Activités OV au CDPP

AMDA, HELIO, EUROPLANET RI, CASSIS, VISPANET, IMPEx

INSU

PNST

CESR

LESIA

cnes

cnrs

OMP

SPASE

Europlanet

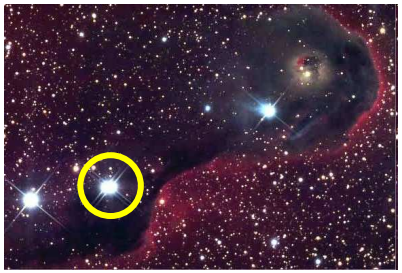
HELIO

VISPANET

IMPEx

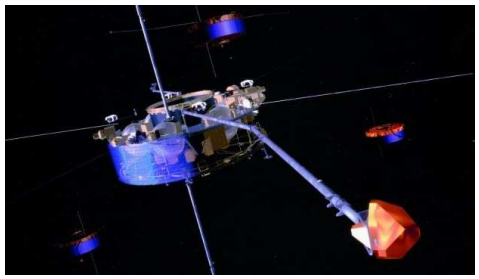
ASTRO: premier paramètre de recherche

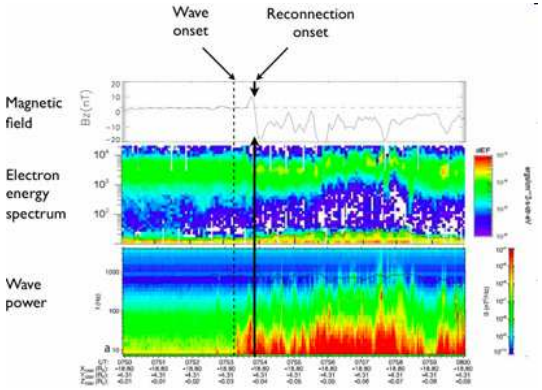
= search cone

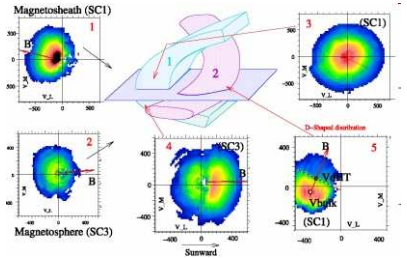


PLASMAS: premier paramètre de recherche

= event (time span)

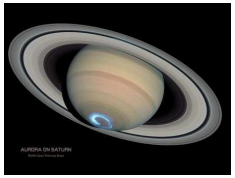


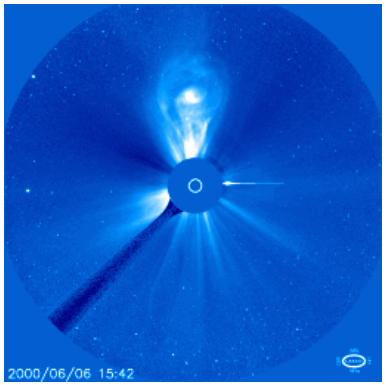




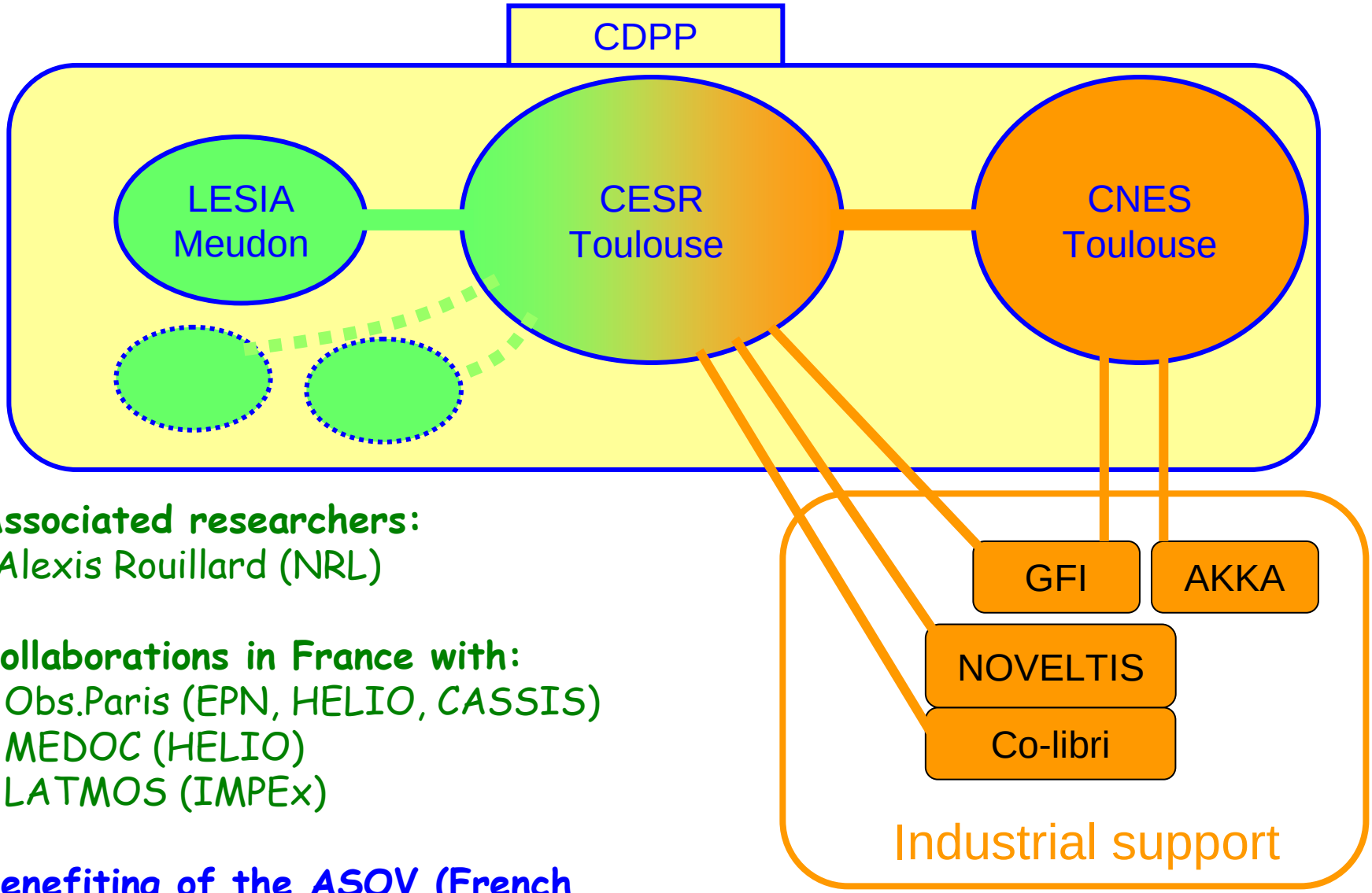
SOLEIL/PLANETO

= combinaison des deux





The CDPP Team



Associated researchers:
-Alexis Rouillard (NRL)

Collaborations in France with:
- Obs.Paris (EPN, HELIO, CASSIS)
- MEDOC (HELIO)
- LATMOS (IMPEx)

Benefiting of the ASOV (French Action for support in VO development)

European and international VO projects

International efforts:

%The CDPP is a founder member of and an active participant to the SPASE consortium.
%The CDPP participates to the IPDA (International Planetary Data Alliance)

European projects:

%EuroPLANET RI (FP7)
N. André, B. Cecconi, C. Jacquey, M. Gangloff
→ JRA-4/Task-2: "Interoperable Data Access" 1
→ SA/Plasma Node (AMDA, ALADIN) 2

%HELIO (FP7)
B. Lavraud, A. Rouillard, C. Jacquey, M. Gangloff
→ WP-N3: "Strategy and Standards"
→ JRA: Propagation tool, feature recognition (AMDA)

%CASSIS (FP7)
C. Jacquey, M. Gangloff
→ Coordination for interoperability in Solar System sciences

%VISPANET (ESA)
M. Gangloff, V. Génot
→ WP1200: "Technology Requirement Definition"
→ WP2000: "Architectural Design"

% IMPEx (FP7)
V. Génot, N. André, …
→ WP2: - Internal Interfaces/Protocoles
- Catalogues management (AMDA)
- Scientific tools (AMDA, 3Dview)
- External Interfaces (HELIO, EPN, ...)

1: Activités sur les briques de l'interopérabilité

(Sciences du Système Solaire)

- Standards
- Architecture
- Registries
- Protocoles
- Stratégies

EUROPLANET RI / IDIS / Task-2: Interoperable Data Access

(Main contributors: B. Cecconi, M. Gangloff, N. André, N. Bourrel, C. Jacquey)

Echanges avec VO-Paris

Starting point

- Existing standards: PDS
- PDAP, flexible protocol defined by IPDA (close to the SIAP one)

PDAP input fields

- HTTP GET/POST url&keyword=value
- Dataset_ID, Product_ID
- Dataset or Product PDS keywords: Instrument_type, Instrument_name, Target_type,Target_name, Mission_Name
- Time or geometrical constraints
- Granularity: Data_Set, Product,Image
- Response format : VOTable,HTML,ASCII
- Service Capabilities

PDAP output fields

- Default output in VOTable
- Dublin core information: publisher, contributor, publishing date, rights
- General DataSet, Product or Image information using PDS keywords
- Links to access data

Data Model

Objectives:

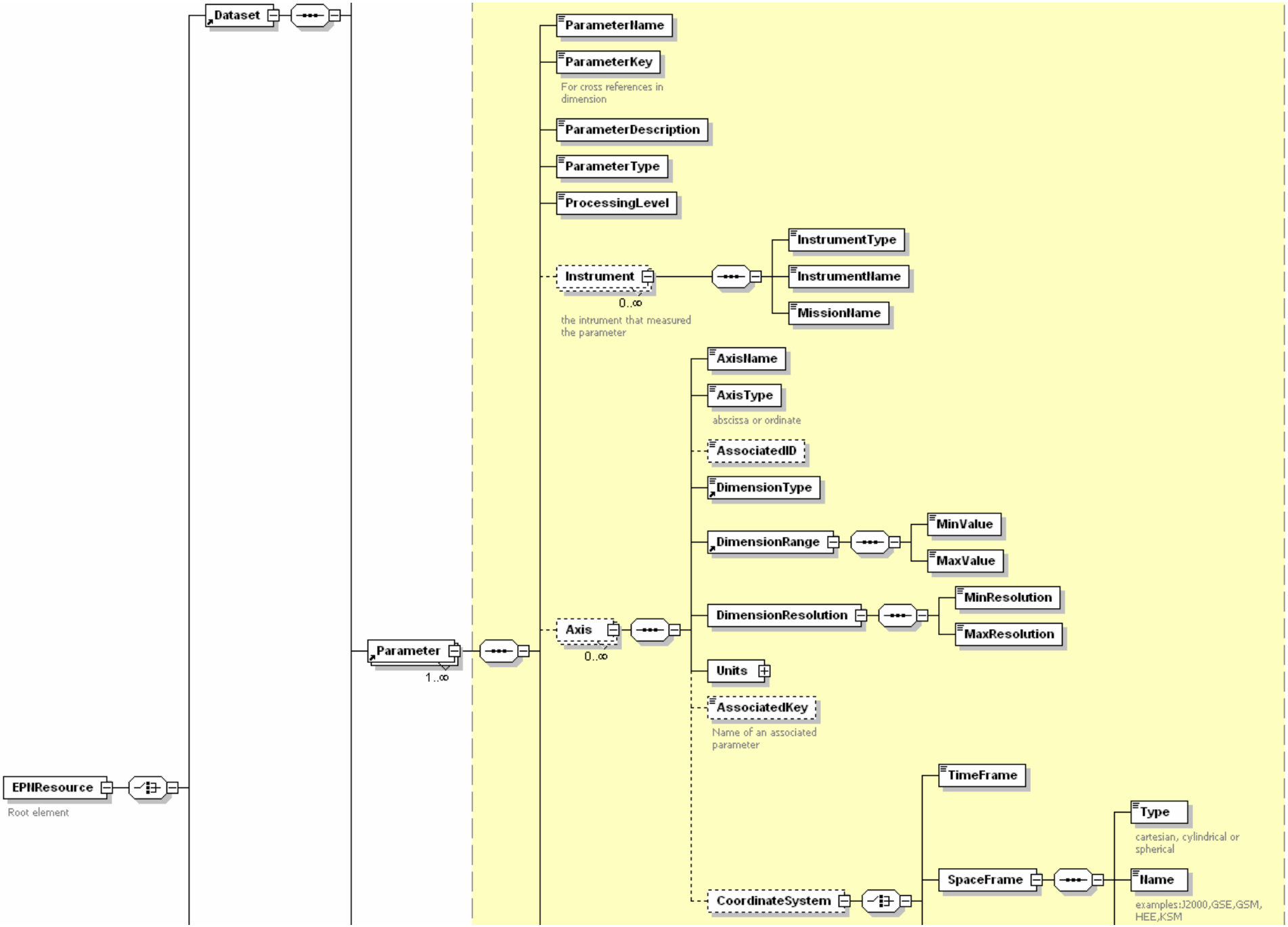
%Trans-disciplinary
%provides semantic description of the content of the DataSets

