



Centre de Données de la Physique des Plasmas



# Systemes d'information en physique des plasmas spatiaux

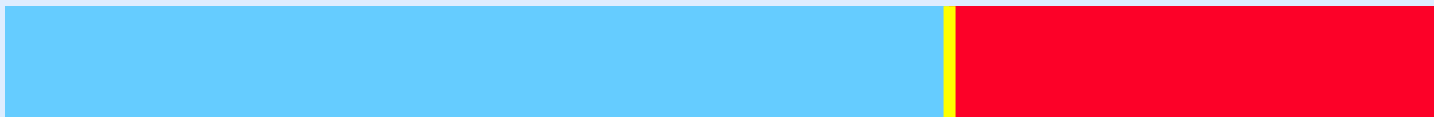
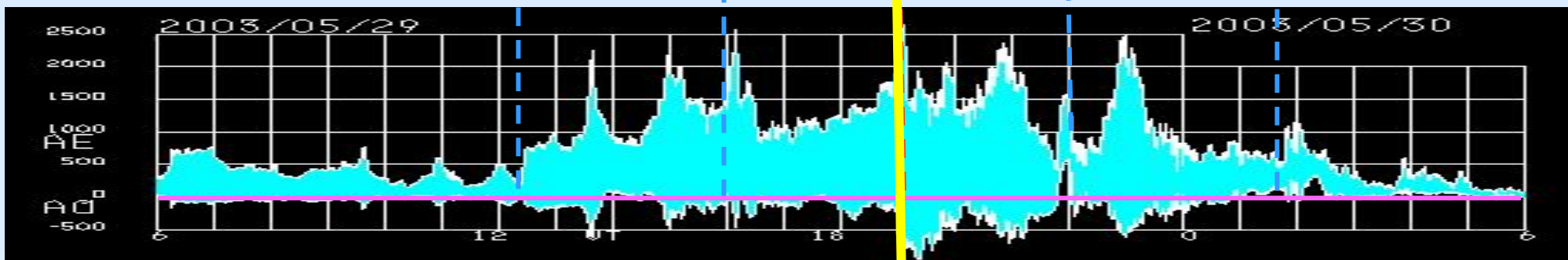
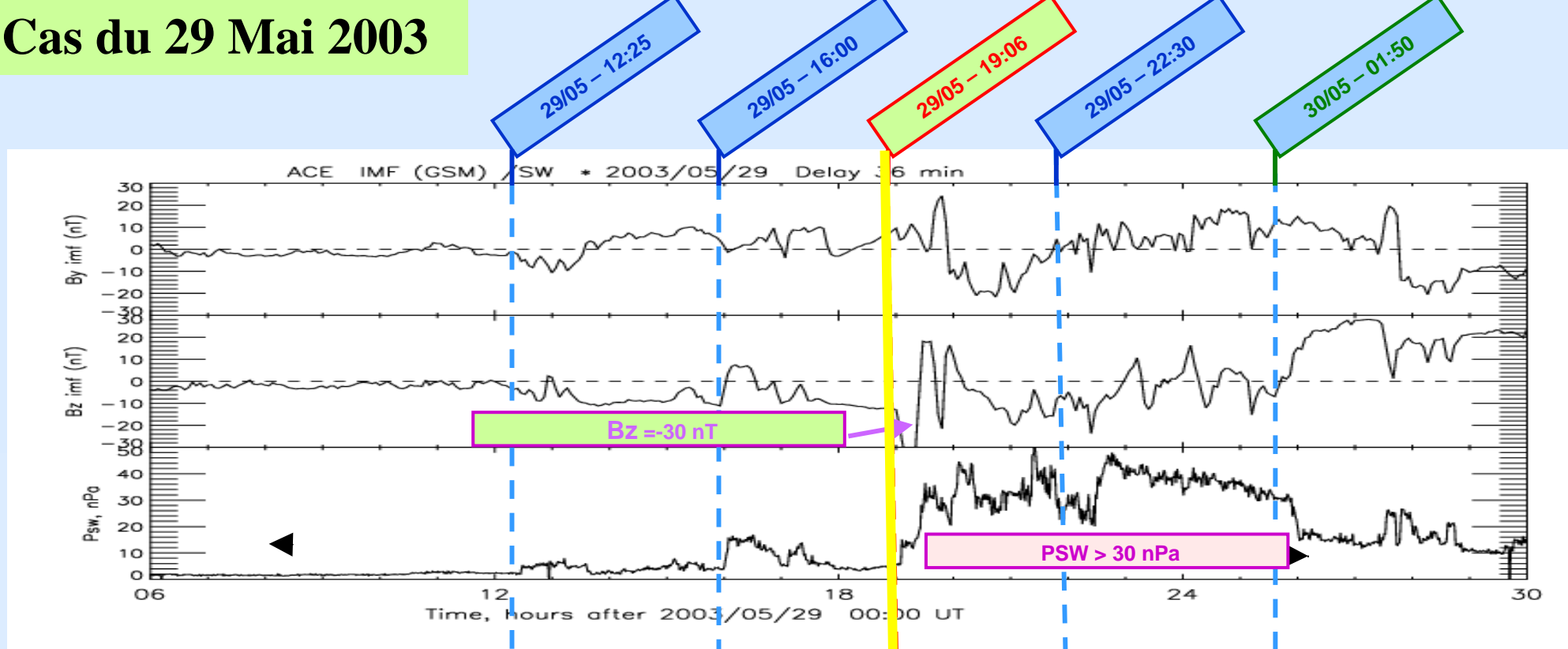
Christian Jacquey



# Plan

- **Accès aux données, services: quels sont besoins pour les plasmaciens?**
- **Quels sont les moyens actuels?**
- **Quels sont les projets en cours?**

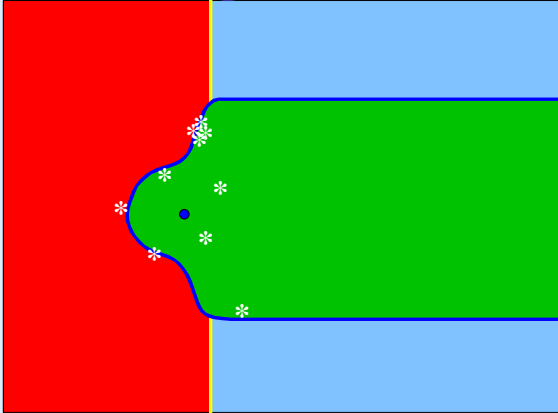
# Cas du 29 Mai 2003



# Différents types d'études

**Etude de phénomènes dynamique  $\Rightarrow$  le temps joue un rôle central**

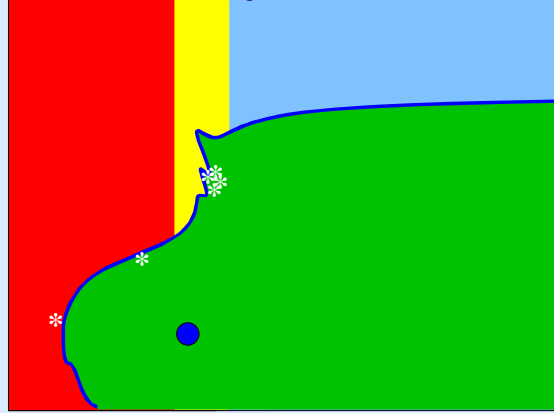
## Etudes à grande échelle



- Dynamique à grande échelle de la magnétopause
- Bilan des forces
- Bilan énergétique
- Propagation
- Couplage avec l'ionosphère

**Données BR**  
**Visualisation**  
**Timing**

## Etudes à moyenne échelle

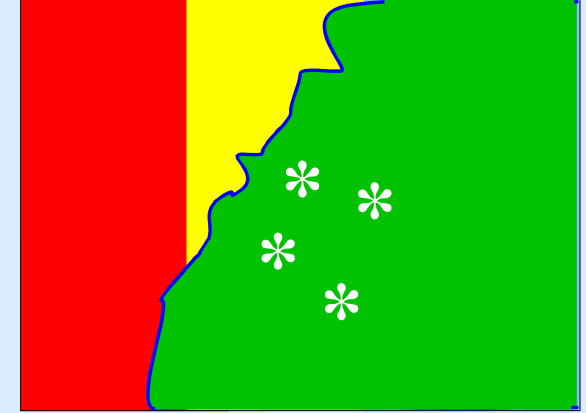


- Structures associées
- Transfert d'énergie, de masse, d'impulsion
- Mode propagatif
- Couplage avec l'ionosphère

