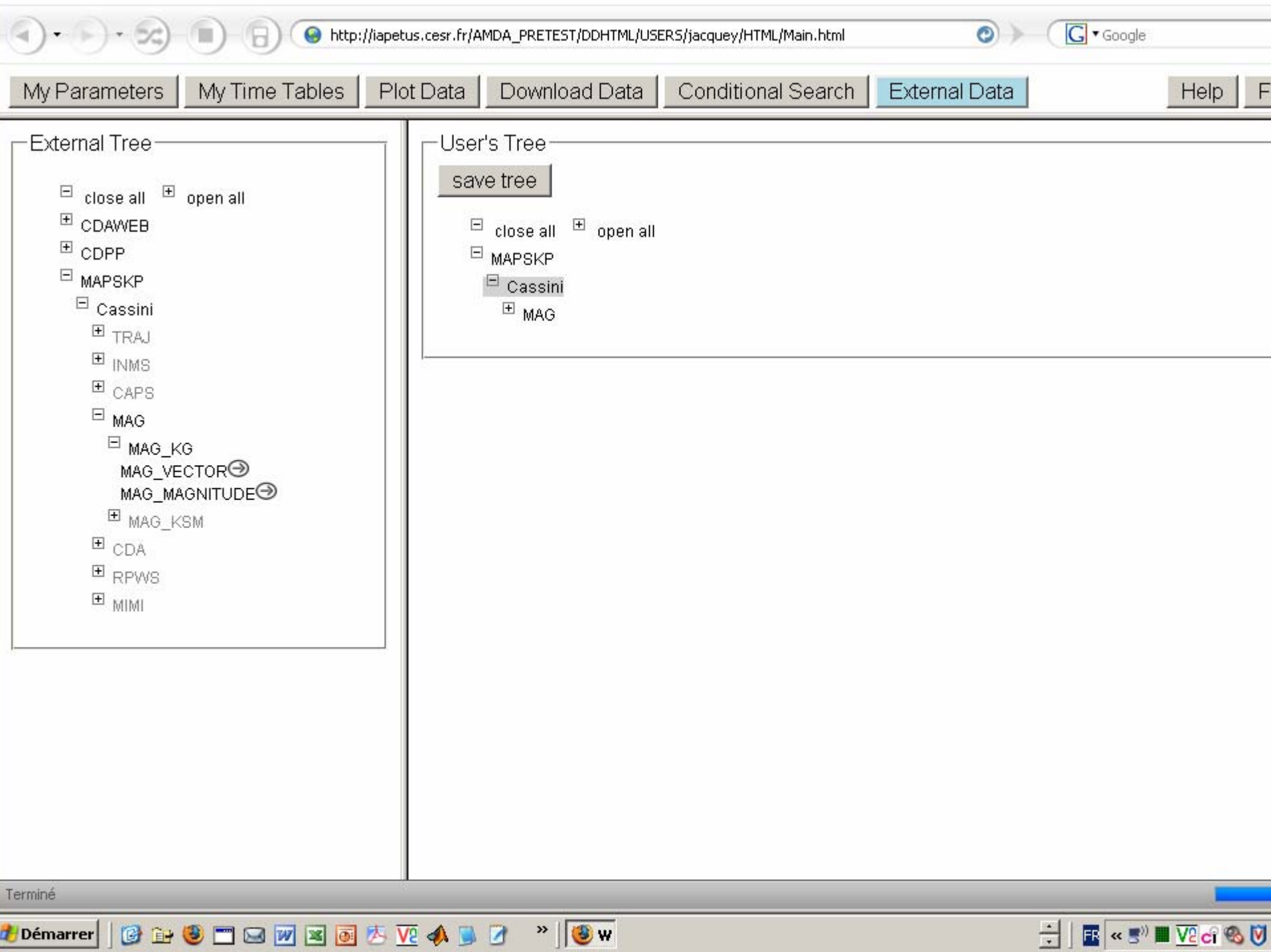
- Content of the database?
- Get the descriptors
- Get data (url list)