Implementation:

%Hierarchical data model (Dataset/Granules/Parameters)
%Structured metadata
- •Generic metadata
- •Target metadata
- •Mission/Instrument metadata
- •Parameter

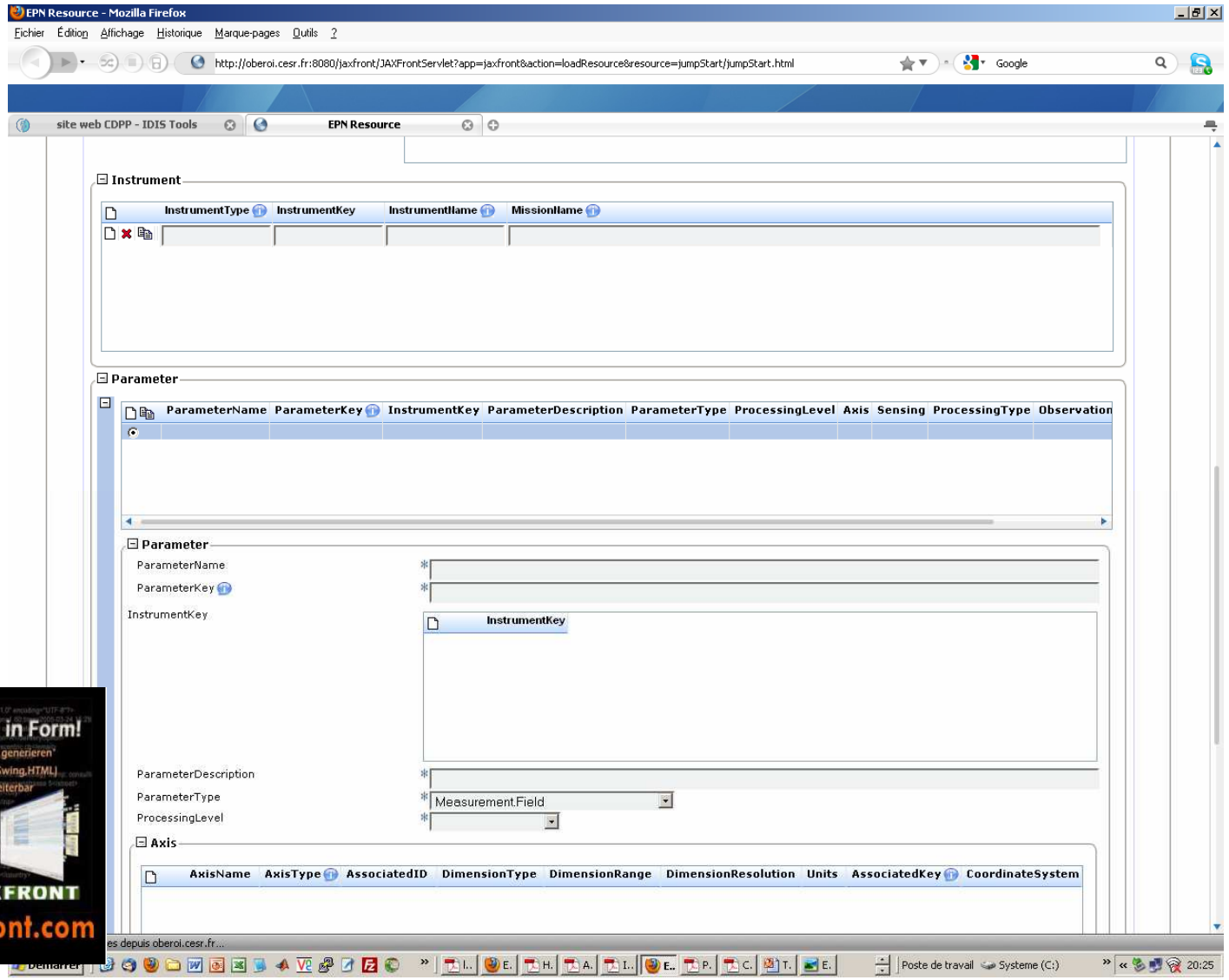
%Uses of the PDS keywords when they exist
%When not, needs extensions (coming from SPASE for plasmas from example)

Concrete application to Plasmas. To be performed in other disciplines.

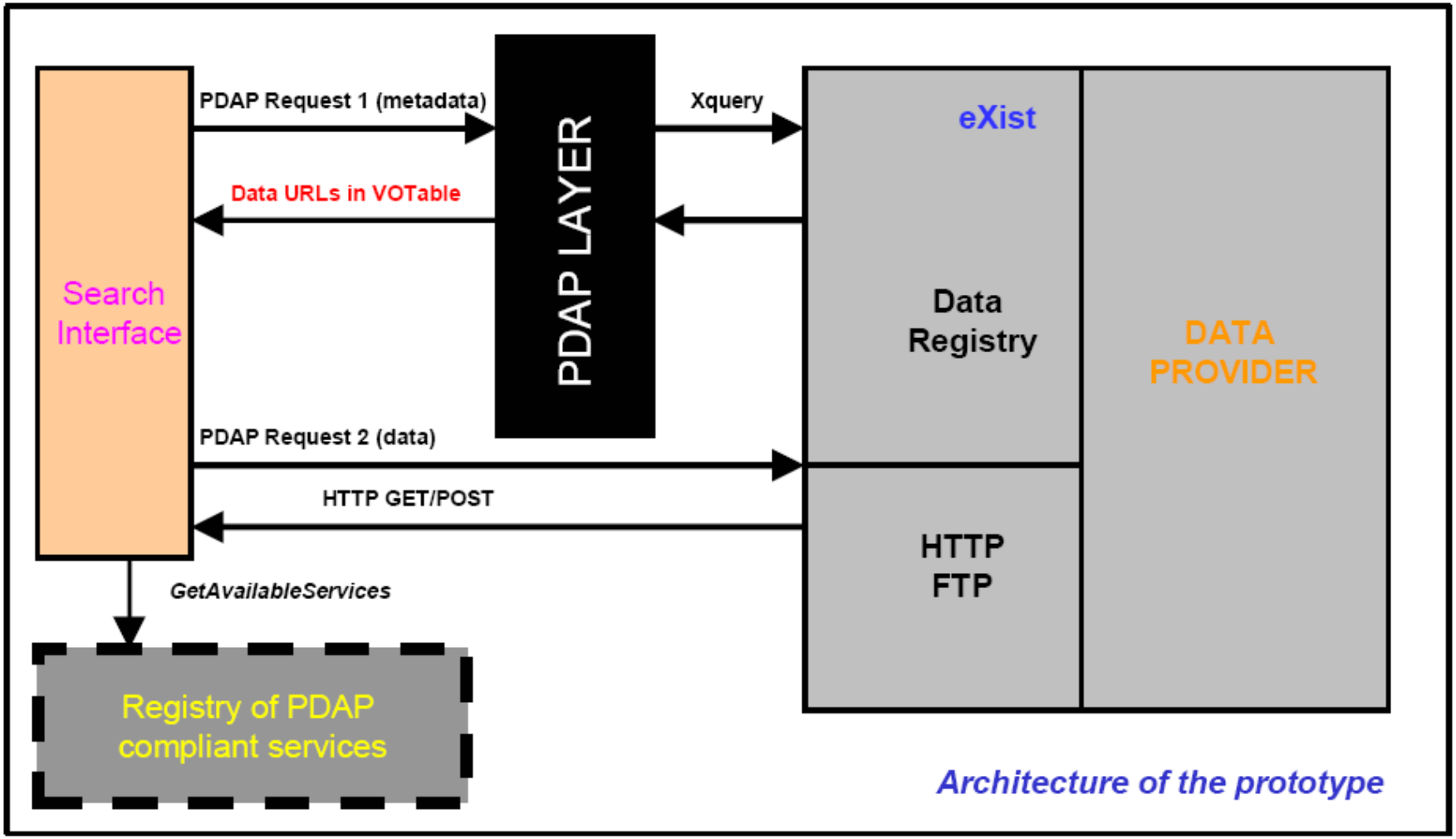

EPNResource
Root element
Dataset
Parameter
1..∞
ParameterName
ParameterKey
For cross references in dimension
ParameterDescription
ParameterType
ProcessingLevel
Instrument
0..∞
the intrument that measured the parameter
InstrumentType
InstrumentName
MissionName
Axis
0..∞
AxisName
AxisType
abscissa or ordinate
AssociatedID
DimensionType
DimensionRange
MinValue
MaxValue
DimensionResolution
MinResolution
MaxResolution
Units
AssociatedKey
Name of an associated parameter
CoordinateSystem
TimeFrame
SpaceFrame
Type
cartesian, cylindrical or spherical
Name
examples:J2000,GSE,GSM, HEE,KSM

Tools for building descriptors

(http://cdpp.cesr.fr)



Prototype


PDAP Request 1 (metadata)
Xquery
eXist
Data URLs in VOTable
PDAP LAYER
Search Interface
Data Registry
DATA PROVIDER
PDAP Request 2 (data)
HTTP GET/POST
HTTP FTP
GetAvailableServices
Registry of PDAP compliant services
Architecture of the prototype

2: Outils scientifiques interopérables

Exemple: Couplage AMDA/ALADIN

Principaux contributeurs:

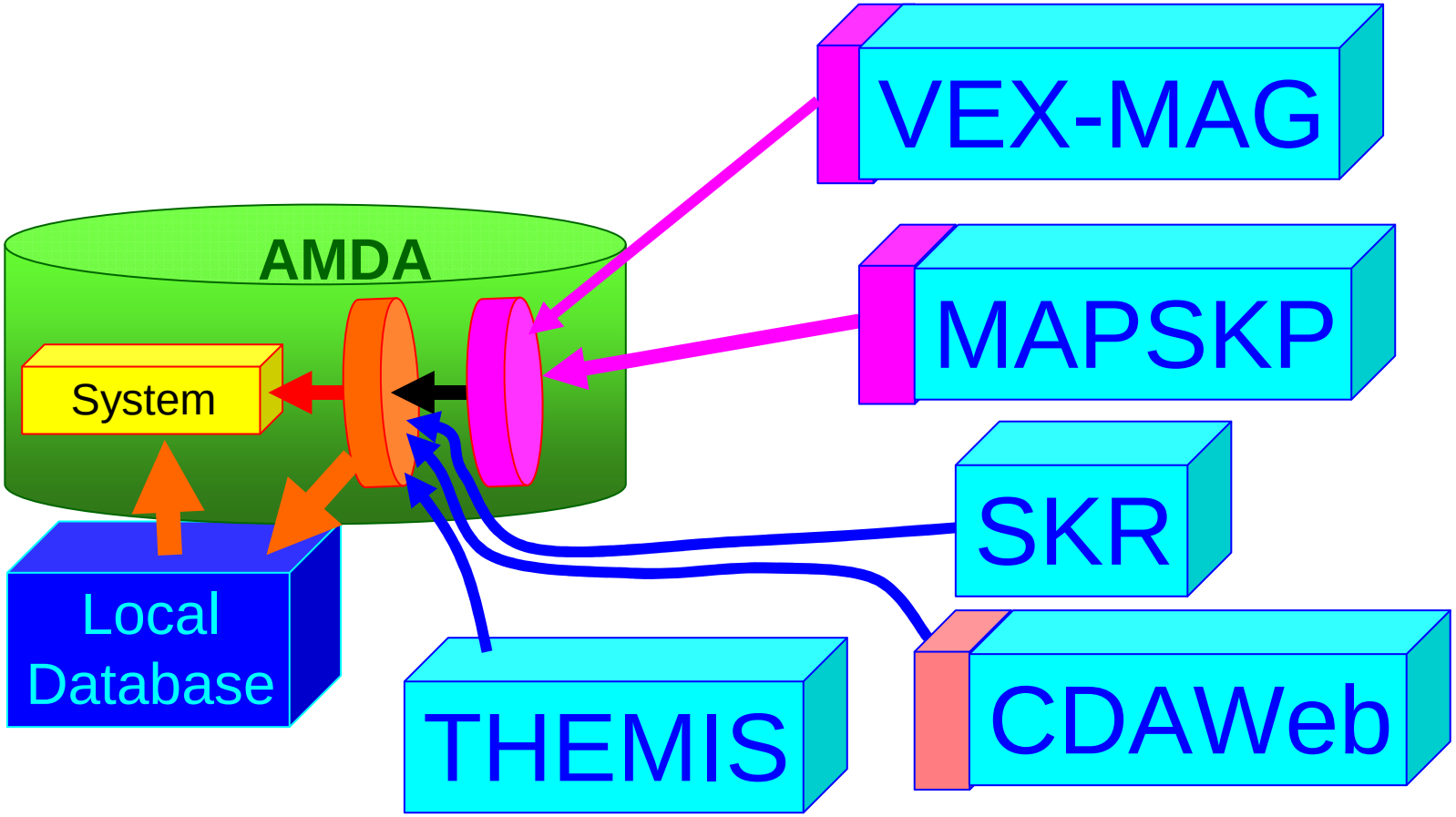
N. André (CDPP/CESR), B. Cecconi (CDPP/LESIA)
R. Hitier (Co-Libri), E. Budnik (Noveltis)
+ support de AKKA

Ecole ASOV Juin 2010 (N. André, B. Cecconi, C. Jacquey, R. Hitier)

Collaboration ObsParis (WebSampConnector)

Action soutenue par le CNES

VO: AMDA SPASE compliant

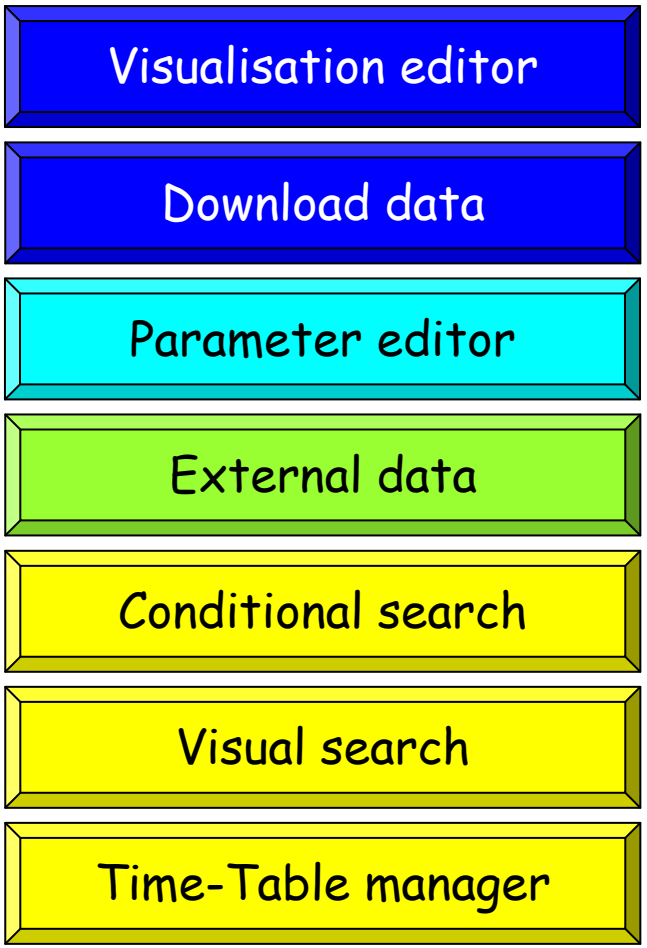


Any databases including a SPASE based interoperability layer can be used by AMDA

AMDA

Automated Mutiple Dataset Analysis

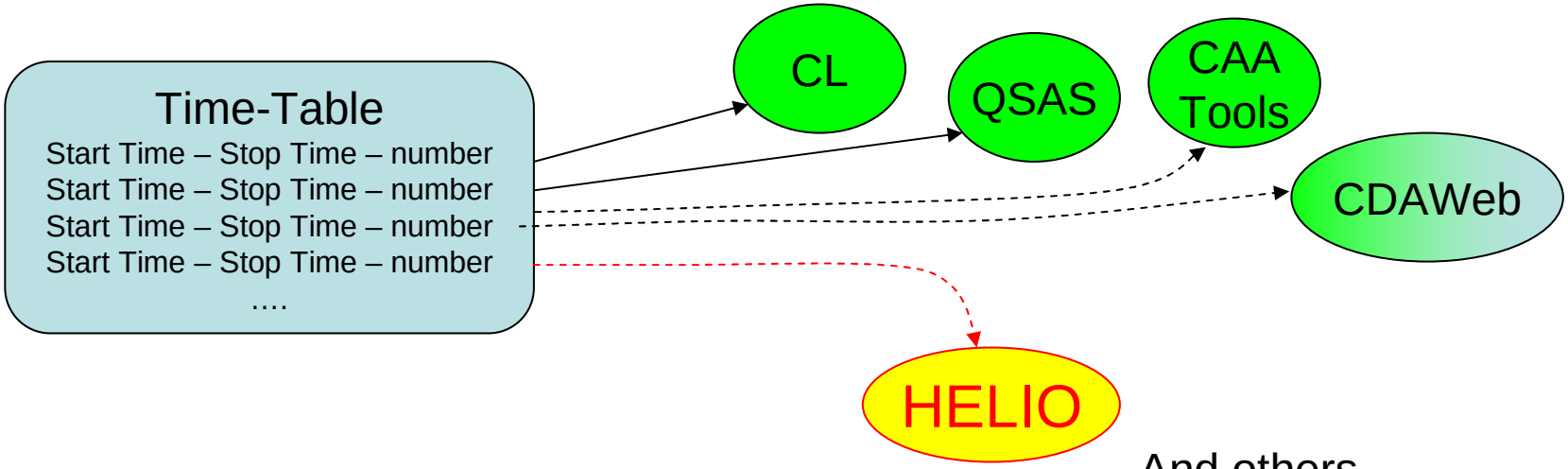
- Web based service
- Transparent (automated) access to data ⇒ the user plays with parameters, not with files
- AMDA local database
(**CLUSTER, ACE, THEMIS, GEOTAIL, WIND, …, STEREO, VEX, MEX, …, IMP-8, ISEE, … geomagnetic indices**)
- External databases
(CDAWeb, CASSINI: MAPSKP+SKR, VEX-MAG, THEMIS/CESR, …)
- Produces and exploits time-tables and catalogues



AMDA DOES NOT WORK FULLY WITH InternetExplorer and Safari

AMDA is public (registred or guess users, at http://cdpp-amda.cesr.fr)

A standard for time-tables (event lists)



And others …

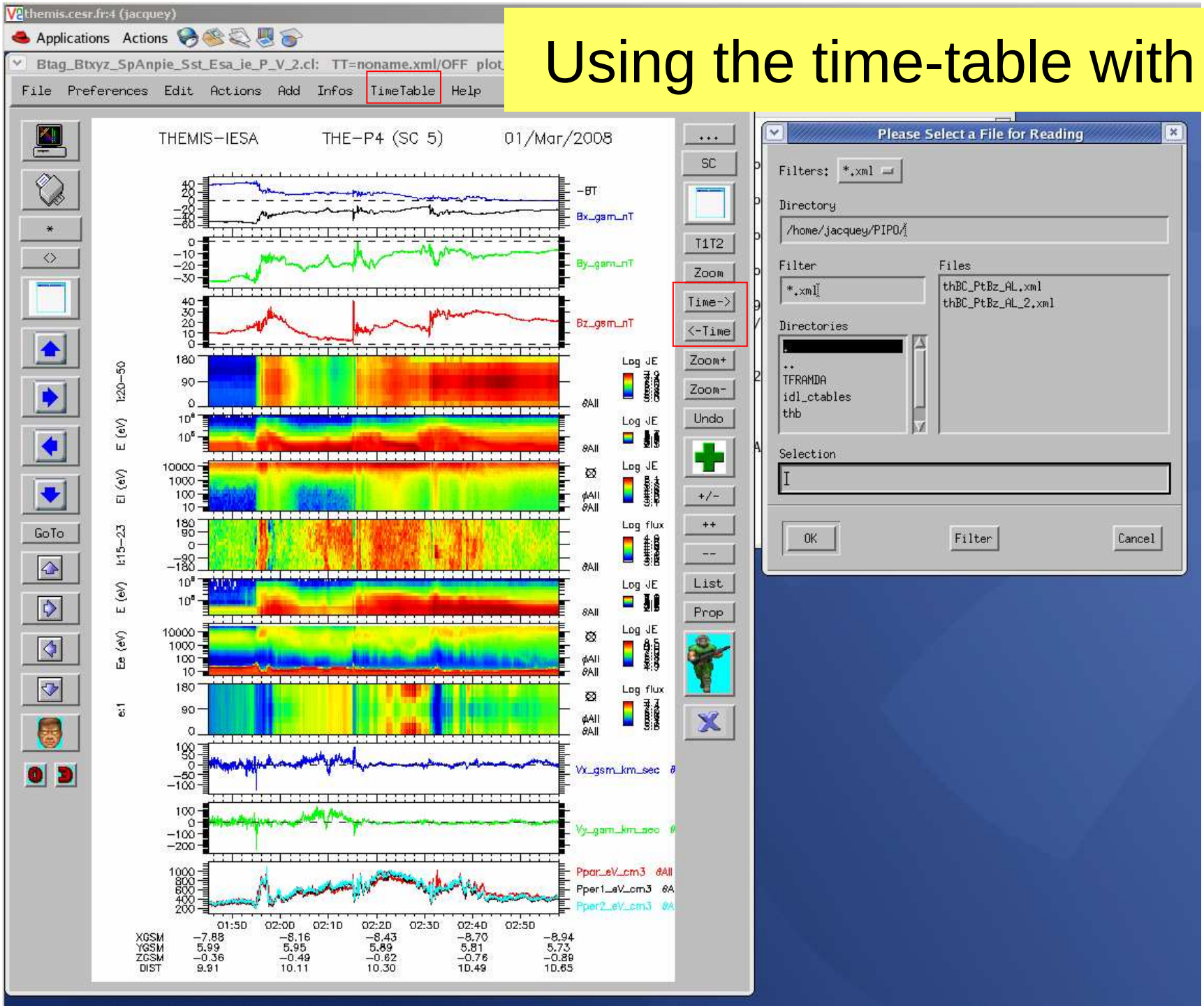
Requirements:

- A time-table format standard

  Collaboration CDPP/CAA/QSAS/CL: VOtable
  http://cdpp2.cesr.fr/twiki/bin/view/AMDA/AmdaTimeTableFormat

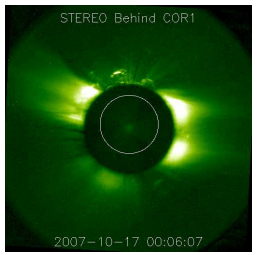
- An interface for reading the standardised time-table

Using the time-table with CL



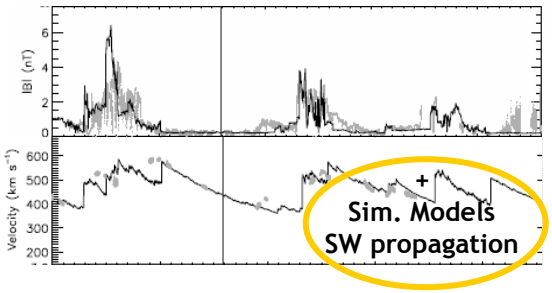
SC3.1 Solar wind interaction with Jupiter and Saturn aurorae

Plasma
(multi-points)



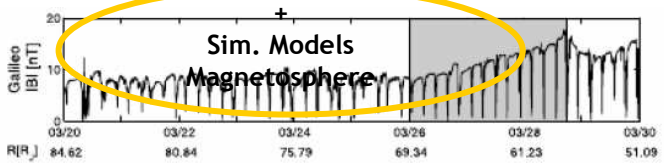
Solar data
SOHO LASCO
SOHO EIT

Heliospheric data

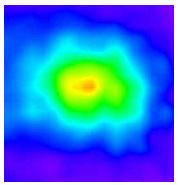


ACE MAG/SWEPAM , ULYSSES MAG/SWOOPS

Cassini MAG/CAPS/MIMI, Galileo MAG/PLS/EPD

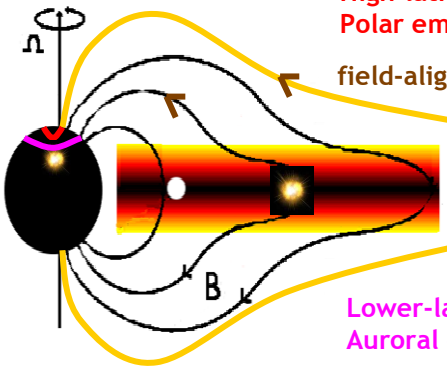


Planetoplasma data

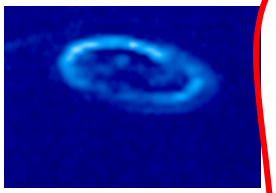


Cassini INCA

Context
Processes



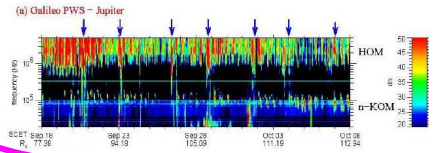
Solar wind /
Magnetosphere / Ionosphere
coupling



Cassini UVIS
Galileo UVS

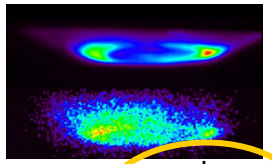
HST (STIS), IUE

Atmosphere
(multi-λ)



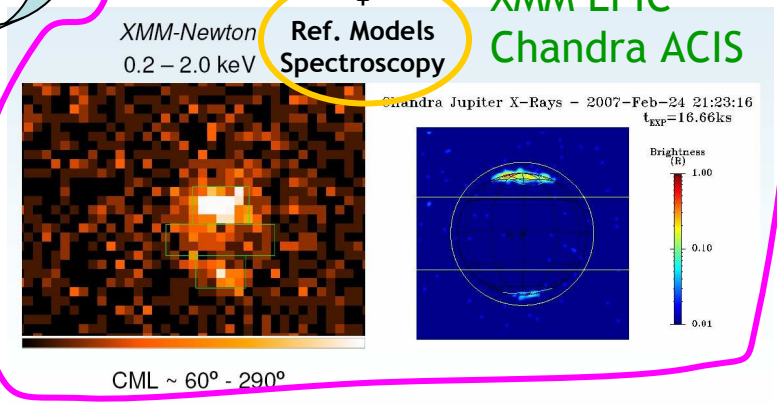
Cassini RPWS
Galileo PWS

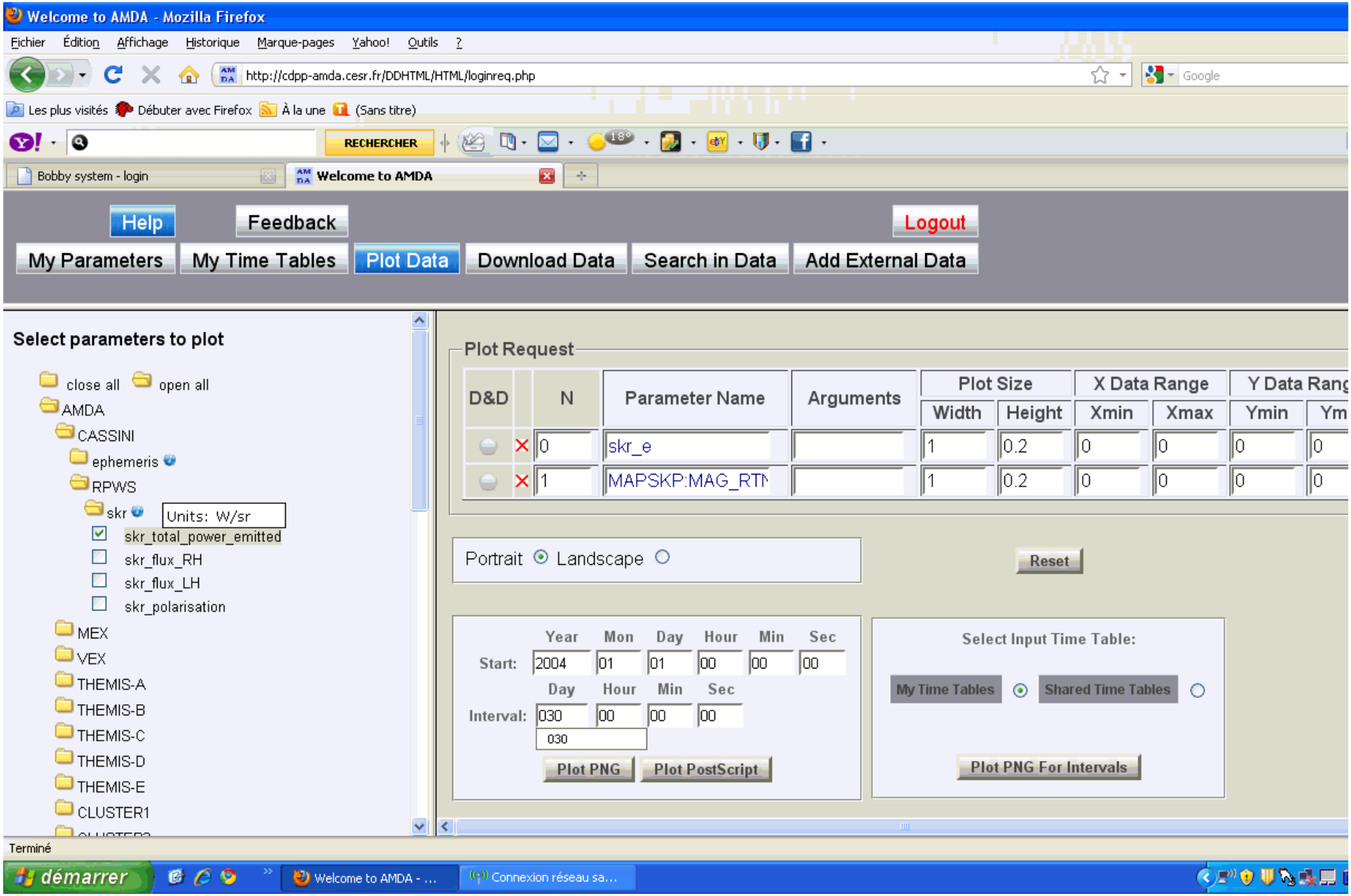
IRTF



+
Ref. Models
Spectroscopy

XMM EPIC
Chandra ACIS




Welcome to AMDA - Mozilla Firefox
Fichier Édition Affichage Historique Marque-pages Yahoo! Outils ?
http://cdpp-amda.cesr.fr/DDHTML/HTML/loginreq.php
Les plus visités Débuter avec Firefox À la une (Sans titre)
RECHERCHER
Bobby system - login
Welcome to AMDA
Help
Feedback
Logout
My Parameters
My Time Tables
Plot Data
Download Data
Search in Data
Add External Data
Select parameters to plot
close all
open all
AMDA
CASSINI
ephemeris
RPWS
skr
Units: W/sr
skr_total_power_emitted
skr_flux_RH
skr_flux_LH
skr_polarisation
MEX
VEX
THEMIS-A
THEMIS-B
THEMIS-C
THEMIS-D
THEMIS-E
CLUSTER1
Plot Request
D&D
N
Parameter Name
Arguments
Plot Size
Width
Height
X Data Range
Xmin
Xmax
Y Data Rang
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MAPSKP:MAG_RTN
1
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Portrait
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Year
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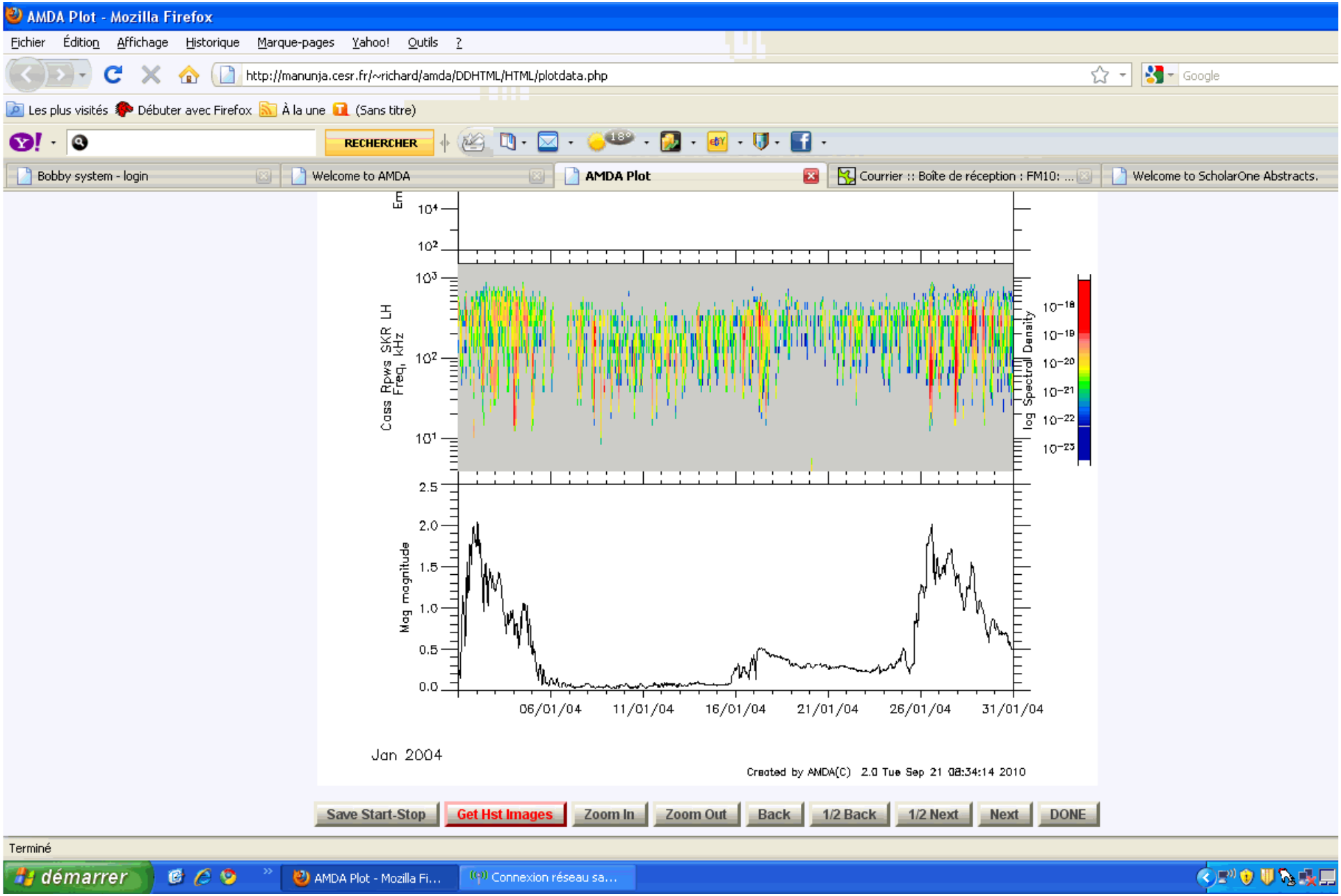
Welcome to AMDA - ...
Connexion réseau sa...