**Données BR**  
**Données HR**  
**Outils d'analyse**  
**Modèles**

**Nécessite la connaissance de la grande échelle**

## Etudes à petite échelle



- Topologie locale
- Processus d'accélération
- Ondes
- Mécanismes de génération des structures

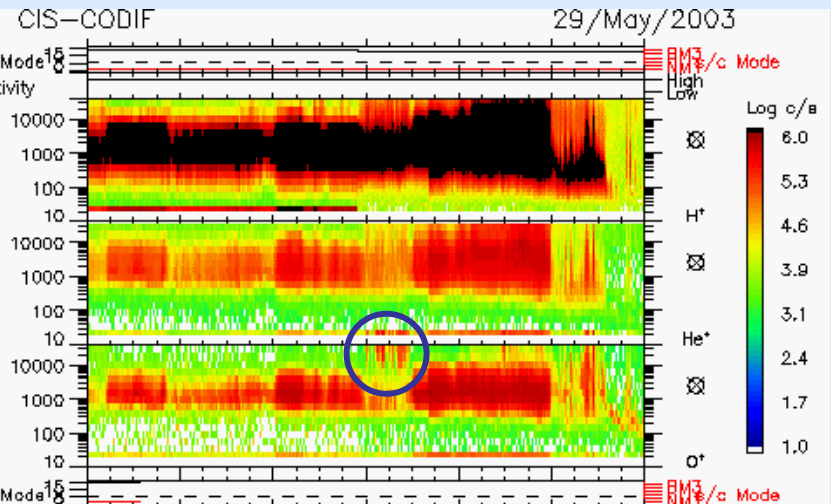
**Données BR**  
**Données HR et THR**  
**Outils sophistiqués**  
**Modèles**

**Nécessite la connaissance de la moyenne échelle**

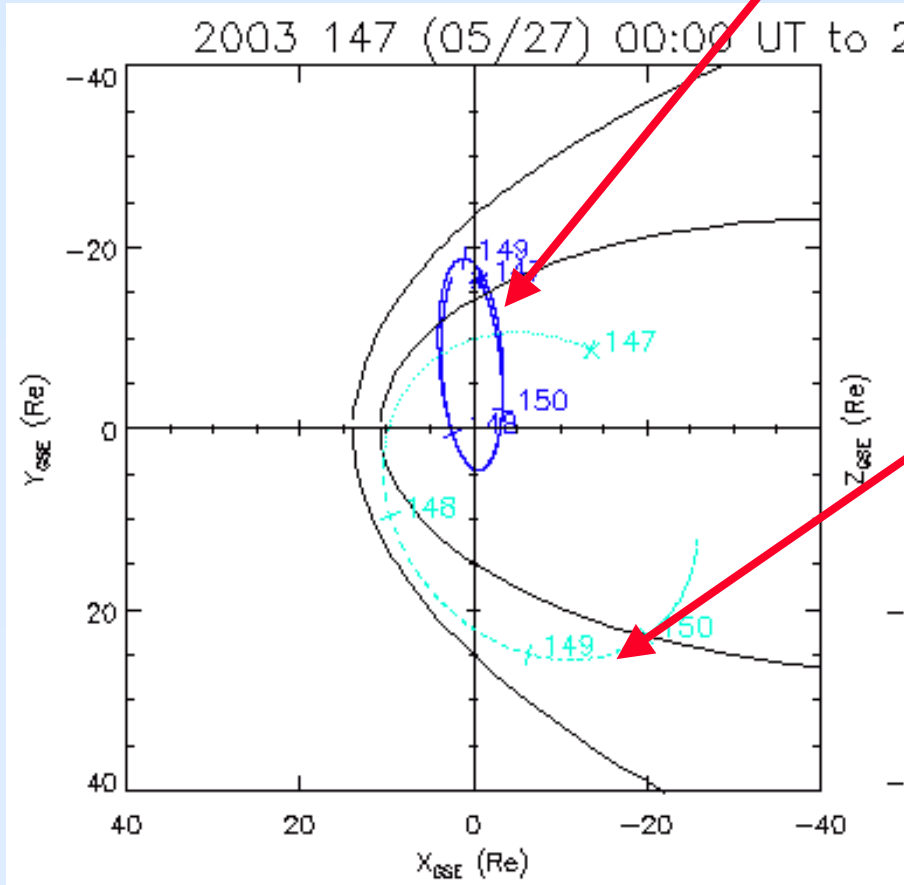
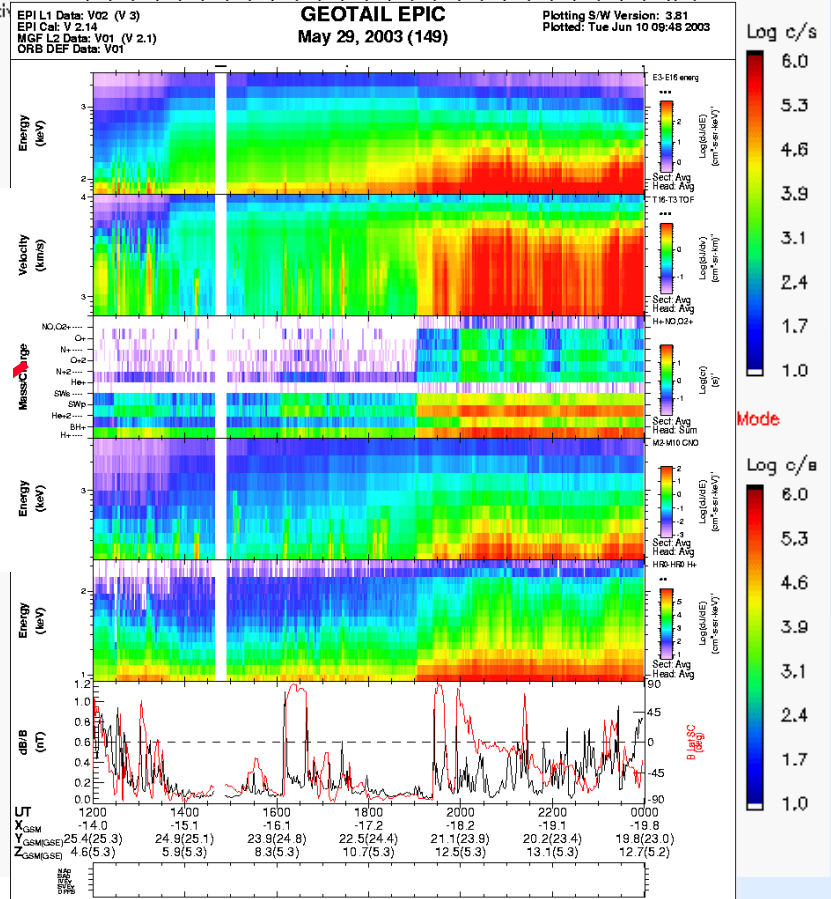


Par exemple, quel mécanisme pour la forte accélération des ions O<sup>+</sup> au passage du choc

CLUSTER



GEOTAIL



# Synthèse des besoins

- Utilisation de nombreux jeux de données:
  - Multi-points, espace et sol
  - Multi-instruments (E,B, plasma (e- et ions), particules énergétiques, particules basse énergie, Ondes E, Ondes B, imagerie aurorale VIS, UV, X, imagerie à atomes neutres, radars, ...)
  - In situ et télédétection
- Outils de traitement et d'analyse
- Accès à des résultats de simulation

# **Les moyens actuels**

# Accès aux données

- **Serveurs instruments**

(avec pour certains des web-services, des logiciels d'analyse ou de visualisation)

- **Centres de données**

Certains disposant d'une vaste base de données centralisées  
(avec en général, capacité de visualisation, et parfois l'accès à des modèles descriptifs)

- **Requête aux PI ou co-I**

Serveurs donnant  
accès à de vastes  
bases de données  
centralisées

Exemple:  
CDAWEB, Nasa



**GODDARD SPACE FLIGHT CENTER**  
Space Physics Data Facility

+ Goddard Home  
+ Visit NASA.gov

SEARCH NASA  + 60

+ SPDF HOME   + DATA & ORBITS   + MODELS   + RESOURCES   + RESEARCH   + EDUCATION

**CDAWeb**  
+ SPDF HOME  
+ FEEDBACK  
+ ABOUT CDAWEB

**CDAWeb Mirror Sites**  
+ RAL/UK  
+ MPE-Garching (partial)  
+ ISAS

**Guides and Tutorials**  
+ CDAWeb help

**Additional Services**  
+ Web Service Access to CDAWeb  
+ Anonymous FTP access to public CDAWeb database  
+ Data Format Translations

**Additional Resources**  
+ Usage Statistics  
+ PWG KP and Orbit Plots  
+ Space Physics Use of CDF  
+ Home Pages for ISTEP Investigations



**"CDAWeb Plus" Beta Release**

CDAWeb Plus is a new Java-based interface for integrated access to all existing SPDF services and public data including CDAWeb itself, SSCWeb, OMNIWeb, COHCWeb, ATMOWeb, ModeMWeb as well as the file-level holdings on the NSSDC and select other FTP sites. To access CDAWeb Plus, please go to

<http://sscweb.gsfc.nasa.gov/cdas/>

If you find this useful or have comments, concerns or problems, please contact CDAWeb Support.