AMDA/IDIS V2. SPASE compliant

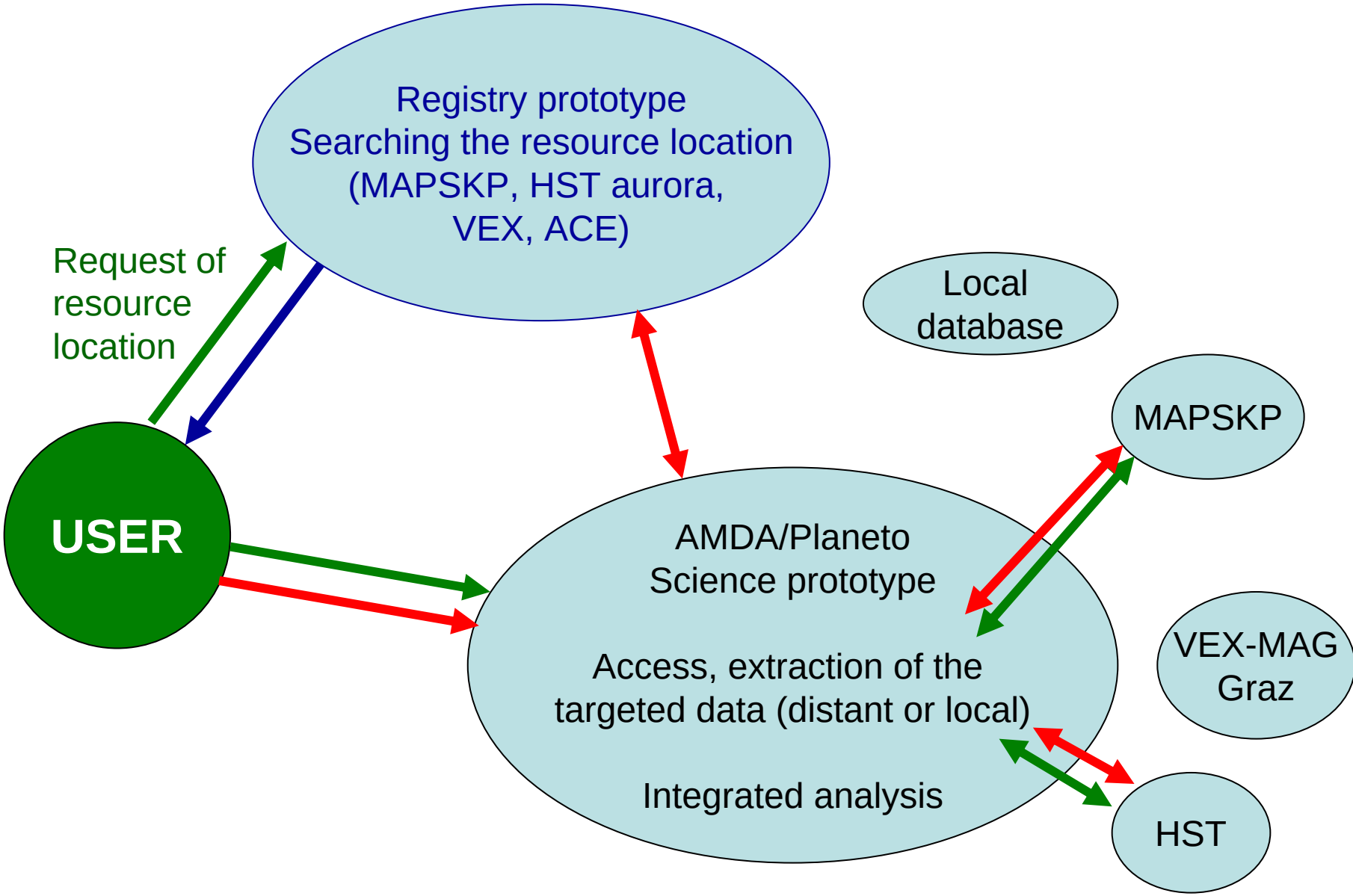


Web-services:

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


http://iapetus.cesr.fr/AMDA_PRETEST/DDHTML/USERS/jacquey/HTML/Main.html
Google
My Parameters
My Time Tables
Plot Data
Download Data
Conditional Search
External Data
Help
External Tree
close all
open all
CDAWEB
CDPP
MAPSKP
Cassini
TRAJ
INMS
CAPS
MAG
MAG_KG
MAG_VECTOR
MAG_MAGNITUDE
MAG_KSM
CDA
RPWS
MIMI
User's Tree
save tree
close all
open all
MAPSKP
Cassini
MAG
Terminé
Démarrer

Prototype application on use cases



3DView Multimission

Functionalities

3DView Multimission

Welcome to main 3DView Multimission page.
3DView Multmission provides displays of time interpolated orbit and attitude data of spacecrafts and planetary ephemerides.

Features:
- Heliospheric view
- Bodies lighting and maps
- Orbit and attitude
- Instrument direction
- Distances evolution
- Bow shock and magnetopause
- Ground trace
- ASCII file data export
- Image and movies generation

Possible improvements:
- Stars
- Longitude and latitude
- Magnetic fields

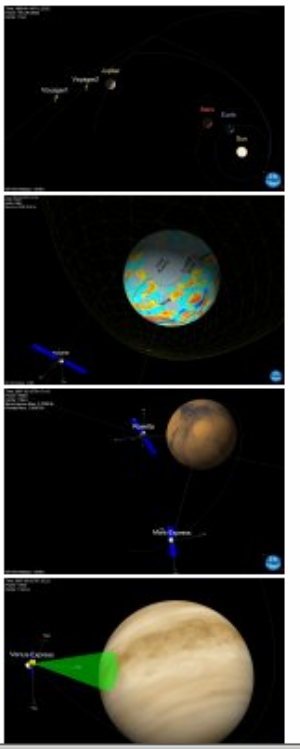
Please, if you like this tool or if you have suggestions to improve it, fill this questionnaire

3DView Multimission is a tool for scientists that offers immediate 3D visualization of position and orientation of Solar System spacecrafts and planetary ephemerides.
3DView Multimission is a lightweight, interactive and intuitive software for easy use and huge autonomous capacity.
Following missions are included: Rosetta, Mars-Express, Venus-Express, Cassini, Galileo, Ulysses, Messenger, Voyager1-2, Stereo, Cluster, ACE, Wind, Geotail, SOHO. Available data is discribed here.

To display 3DView Multimission you have to first select spacecrafts, coordinate system and some other variable. A help is available on the selection page. When 3DView Multimission is launched, you can move in the scene with the following mouse/keybord combination:

Action	Keyboard	Mouse
Rotate scene	None	Left button
Translate scene up-down, left-right	Control	Left button
Zoom in and out	Shift	Left button
Zoom in and out	None	Wheel
Rotate viewer	Shift	Right button

Go to selection page



- **Requirements**
  - Java Runtime Environement 1.6 or higher

3DView Multimission

Time range (UT)	ESA data	NASA data	Coordinate system	Central body	Time Step (s)	Mode
Start 2008/05/01 15:47:40	Rosetta Mars-Express Venus-Express	Wind SOHO Voyager1	EMEJ2000	SUN	2679	Automatic
Stop 2008/06/01 15:47:40						