AMDA Plot - Mozilla Firefox
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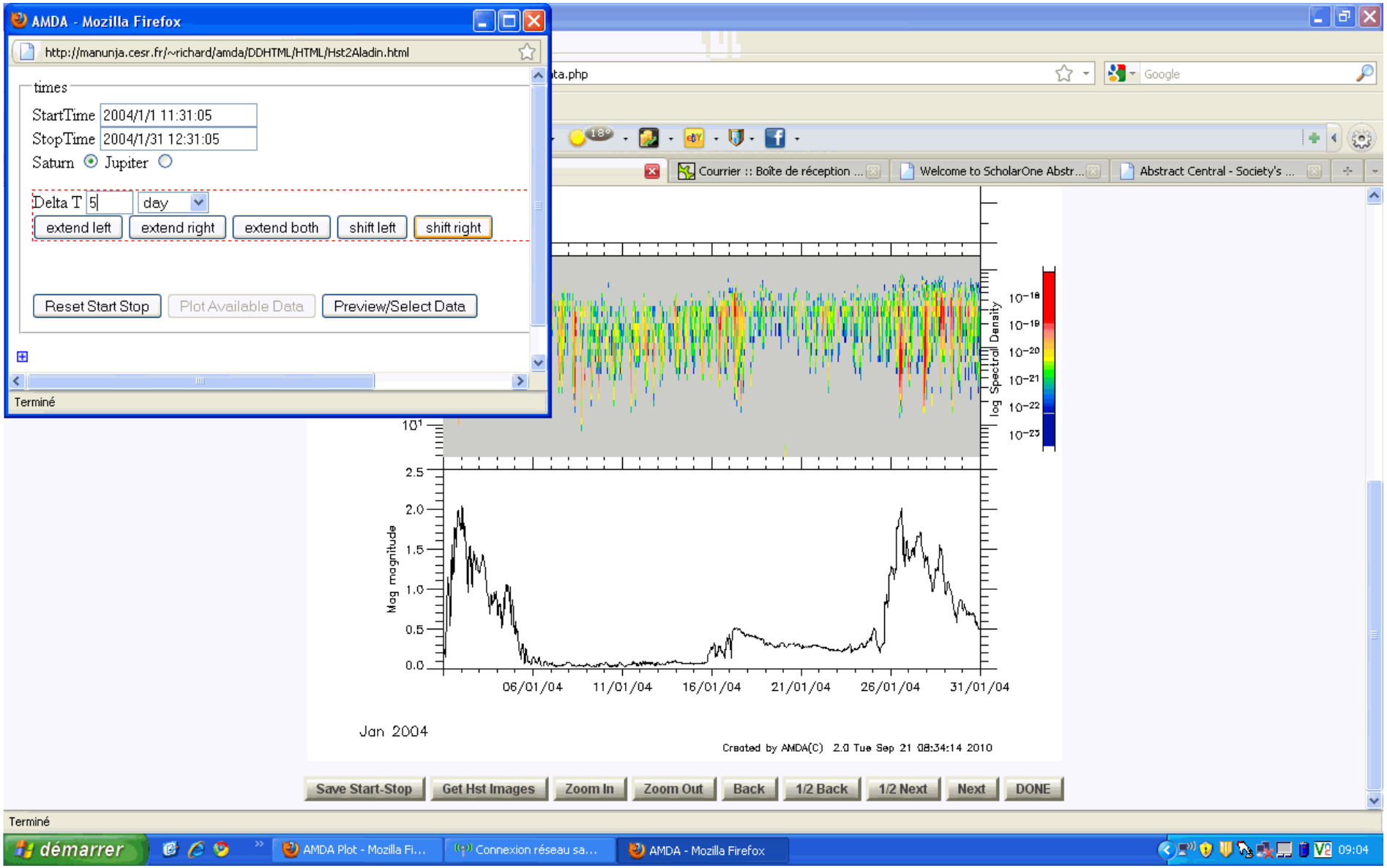
http://manunja.cesr.fr/~richard/amda/DDHTML/HTML/plotdata.php
Les plus visités Débuter avec Firefox À la une (Sans titre)
RECHERCHER
Bobby system - login
Welcome to AMDA
AMDA Plot
Courrier :: Boîte de réception : FM10: ...
Welcome to ScholarOne Abstracts.
Em
Cass Rpws SKR LH
Freq, kHz
log Spectral Density
Mag magnitude
06/01/04
11/01/04
16/01/04
21/01/04
26/01/04
31/01/04
Jan 2004
Created by AMDA(C) 2.0 Tue Sep 21 08:34:14 2010
Save Start-Stop
Get Hst Images
Zoom In
Zoom Out
Back
1/2 Back
1/2 Next
Next
DONE
Terminé
démarrer
AMDA Plot - Mozilla Fi...
Connexion réseau sa...


AMDA - Mozilla Firefox
http://manunja.cesr.fr/~richard/amda/DDHTML/HTML/Hst2Aladin.html
times
StartTime 2004/1/1 11:31:05
StopTime 2004/1/31 12:31:05
Saturn
Jupiter
Delta T 5
day
extend left
extend right
extend both
shift left
shift right
Reset Start Stop
Plot Available Data
Preview/Select Data
Terminé
Courrier :: Boîte de réception ...
Welcome to ScholarOne Abstr...
Abstract Central - Society's ...
Google
log Spectral Density
Mag magnitude
06/01/04
11/01/04
16/01/04
21/01/04
26/01/04
31/01/04
Jan 2004
Created by AMDA(C) 2.0 Tue Sep 21 08:34:14 2010
Save Start-Stop
Get Hst Images
Zoom In
Zoom Out
Back
1/2 Back
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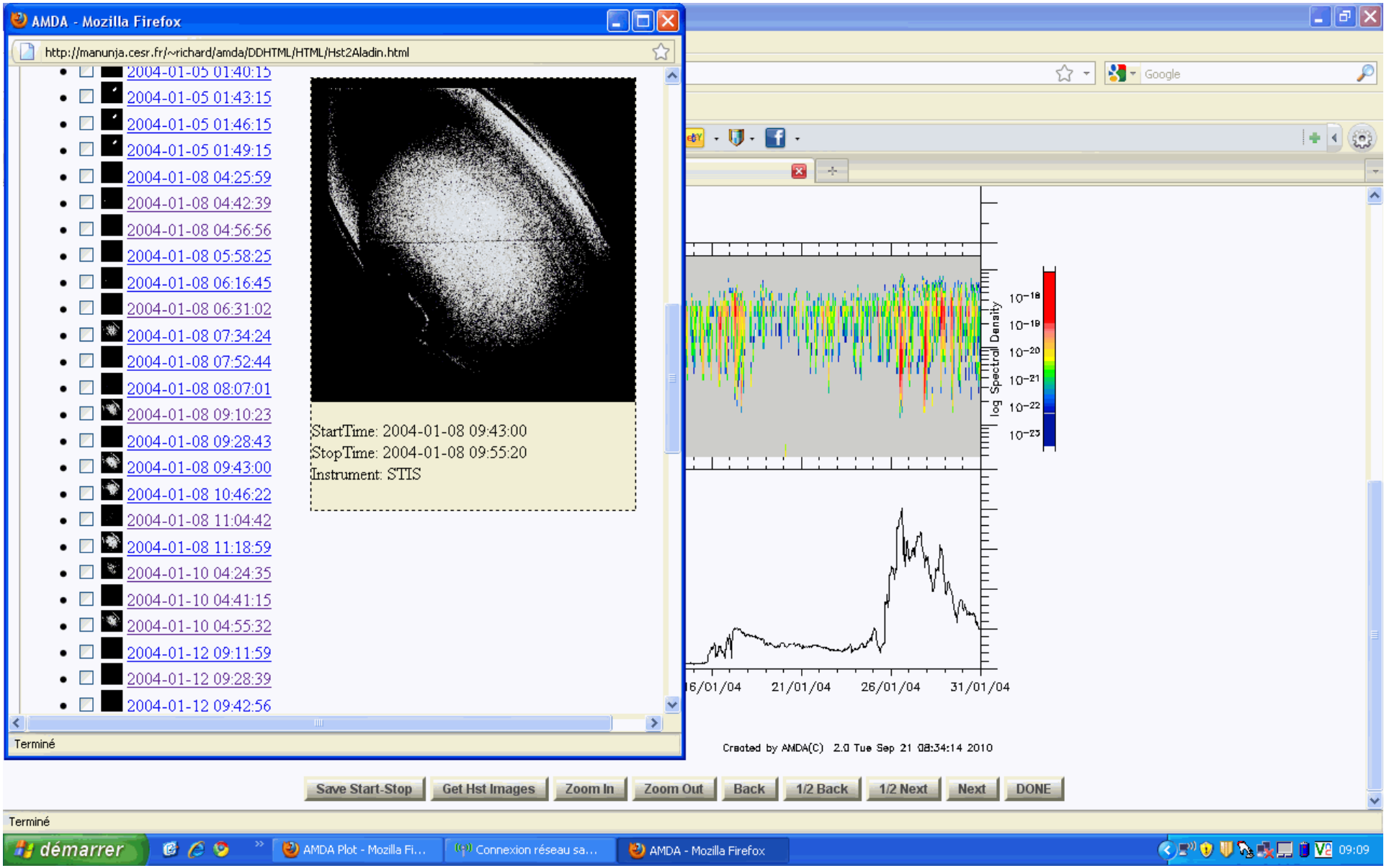
DONE
Terminé
démarrer
AMDA Plot - Mozilla Fi...
Connexion réseau sa...
AMDA - Mozilla Firefox
09:04