**CDAWeb Data Views**

- Public data from current (1992 -> present) space physics missions (including Cluster, IMAGE, ISTEP, FAST, IMP-8, SAMPEX and others).
- Public data from missions before 1992 (including IMP-8, ISIS1/2, ISEE, Hawkeye and others).
- Public data from all current and past space physics missions
- Cluster Prime Parameters \*
- IMAGE view
- Collaborative Bow Shock Study \*
- Trapped Radiation Studies \*

\* Indicates that passwords are required for participating science team members.

 + NASA Privacy, Security, Notices

 Curator: Tami Kovalick, QSS Group Inc.  
NASA Official: Robert McGuire  
(301)286-7794, Robert.E.McGuire@nasa.gov  
Last Modified: 10/07/2005

If you find this useful or have comments, concerns or problems, please contact CDAWeb Support.

**Select one OR more Sources**  
(default = All unless no Instrument Types selected)

- ACE
- CRRES
- Cluster
- DMSP
- Equator-S
- FAST
- Genesis
- Geotail
- Helios
- IMAGE
- IMP (All)
- Interball
- Mariner
- OMNI (Combined 1 AU IP Data)
- Pioneer
- Polar
- Russian/USSR
- SAMPEX
- SOHO
- TIMED
- Ulysses
- Voyager
- Wind
- Geosynchronous Investigations>GOES
- Geosynchronous Investigations>LANL
- Ground-Based Investigations

**AND Select one OR more Instrument Types**  
(default = All unless no Sources selected)

- Activity Indices
- Electric Fields (space)
- Engineering
- Ephemeris
- Imaging and Remote Sensing (ITM/Earth)
- Imaging and Remote Sensing (Magnetosphere/Earth)
- Imaging and Remote Sensing (Sun)
- Magnetic Fields (space)
- Particles (space)
- Plasma and Solar Wind
- Radio and Plasma Waves (space)
- Ground-Based HF-Radars
- Ground-Based Imagers
- Ground-Based Magnetometers, Riometers, Sounders
- Ground-Based VLF/ELF/ULF, Photometers

~ 40 – 50  
observatoires

~ quinzaine de  
groupes de type  
de mesures



+ SPDF HOME + DATA & ORBITS + MODELS + RESOURCES + RESEARCH + EDUCATION

+ CDAWeb Home  
**CDAWeb**  
 + FEEDBACK

**Coordinated Data Analysis Web**

## CDAWeb Data Explorer

### Select start and stop times from which to GET or PLOT data:

Use pre-defined start/stop times

September 2005 Events 2005/09/07 00:00:00 2005/09/20 00:00:00

Use custom start/stop times

Start: 2003/05/27 00:00:00 (YYYY/MM/DD HH:MM:SS)

Stop: 2003/05/29 00:00:00 (YYYY/MM/DD HH:MM:SS)

### Select an activity:

Plot Data : select one or more variables from list below and press submit.

List Data (ASCII): select one or more variables from list below and press submit. (Works best for <31 days)

Download original CDFs : press submit button to retrieve list of files. (Max. 200 days - use [FTP site](#) for larger requests)

Create CDFs for download: select one or more variables from the list below and press submit. **NEW**

Get [CDFX](#) - IDL GUI plotting/listing toolkit software. To be used with either the daily or "created" CDF files available above. **NEW**

### Plotting Options

Use coarse noise filtering to remove values outside 3 deviations from mean of all values in the plotted time interval.

Double the Y-axis height for time-series and spectrogram plots.

Combine all time-series and spectrogram plots, for all requested datasets, into one plot file. **NEW**

Submit

Reset

### Variable parameters (required for Listing, Creating and Plotting data only)

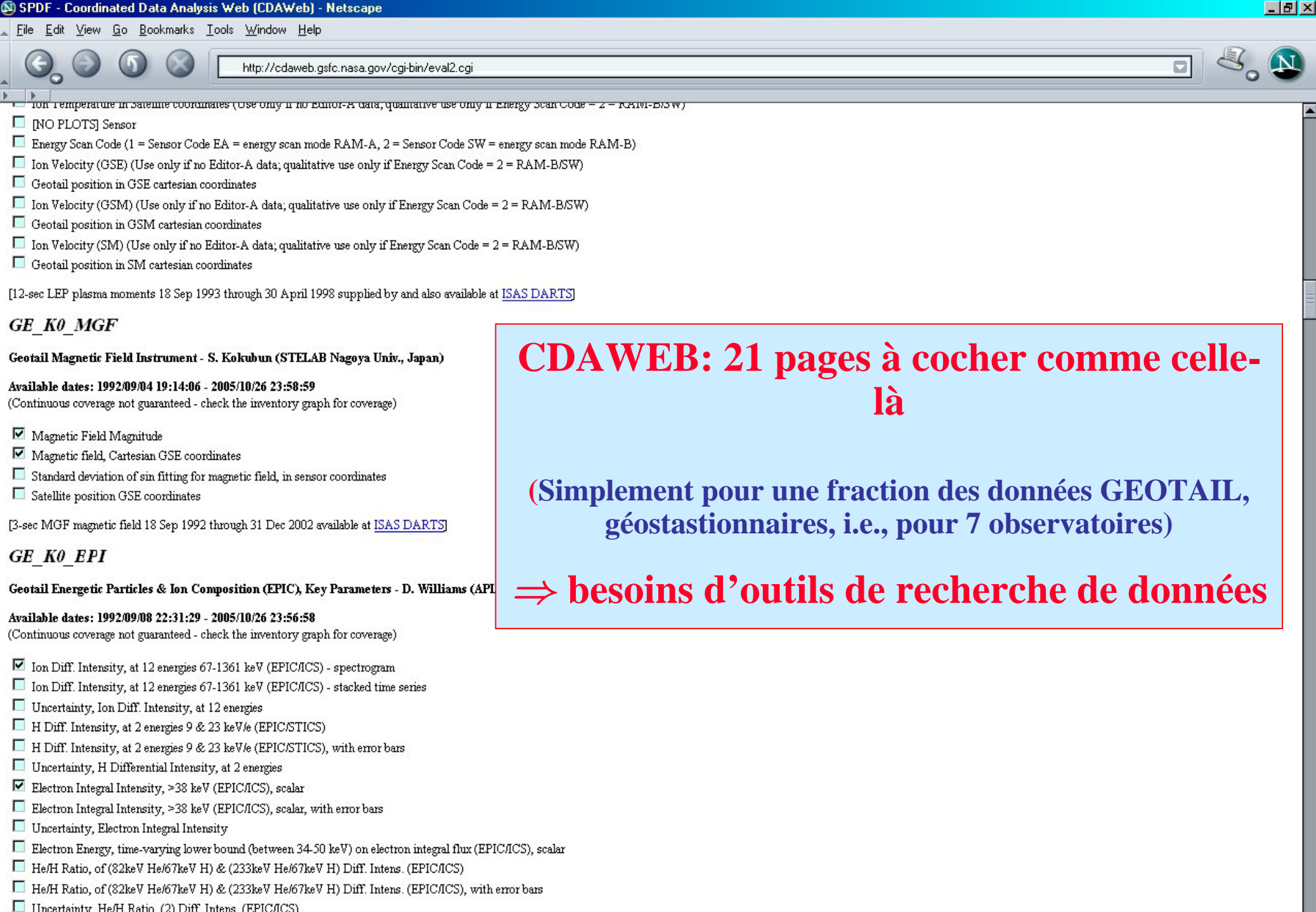
## AC\_K0\_MFI

ACE Magnetic Field 5-Minute Key Parameters [PRELIM] - N. Ness (Bartol Research Institute)