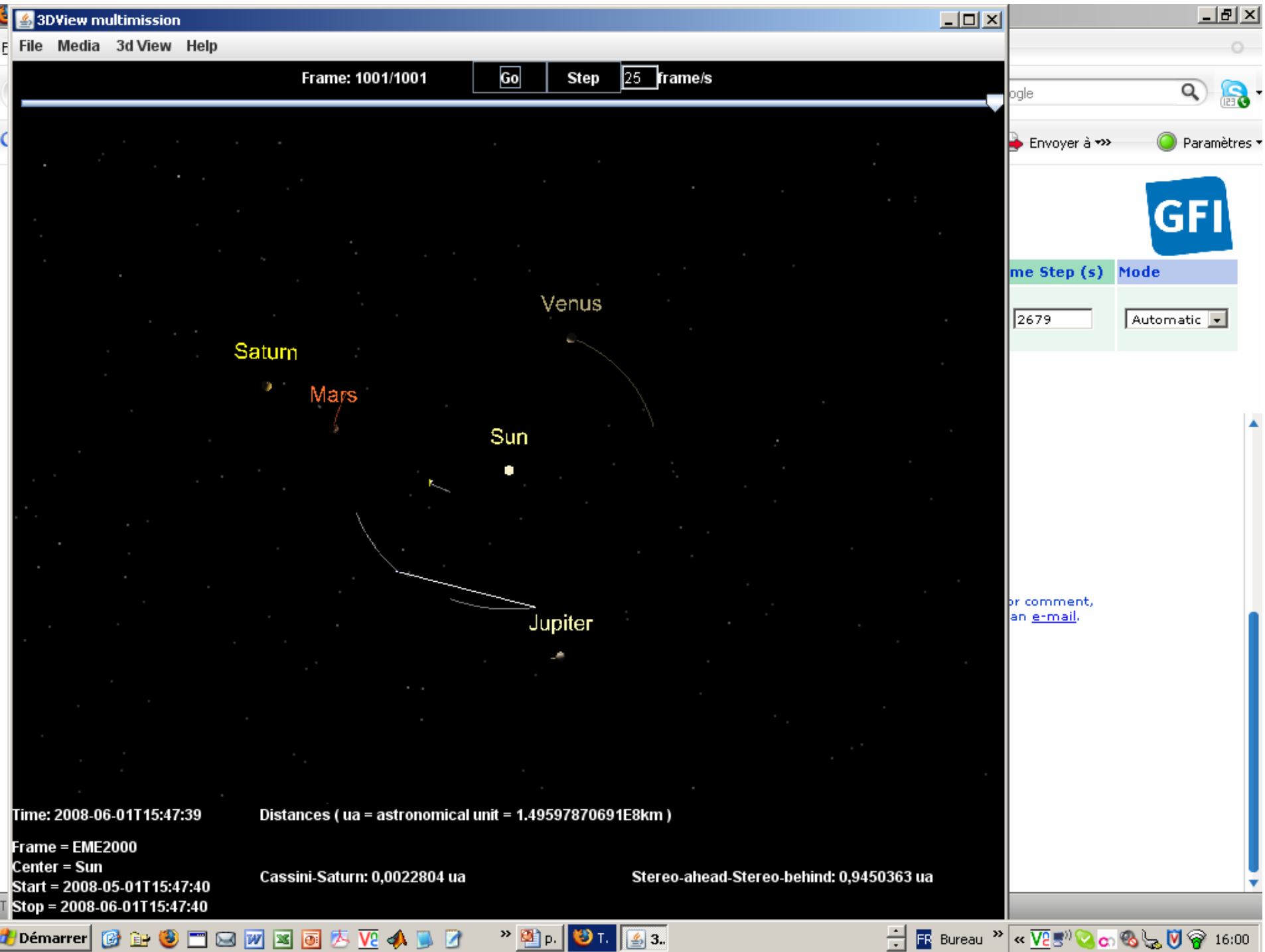
Submit Reset Help

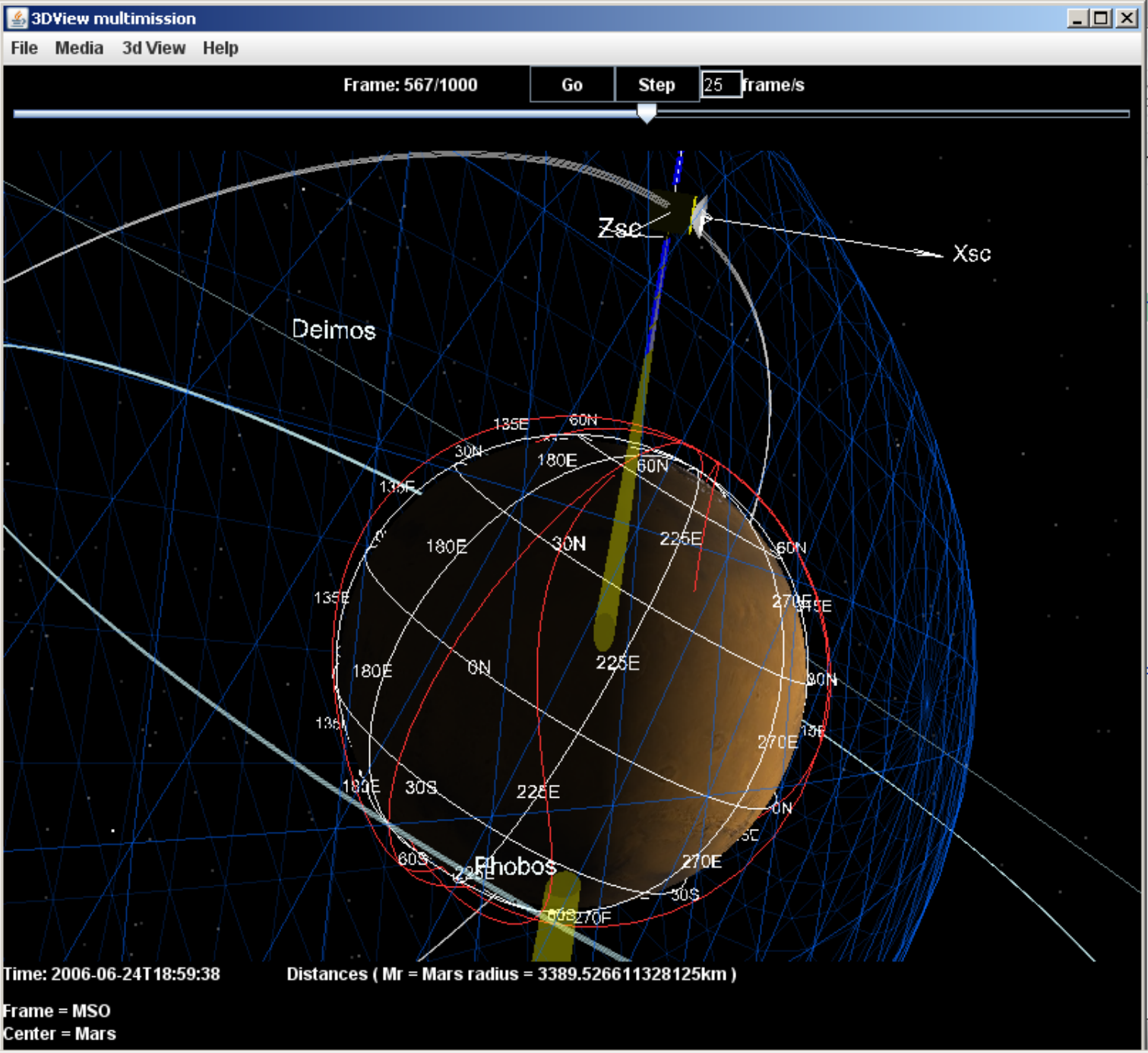
VIEW SETTINGS

Body	Selection	Linked?
Sun	☑	☐
Mercury	☐	☐
Venus	☑	☐
Earth	☐	☐
Mars	☑	☐
Jupiter	☑	☐
Saturn	☑	☐
Uranus	☐	☐
Neptune	☐	☐
Pluto	☐	☐
Churyumov-Gerasimenko	☐	☐
Lutetia	☐	☐
Steins	☐	☐

For any help or comment, please, send an e-mail.

Log display Mode: ☑


3DView multimission
File Media 3d View Help
Frame: 1001/1001
Go
Step
25
frame/s
Venus
Saturn
Mars
Sun
Jupiter
Time: 2008-06-01T15:47:39
Distances (ua = astronomical unit = 1.49597870691E8km)
Frame = EME2000
Center = Sun
Start = 2008-05-01T15:47:40
Stop = 2008-06-01T15:47:40
Cassini-Saturn: 0,0022804 ua
Stereo-ahead-Stereo-behind: 0,9450363 ua
Envoyer à
Paramètres
GFI
me Step (s)
Mode
2679
Automatic
Démarrer
Bureau
16:00



Google

Envoyer à

Paramètres

GFI

Time Step (s)	Mode
173	Automatic

or comment,
an e-mail.

Démarrer

Bureau

16:21