AMDA - Mozilla Firefox
http://manunja.cesr.fr/~richard/amda/DDHTML/HTML/Hst2Aladin.html
2004-01-05 01:40:15
2004-01-05 01:43:15
2004-01-05 01:46:15
2004-01-05 01:49:15
2004-01-08 04:25:59
2004-01-08 04:42:39
2004-01-08 04:56:56
2004-01-08 05:58:25
2004-01-08 06:16:45
2004-01-08 06:31:02
2004-01-08 07:34:24
2004-01-08 07:52:44
2004-01-08 08:07:01
2004-01-08 09:10:23
2004-01-08 09:28:43
2004-01-08 09:43:00
2004-01-08 10:46:22
2004-01-08 11:04:42
2004-01-08 11:18:59
2004-01-10 04:24:35
2004-01-10 04:41:15
2004-01-10 04:55:32
2004-01-12 09:11:59
2004-01-12 09:28:39
2004-01-12 09:42:56
StartTime: 2004-01-08 09:43:00
StopTime: 2004-01-08 09:55:20
Instrument: STIS
Terminé
Google
log Spectral Density
10⁻¹⁸
10⁻¹⁹
10⁻²⁰
10⁻²¹
10⁻²²
10⁻²³
16/01/04
21/01/04
26/01/04
31/01/04
Created by AMDA(C) 2.0 Tue Sep 21 08:34:14 2010
Save Start-Stop
Get Hst Images
Zoom In
Zoom Out
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1/2 Next
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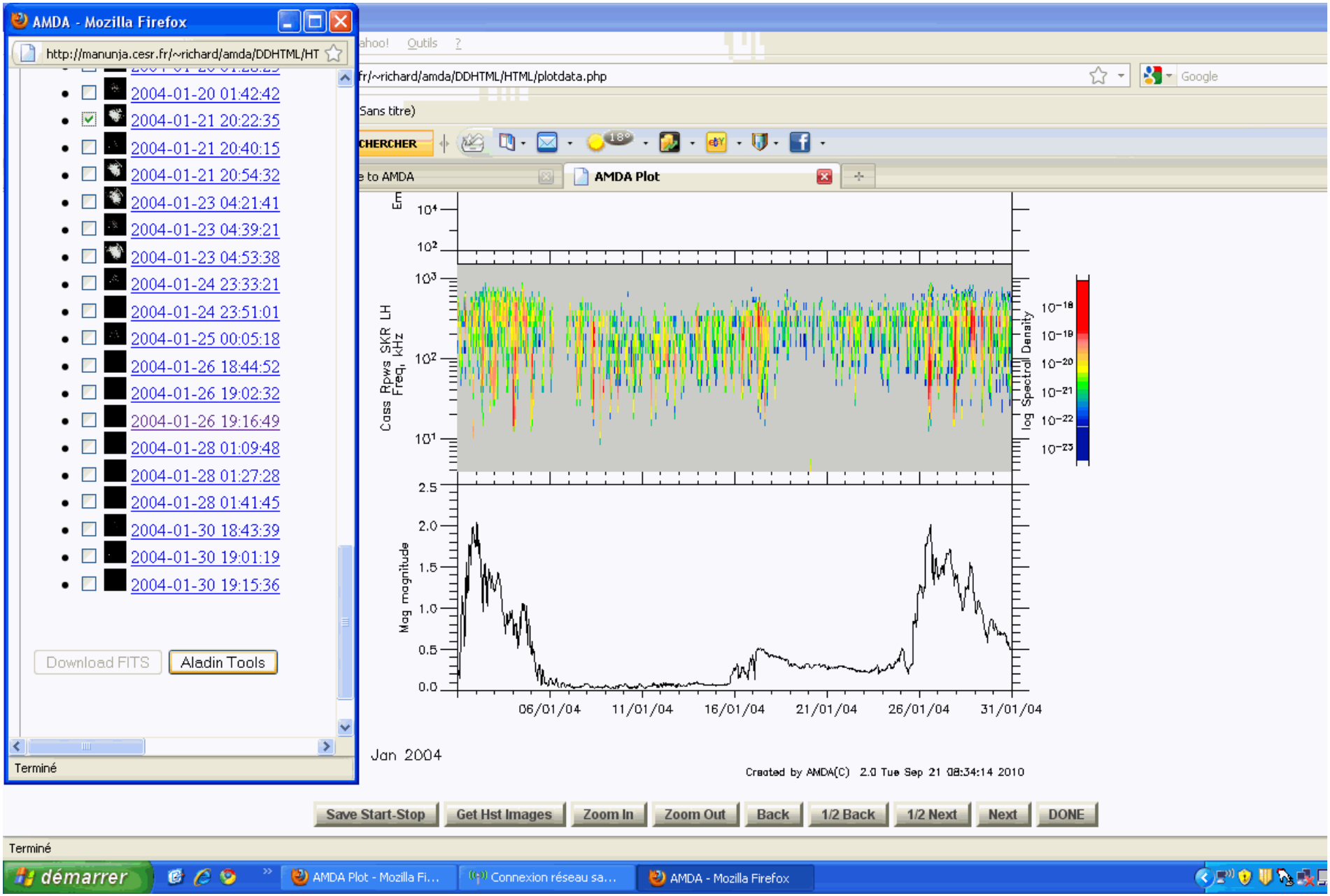
Terminé
démarrer
AMDA Plot - Mozilla Fi...
Connexion réseau sa...
AMDA - Mozilla Firefox
09:09


AMDA - Mozilla Firefox
http://manunja.cesr.fr/~richard/amda/DDHTML/HT
2004-01-20 01:42:42
2004-01-21 20:22:35
2004-01-21 20:40:15
2004-01-21 20:54:32
2004-01-23 04:21:41
2004-01-23 04:39:21
2004-01-23 04:53:38
2004-01-24 23:33:21
2004-01-24 23:51:01
2004-01-25 00:05:18
2004-01-26 18:44:52
2004-01-26 19:02:32
2004-01-26 19:16:49
2004-01-28 01:09:48
2004-01-28 01:27:28
2004-01-28 01:41:45
2004-01-30 18:43:39
2004-01-30 19:01:19
2004-01-30 19:15:36
Download FITS
Aladin Tools
Terminé
fr/~richard/amda/DDHTML/HTML/plotdata.php
Sans titre)
AMDA Plot
Cass Rpws SKR LH Freq, kHz
log Spectral Density
Mag magnitude
06/01/04
11/01/04
16/01/04
21/01/04
26/01/04
31/01/04
Jan 2004
Created by AMDA(C) 2.0 Tue Sep 21 08:34:14 2010
Save Start-Stop
Get Hst Images
Zoom In
Zoom Out
Back
1/2 Back
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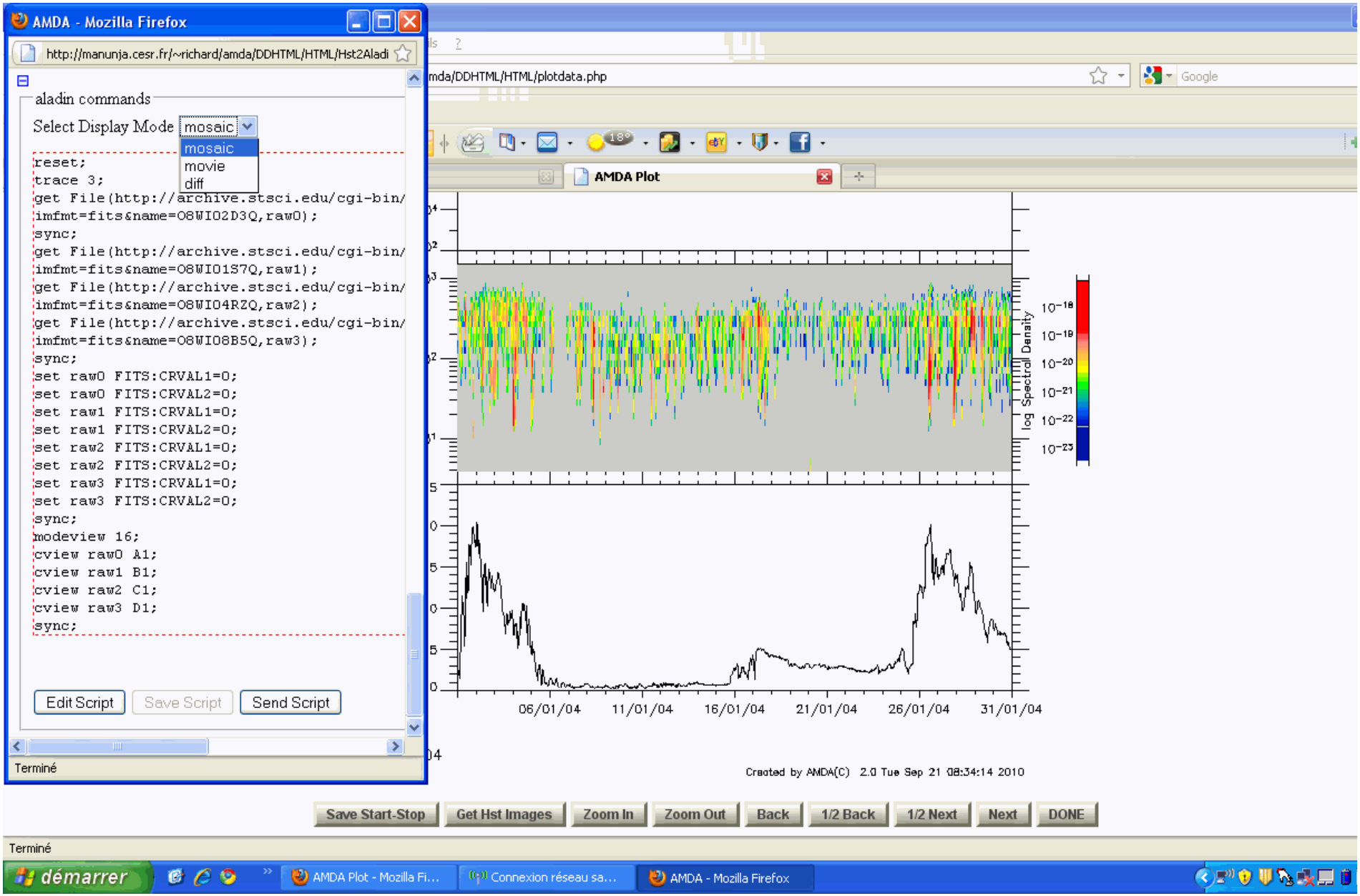
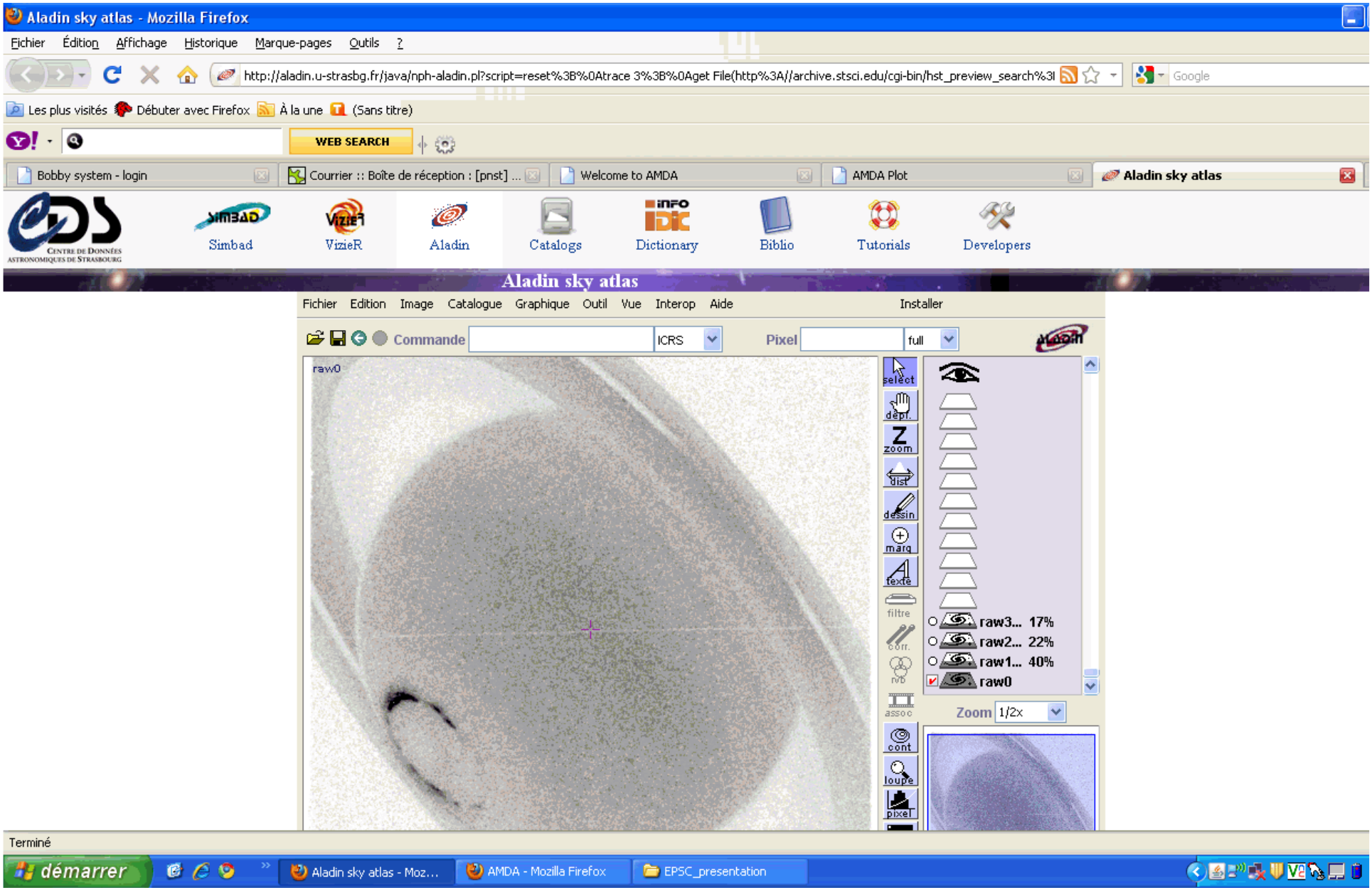
Terminé
démarrer
AMDA Plot - Mozilla Fi...
Connexion réseau sa...
AMDA - Mozilla Firefox