Available dates: 2004/07/01 00:00:00 - 2005/09/30 23:55:00

(Continuous coverage not guaranteed - check the inventory graph for coverage)

[PRELIMINARY VALUES - BROWSE USE ONLY] B-field magnitude



http://cdaweb.gsfc.nasa.gov/cgi-bin/eval2.cgi

- Ion Temperature in Satellite coordinates (Use only if no Editor-A data; qualitative use only if Energy Scan Code = 2 = RAM-B/SW)
- [NO PLOTS] Sensor
- Energy Scan Code (1 = Sensor Code EA = energy scan mode RAM-A, 2 = Sensor Code SW = energy scan mode RAM-B)
- Ion Velocity (GSE) (Use only if no Editor-A data; qualitative use only if Energy Scan Code = 2 = RAM-B/SW)
- Geotail position in GSE cartesian coordinates
- Ion Velocity (GSM) (Use only if no Editor-A data; qualitative use only if Energy Scan Code = 2 = RAM-B/SW)
- Geotail position in GSM cartesian coordinates
- Ion Velocity (SM) (Use only if no Editor-A data; qualitative use only if Energy Scan Code = 2 = RAM-B/SW)
- Geotail position in SM cartesian coordinates

[12-sec LEP plasma moments 18 Sep 1993 through 30 April 1998 supplied by and also available at [ISAS DARTS](#)]

### GE\_K0\_MGF

**Geotail Magnetic Field Instrument - S. Kokubun (STELAB Nagoya Univ., Japan)**

**Available dates: 1992/09/04 19:14:06 - 2005/10/26 23:58:59**  
(Continuous coverage not guaranteed - check the inventory graph for coverage)

- Magnetic Field Magnitude
- Magnetic field, Cartesian GSE coordinates
- Standard deviation of sin fitting for magnetic field, in sensor coordinates
- Satellite position GSE coordinates

[3-sec MGF magnetic field 18 Sep 1992 through 31 Dec 2002 available at [ISAS DARTS](#)]

### GE\_K0\_EPI

**Geotail Energetic Particles & Ion Composition (EPIC), Key Parameters - D. Williams (API)**

**Available dates: 1992/09/08 22:31:29 - 2005/10/26 23:56:58**  
(Continuous coverage not guaranteed - check the inventory graph for coverage)

- Ion Diff. Intensity, at 12 energies 67-1361 keV (EPIC/ICS) - spectrogram
- Ion Diff. Intensity, at 12 energies 67-1361 keV (EPIC/ICS) - stacked time series
- Uncertainty, Ion Diff. Intensity, at 12 energies
- H Diff. Intensity, at 2 energies 9 & 23 keV/e (EPIC/STICS)
- H Diff. Intensity, at 2 energies 9 & 23 keV/e (EPIC/STICS), with error bars
- Uncertainty, H Differential Intensity, at 2 energies
- Electron Integral Intensity, >38 keV (EPIC/ICS), scalar
- Electron Integral Intensity, >38 keV (EPIC/ICS), scalar, with error bars
- Uncertainty, Electron Integral Intensity
- Electron Energy, time-varying lower bound (between 34-50 keV) on electron integral flux (EPIC/ICS), scalar
- He/H Ratio, of (82keV He/67keV H) & (233keV He/67keV H) Diff. Intens. (EPIC/ICS)
- He/H Ratio, of (82keV He/67keV H) & (233keV He/67keV H) Diff. Intens. (EPIC/ICS), with error bars
- Uncertainty He/H Ratio (2) Diff Intens. (EPIC/ICS)

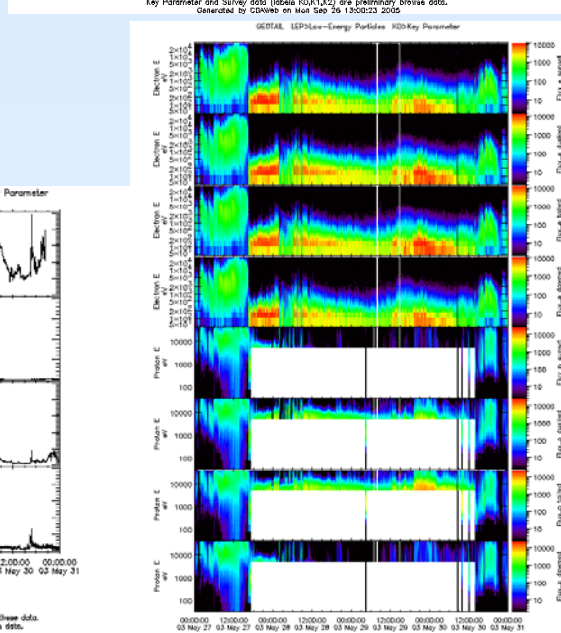
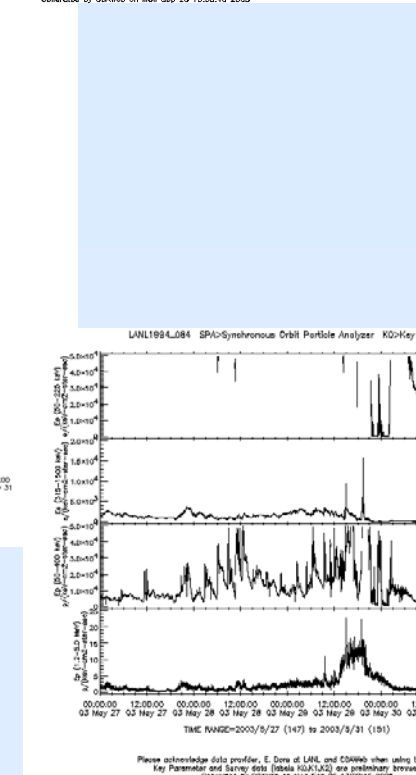
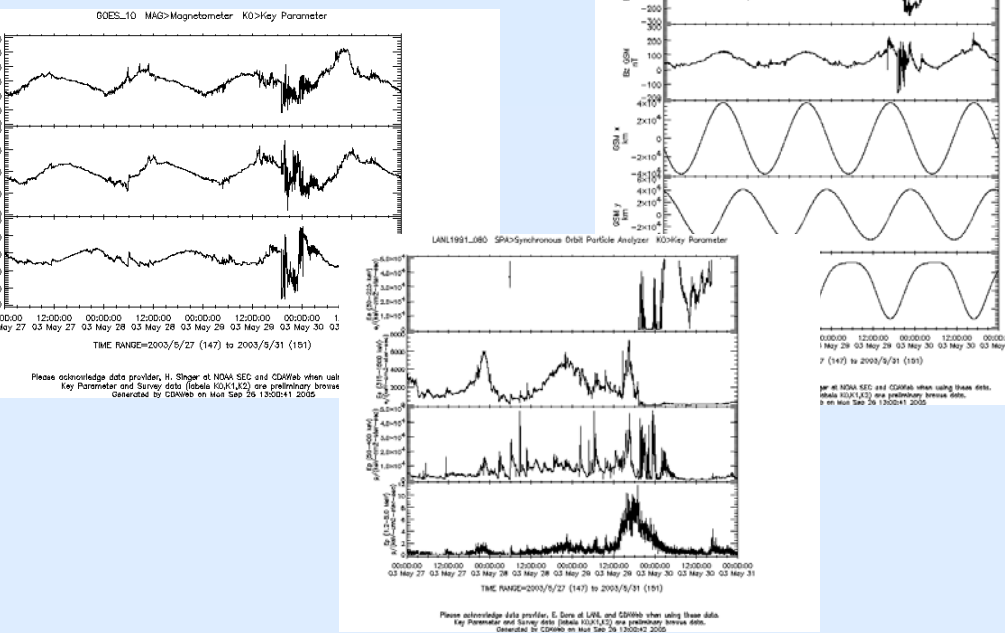
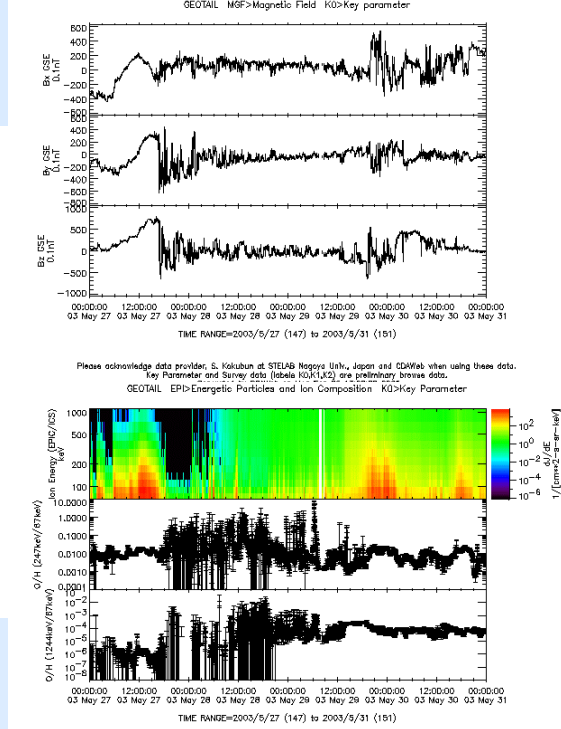
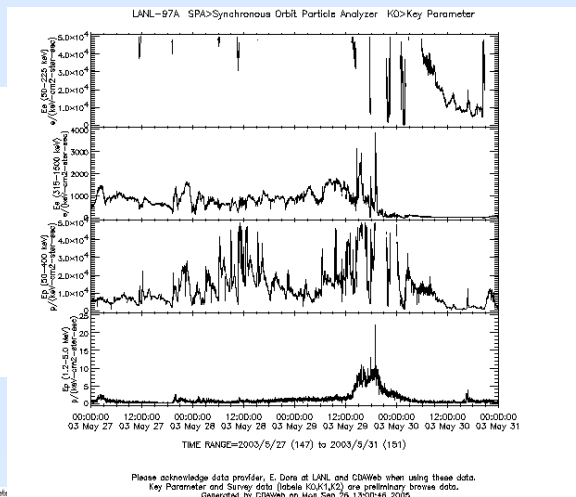
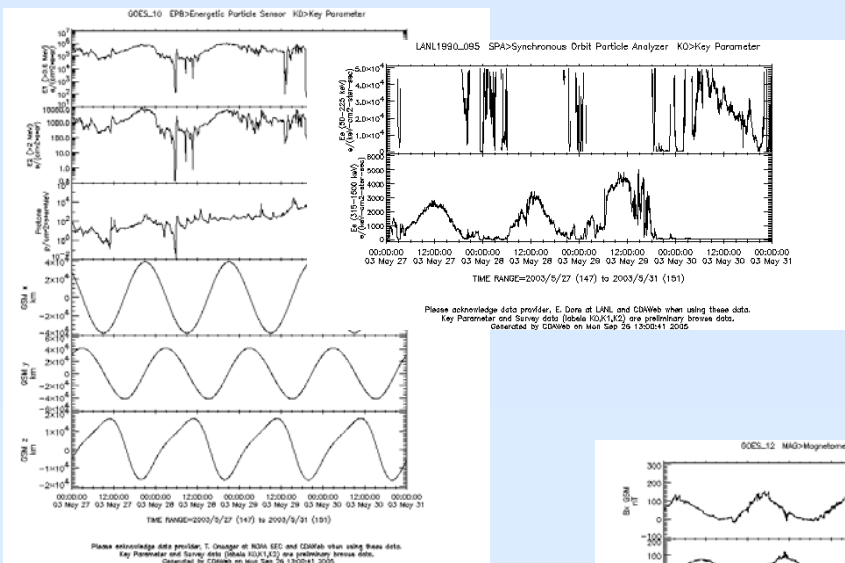
**CDAWEB: 21 pages à cocher comme celle-là**

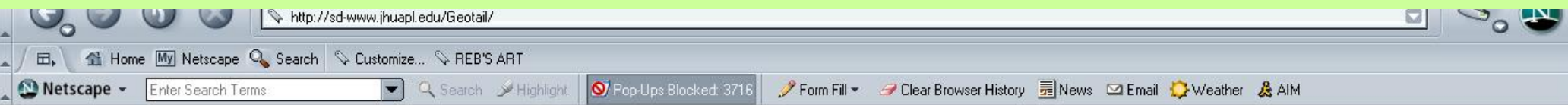
**(Simplement pour une fraction des données GEOTAIL, géostationnaires, i.e., pour 7 observatoires)**

**=> besoins d'outils de recherche de données**



# Vérification visuelle des données





## JHU/APL GEOTAIL/EPIC Science Data Center (SDC)

### Introduction

Welcome to the GEOTAIL/EPIC Science Data Center (SDC) Home Page.

The [SDC](#) is the central processing and analysis facility for the EPIC particle instrument, one GEOTAIL is the first mission to make extensive observations in the distant tail beyond the lunar region. GEOTAIL also has many orbital sections which run parallel to the magnetopause or to a near-Earth phase, with an orbit of 10x30 Re.

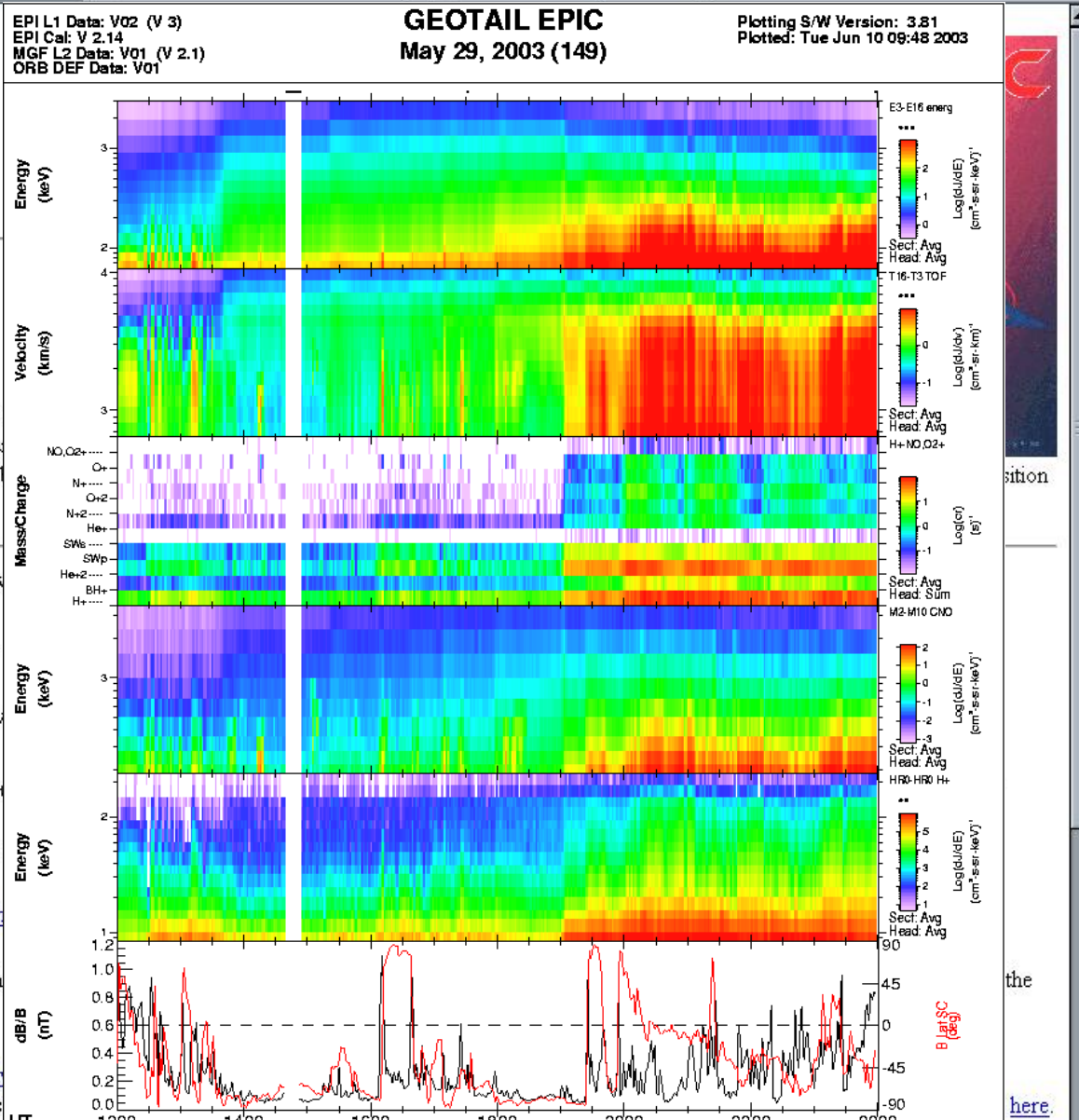
**Data Access:** Digital data for years 1992 through the present are available over the web. There are two distinct ways to access the digital data, and both methods give access to the highest time resolution Geotail/EPIC data.