AMDA - Mozilla Firefox
http://manunja.cesr.fr/~richard/amda/DDHTML/HTML/Hst2Aladi
aladin commands
Select Display Mode
mosaic
mosaic
movie
diff
reset;
trace 3;
get File(http://archive.stsci.edu/cgi-bin/
imfmt=fits&name=O8WIO2D3Q,raw0);
sync;
get File(http://archive.stsci.edu/cgi-bin/
imfmt=fits&name=O8WIO1S7Q,raw1);
get File(http://archive.stsci.edu/cgi-bin/
imfmt=fits&name=O8WIO4RZQ,raw2);
get File(http://archive.stsci.edu/cgi-bin/
imfmt=fits&name=O8WIO8B5Q,raw3);
sync;
set raw0 FITS:CRVAL1=0;
set raw0 FITS:CRVAL2=0;
set raw1 FITS:CRVAL1=0;
set raw1 FITS:CRVAL2=0;
set raw2 FITS:CRVAL1=0;
set raw2 FITS:CRVAL2=0;
set raw3 FITS:CRVAL1=0;
set raw3 FITS:CRVAL2=0;
sync;
modeview 16;
cview raw0 A1;
cview raw1 B1;
cview raw2 C1;
cview raw3 D1;
sync;
Edit Script
Save Script
Send Script
Terminé
mda/DDHTML/HTML/plotdata.php
AMDA Plot
log Spectral Density
06/01/04
11/01/04
16/01/04
21/01/04
26/01/04
31/01/04
Created by AMDA(C) 2.0 Tue Sep 21 08:34:14 2010
Save Start-Stop
Get Hst Images
Zoom In
Zoom Out
Back
1/2 Back
1/2 Next
Next
DONE
Terminé
démarrer
AMDA Plot - Mozilla Fi...
Connexion réseau sa...
AMDA - Mozilla Firefox


Aladin sky atlas - Mozilla Firefox
Fichier Édition Affichage Historique Marque-pages Outils ?
http://aladin.u-strasbg.fr/java/nph-aladin.pl?script=reset%3B%0Atrace 3%3B%0Aget File(http%3A//archive.stsci.edu/cgi-bin/hst_preview_search%3I
Les plus visités Débuter avec Firefox À la une (Sans titre)
WEB SEARCH
Bobby system - login
Courrier :: Boîte de réception : [pnst] ...
Welcome to AMDA
AMDA Plot
Aladin sky atlas
Simbad
VizieR
Aladin
Catalogs
Dictionary
Biblio
Tutorials
Developers
Aladin sky atlas
Fichier Edition Image Catalogue Graphique Outil Vue Interop Aide
Installer
Commande
ICRS
Pixel
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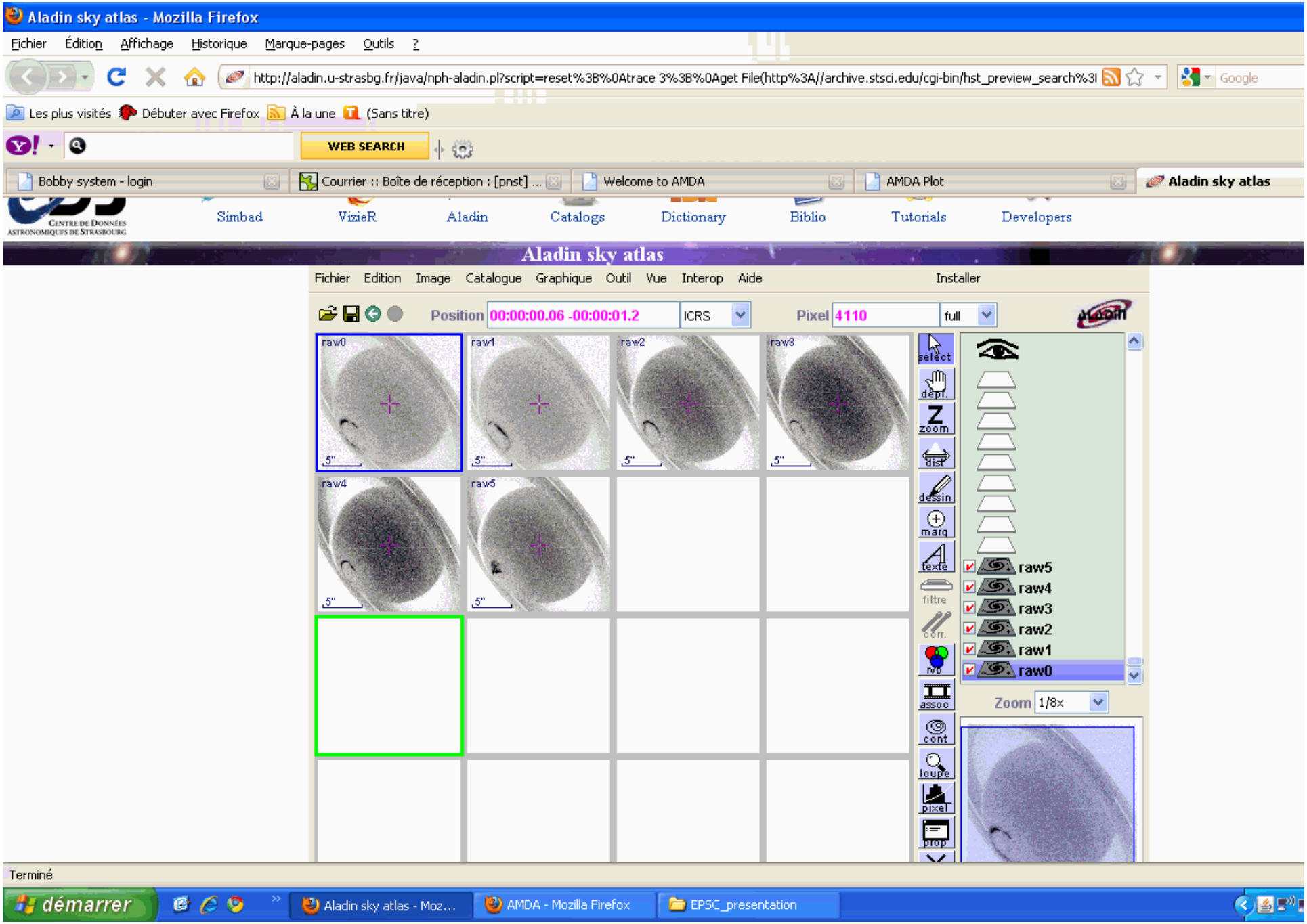
raw3... 17%
raw2... 22%
raw1... 40%
raw0
Zoom 1/2x
Terminé
démarrer
Aladin sky atlas - Moz...
AMDA - Mozilla Firefox
EPSC_presentation