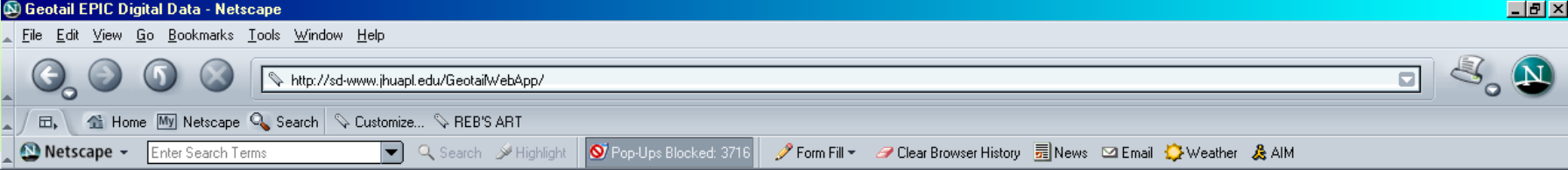
1. The first method allows a simple download of ASCII files.  
*With this method, simply fill out a web-based form and then you can click on the download button.*
2. The second method allows you to run custom software to plot and/or download data.  
*With this method, you can launch a Java program over the web which allows you to plot the data. This method has a steeper learning curve, but allows sophisticated plotting.*

[Click here to go to the Geotail/EPIC digital access page with links to both of the above methods.](#)

**NOTE:** Regardless of how you access the online digital data, please familiarize yourself with the [list of particle channels available in the EPIC dataset.](#)

For those already familiar with Geotail analysis, you may [click here to launch the MIDL analysis software.](#) All on-line digital data is of the highest time resolution. Please note that the web-based access





# Geotail/EPIC Digital Data

**To obtain digital data, follow these steps:**

1. Choose a time format and enter a time range.  
NOTE: because this is high time resolution data, requests are limited to 2 days of data at one time.
2. Select one or more channels.
3. Click the "Get Data Files" button near the top or bottom of the page.

After clicking submit, you will then be taken to a new page where you can download separate files for each particle channel you have selected. (There is also an option to download all files bundled together.) The files will cover exactly the time range you have specified.

**Step 1: choose a time format and enter a time range.**

Time Format:

Start Time:

End Time:

Time may be in any of these formats:  
 Year:DayOfYear hr:min:sec      Example: 1998:102 15:37:59  
 Year/Month/Day hr:min:sec      Example: 1998/4/12 15:37:59

Note: There must be a space or other separator between each number.  
 Actually, any of these separators will work: spaces, colons (:), slashes(/), or commas (.).  
 Note: you may just put the date, leaving off the time. Any omitted time fields are assumed to be zero.  
 Any omitted day or month numbers are assumed to be 1.

**Step 2: Choose one or more particle channels.**

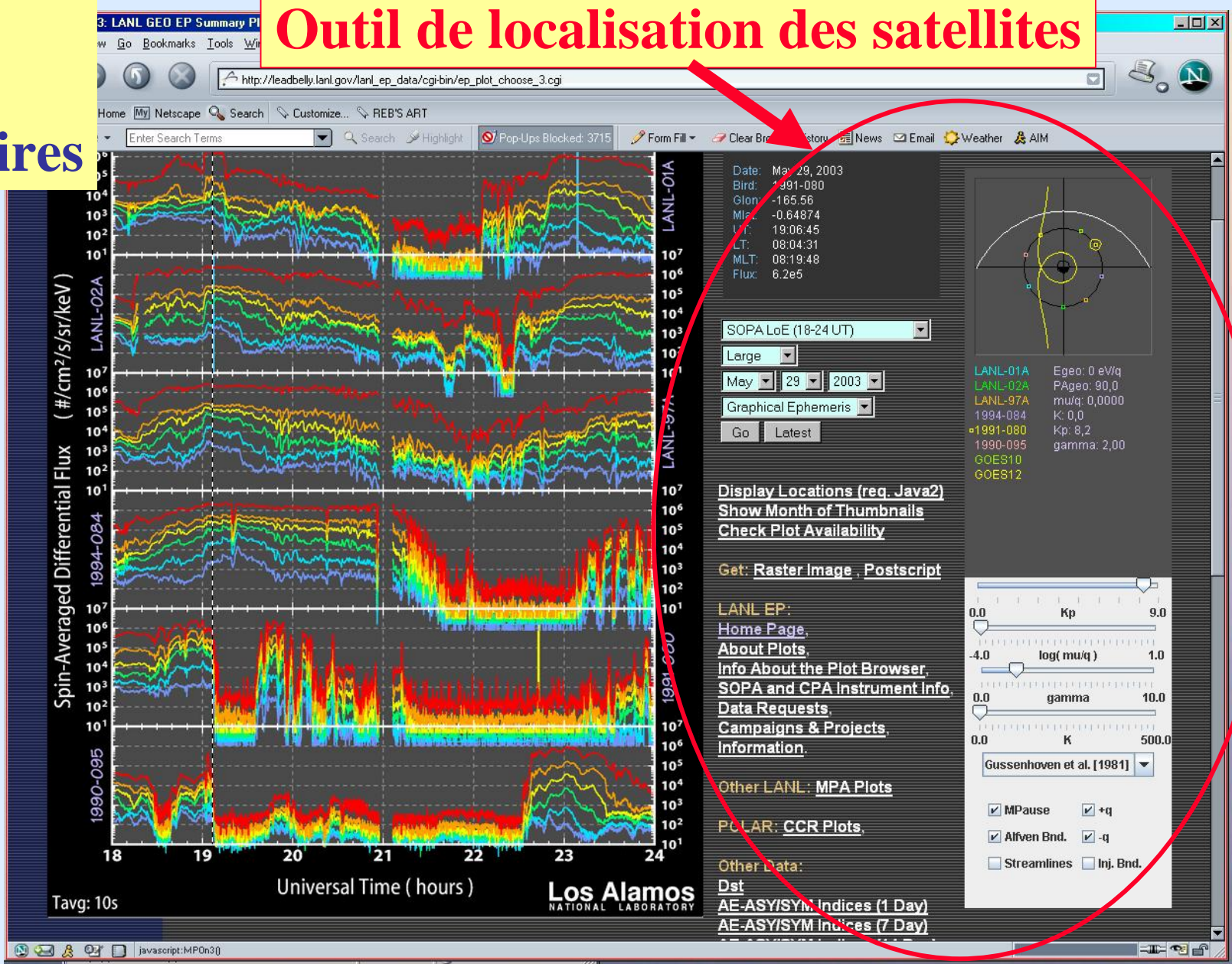
Group Name	Channel Name, Detector Head, Typical Composition, and Energy Range
Group: ICS-ED <input type="checkbox"/> select all channels in this group	<input type="checkbox"/> ED1-H1OF1, ICS, e-, Energy Range: 38.0 to -1.0 <input type="checkbox"/> ED2-H1OF1, ICS, e-, Energy Range: 110.0 to -1.0
Group: ICS-E <input type="checkbox"/> select all channels in this group	<input type="checkbox"/> E0-H1OF2, ICS, ions, Energy Range: -1.0 to 45.0 <input type="checkbox"/> E0-H2OF2, ICS, ions, Energy Range: -1.0 to 45.0 <input type="checkbox"/> E1-H1OF2, ICS, ions, Energy Range: 45.0 to 52.7 <input type="checkbox"/> E1-H2OF2, ICS, ions, Energy Range: 45.0 to 52.7