Aladin sky atlas - Mozilla Firefox
Fichier Édition Affichage Historique Marque-pages Outils ?
http://aladin.u-strasbg.fr/java/nph-aladin.pl?script=reset%3B%0Atrace 3%3B%0Aget File(http%3A//archive.stsci.edu/cgi-bin/hst_preview_search%3I
Les plus visités Débuter avec Firefox À la une (Sans titre)
WEB SEARCH
Bobby system - login
Courrier :: Boîte de réception : [pnst] ...
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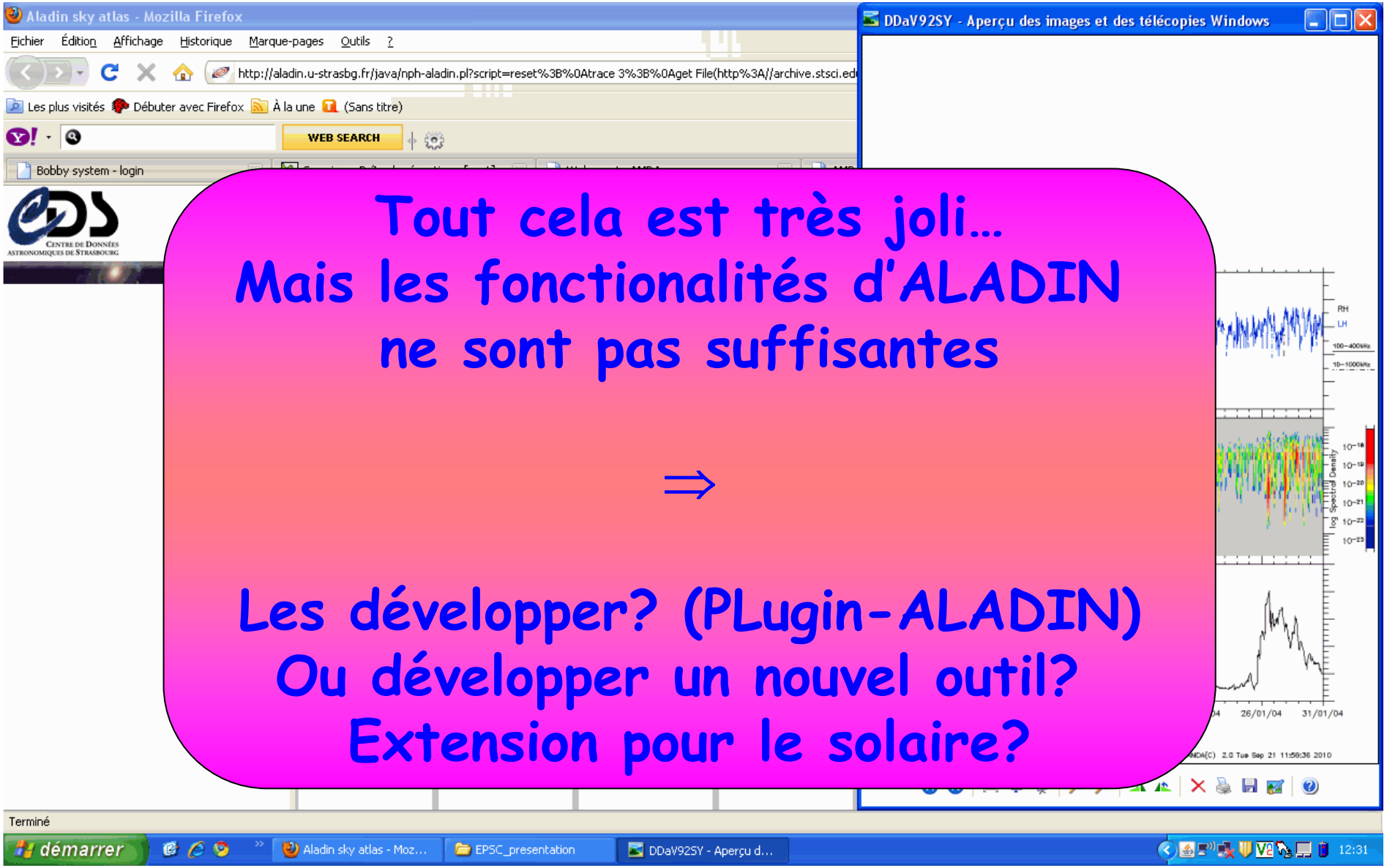
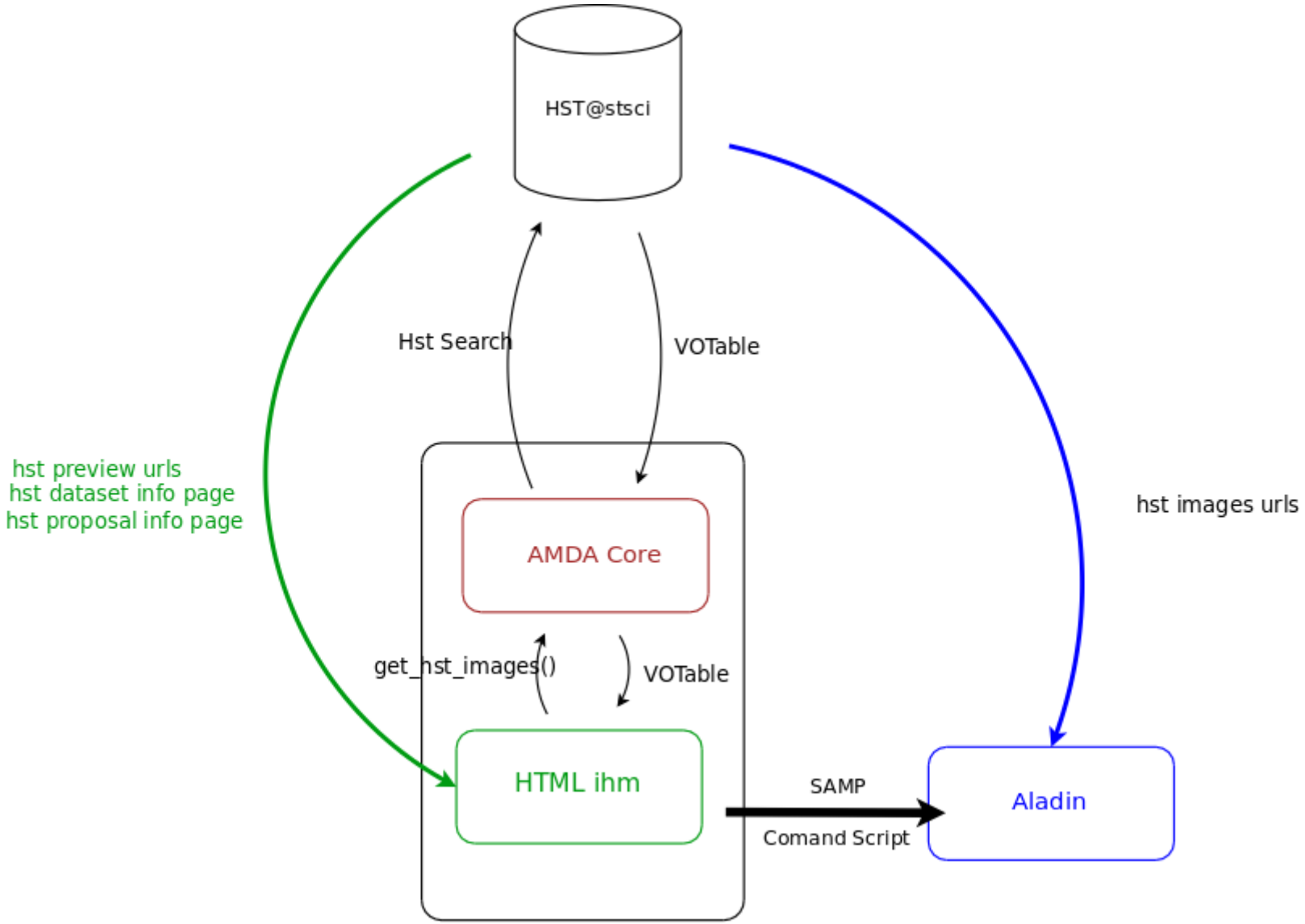
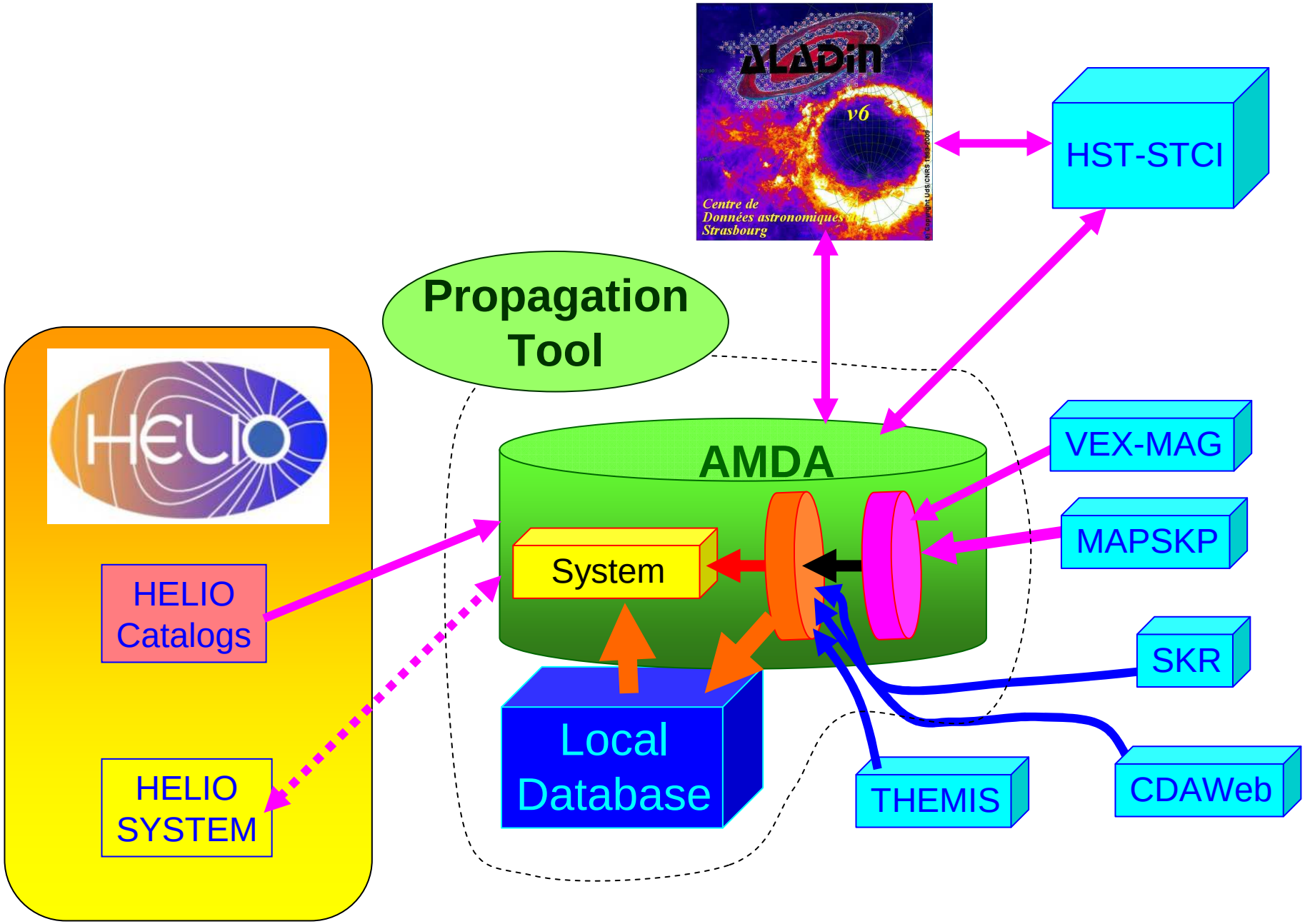
AMDA Plot
Aladin sky atlas
Simbad VizieR Aladin Catalogs Dictionary Biblio Tutorials Developers
Aladin sky atlas
Fichier Edition Image Catalogue Graphique Outil Vue Interop Aide Installer
Position 00:00:00.06 -00:00:01.2 ICRS
Pixel 4110 full
raw0 raw1 raw2 raw3 raw4 raw5
select dépl. zoom dist dessin marq texte filtre corr. rvb assoc cont loupe pixel prop
raw5 raw4 raw3 raw2 raw1 raw0
Zoom 1/8x
Terminé
démarrer
Aladin sky atlas - Moz...
AMDA - Mozilla Firefox
EPSC_presentation


Aladin sky atlas - Mozilla Firefox
Fichier Édition Affichage Historique Marque-pages Outils ?
Les plus visités Débuter avec Firefox À la une (Sans titre)
WEB SEARCH
Bobby system - login
DDaV92SY - Aperçu des images et des télécopies Windows
Tout cela est très joli…
Mais les fonctionalités d'ALADIN
ne sont pas suffisantes
⇒
Les développer? (PLugin-ALADIN)
Ou développer un nouvel outil?
Extension pour le solaire?
Terminé
démarrer
Aladin sky atlas - Moz…
EPSC_presentation
DDaV92SY - Aperçu d…
12:31


HST@stsci
Hst Search
VOTable
hst preview urls
hst dataset info page
hst proposal info page
hst images urls
AMDA Core
get_hst_images()
VOTable
HTML ihm
SAMP
Comand Script
Aladin


AMDA
v6
Centre de
Données astronomiques de
Strasbourg
HST-STCI
Propagation
Tool
HELIO
HELIO
Catalogs
HELIO
SYSTEM
System
Local
Database
VEX-MAG
MAPSKP
SKR
THEMIS
CDAWeb

In course/ future plans

- **EPN/IDIS:**
  - Datamodel, protocol, architecture ⇒ operational prototype data access ⇒ providing the tools for using it
  - VO compliant scientific tools

- **HELIO:**
  - Definition of the standards for HELIO (IVOA à la sauce SPASE)
  - Exploitation/production of catalogues
  - AMDA modules, Propagation tool ⇒ to be inserted in the HELIO workflows

- ***CASSIS:*** CDPP responsible for the WP2 "Interoperability of data and services"

- **VISPANET:** Technology requirements, Architecture

- **IMPEX:**
  - new opened field: simulation runs and simulation data

Conclusions

- Les infrastructures européennes pour les sciences du système solaire sont en train de se mettre en place $\Rightarrow$ Le CDPP y participe fortement

- Support industriel à cultiver