LANL  
Données  
géostationnaires

Outil de localisation des satellites



# CDPP: outils de recherche de données

**Centre de Données de la Physique des Plasmas**  
**Plasmas Physics Data Centre**

Informations

- A propos du CDPP
- Calendrier des conférences
- Serveurs utiles
- Bulletins
- Initiation à la Physique des Plasmas
- Licence d'utilisation
- Démonstration en ligne
- Première visite

Données Archivées

- Rechercher et commander des données
- Suivre vos commandes
- Mission/Experience/Jeux
- Etat des commandes
- Période/Mot clé
- Récupération des fichiers commandés

Consulter

- Imagettes
- Documents, Bibliothèques, Indices
- Tables d'évènements
- S'enregistrer
- Première fois
- Modification de coordonnées
- Modification du mot de passe

**CNRS** **INSU** **CNES**



## Temporal Selection

1975/01/01 2005/12/31

Modify temporal selection

Retrieve saved selections

**Keyword Selection:**click on one or several hereafter values :

Keyword	Values
LOCATION	EXOSPHERE FORESHOCK GROUND HIGH LATITUDE IONOSPHERE HIGH LATITUDE MAGNETOSPHERE INNER MAGNETOSPHERE
PARAMETERS GROUP	CHARGED PARTICLES MAGNETIC AND ELECTRIC FIELDS RADIANCE AND IMAGERY SPACECRAFT
PARAMETERS	HEAT FLUX HOUSE_KEEPINGS IONS MAGNETIC FIELDS (DC) MAGNETIC WAVE SPECTRA (AC) MAGNETIC WAVEFORM (AC)
MISSION	CLUSTER DEMETER EISCAT GEOMAGNETIC_INDICES GEOS INTERBALL
EXPERIMENT	CP2 CP3 CP4 CP6 CP7 DOR-2

### your current selection

*(the applied selection will be the one below)*

```
PARAMETERSGROUP : CHARGED  
PARTICLES  
LOCATION : INNER MAGNETOSPHERE  
MISSION : CLUSTER
```

Reset keyword selection

Back

Search for data sets



# Accès à des outils de traitement et d'analyse



QSAS: The QM Science Analysis System for Cluster - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.space-plasma.qmul.ac.uk/QSAS/qsas\_welcome.html

Home My Netscape Search Customize... REB'S ART

Netscape Enter Search Terms Search Highlight Pop-Ups Blocked: 3716 Form Fill Clear Browser History News Email Weather AIM

 [Space Plasma Group, Astronomy Unit](#)  
[Queen Mary](#)  
Mile End Road, London E1 4NS, UK

 Queen Mary  
University of London

## QSAS: The QM Science Analysis System for Cluster

### Introduction

QSAS current version is 2.1.02. It provides the new calculator window to perform join and arithmetic operations on the fly with operator chaining. Better spectrogram plotting, array slicing and summing as well as conversion of units to base SI and other equivalent units. This version supports Cluster Active Archive standard file syntax (CEF 2). Details are available in the [Development Table](#).

QSAS is a software package which provides a flexible, extendable environment for the selection, manipulation, and display of space physics data.

QSAS is written in C/C++ and is compiled for Sun/Sparcstations running Solaris 2.7 and X11R5 as well as Linux under Mandrake. Graphical output/display uses the free third party package PGPLOT. QSAS is shipped as a source distribution, but binaries are provided for a few platforms. When using the binary distribution it is possible to run QSAS without installing the third party utilities (see the [QSAS Installation Notes](#) for details).

### Finding out about QSAS

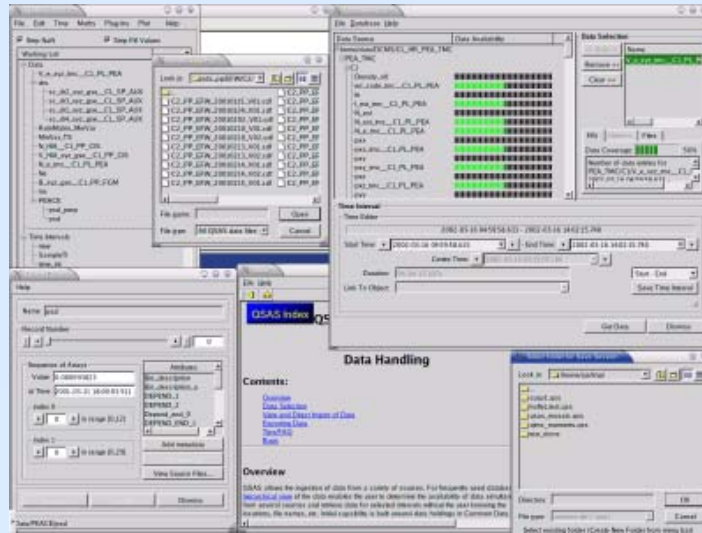
- [QSAS Help Pages](#) contains more detailed information about QSAS capabilities.
- [QSAS Screen shots](#) shows the major functionality in use.
- [Sample Session](#) is a tar file of a sample QSAS session to help get a feel of the system. This file should be also shipped with the distribution. If it is not available in your installation (named SampleSession), extract the tar archive in the QSAS\_HOME/tmp directory and open from the QSAS 'File/Restore Session' menu.
- [Some Notes on Writing QSAS Plug-ins](#) provides guidance for users with personal analysis routines to enable them to receive data from and return data to QSAS via the dynamic QSAS Plug-in Interface. Also available as a [pdf](#) file.

Other specifications can be found within the various items supplied with QSAS.

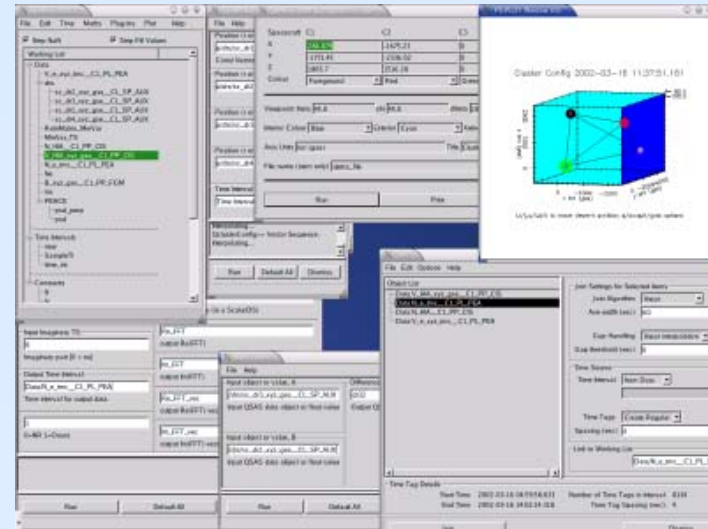
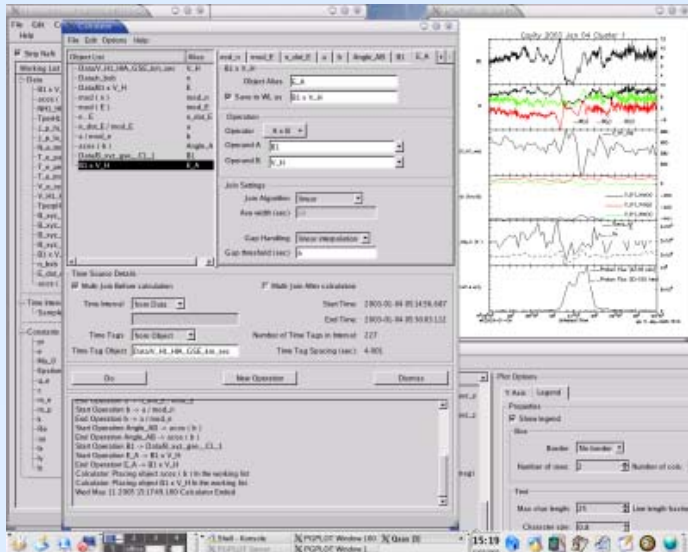
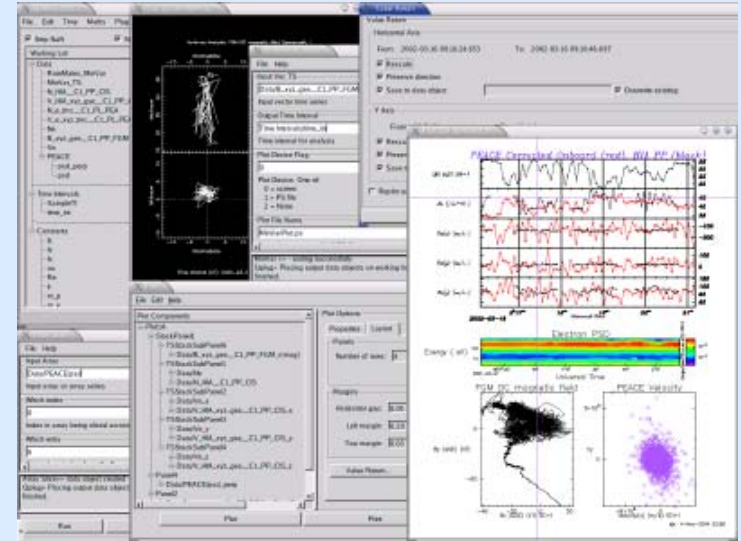
### Obtaining QSAS

# QSAS

## Traitement, mise en forme des données



## Visualisations sophistiquées



Calculs, analyse, traitement de signal  
outils spécifiques, analyse tensorielle

Possibilité d'implémentation  
de plug-ins utilisateur



# Accès à des résultats de simulation

The Community Coordinated Modeling Center - Netscape

File Edit View Go Bookmarks Tools Window Help

http://ccmc.gsfc.nasa.gov/

Home My Netscape Search Customize... REB'S ART

Netscape Enter Search Terms Search Highlight Pop-Ups Blocked: 3716 Form Fill Clear Browser History News Email Weather AIM

## The Community Coordinated Modeling Center

NASA AFMC AFOSR AFRL AFWA NOAA NSF ONR



- [About Us](#)
- [Space Weather Models at CCMC](#)
- [Request A Model Run](#)
- [View Model Run Results](#)
- [Real Time Simulations](#)
- [Community Feedback](#)
- [Related Links](#)
- [Frequently Asked Questions](#)
- [Site Map](#)



# CCMC

*"A multi-agency partnership to enable, support and perform the research and development for next generation space science and space weather models"*

Curator: [Ms. Anna Chulaki](#)  
NASA Official: [Dr. Michael Hesse](#)

[Privacy, Security, Notices](#)



[Email CCMC](#)

# CCMC: préparation de la requête

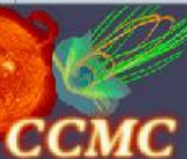
The Community Coordinated Modeling Center - Netscape

File Edit View Go Bookmarks Tools Window Help

http://ccmc.gsfc.nasa.gov/


Home My Netscape Search Customize... REB'S ART

Netscape Enter Search Terms Search Highlight Pop-Ups Blocked: 3716 Form Fill Clear Browser History News Email Weather AIM



## The Community Coordinated Modeling Center

NASA AFMC AFOSR AFRL AFWA NOAA NSF ONR



- Home
- View Run Results
- Search Simulation Results Database
- Special Sun-Earth Connection Events
- 3D VRML Output for Selected Events
- Sitemap

### 3D Simulation Results: Model: OpenGGCM Run: Victor\_Sergeev\_101005\_2

This is the web interface for the visualization of results of a three-dimensional simulation of the Earth's environment.

Please review the [default selections](#) below and make your changes.

To start the graphics program click the *Update Plot* button. The resulting image will be displayed at this location of the page.

Should the result be a black image, then the *graphics* program encountered a programming error. Please report the set of input parameters used.

*Update Plot* will update (generate) the plot with the chosen time and plot parameters below.  
**This will take some time (typically 10-30s) as data is read in and processed.**

**Choose data time:**  
Date: 2001/10/20 Time: 11:00:00

- or -

**Change time** by moving  
-1 output steps

**Plot Options:**

- Exclude region around the Earth up to 6  $R_E$
- Image magnification** (all images; use  $\geq 1.25$  for 3D flowlines):  
1
- Allow variable plot image size (2D plots, aspect ratio (ratio  $dx/dy$  of plot) between 0.3 and 4)
- Show simulation grid (disabled with 3D-Surface)
- Interpolate data onto equidistant grid  
(available with 3D-Surface and Vector recommended for plots with Vector)

Choose **Plot Mode:** Choose [quantity](#) to be displayed (some **Plot Modes** require up to three



# CCMC: résultats

http://ccmc.gsfc.nasa.gov/

Home My Netscape Search Customize... REB'S ART

Netscape Enter Search Terms Search Highlight Pop-Ups Blocked: 3716 Form Fill Clear Browser History News Email Weather AIM

**The Community Coordinated Modeling Center**

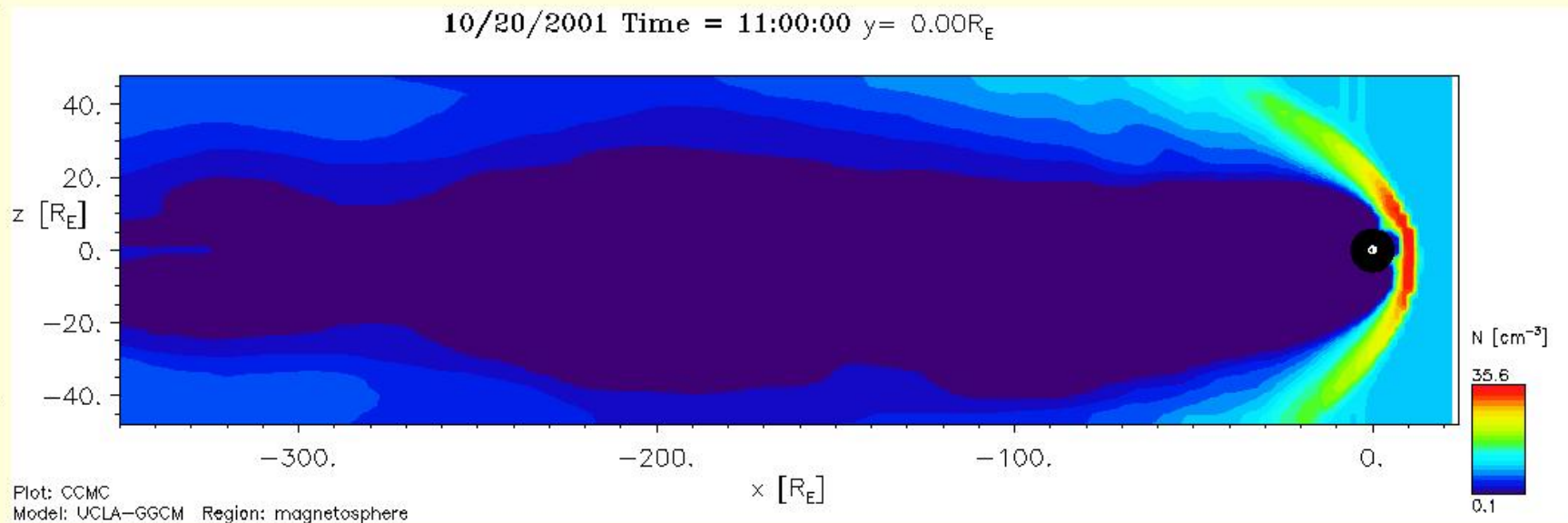
NASA AFMC AFOSR AFRL AFWA NOAA NSF ONR



- Home
- View Run Results
- Search Simulation Results Database
- Special Sun-Earth Connection Events
- 3D VRML Output for Selected Events
- Sitemap

Curator: Ms. Anna Chulaki  
NASA Official: Dr. Michael Hesse

[Privacy, Security, Notices](#)



**Figure: Simulation of the Solar Wind flow around the Earth.**

**Model: OpenGGCM**

**Run: Victor\_Sergeev\_101005\_2**

To track usage for our government sponsors, we ask that you notify [CCMC staff](#) whenever you use CCMC results in a scientific publication or presentation. Thank you.

*Update Plot* will update (generate) the plot with the chosen time and plot parameters below.

**This will take some time (typically 10-30s) as data is read in and processed.**

Plot Options:

Exclude region around the Earth up to   $R_E$

Choose data time:

Image magnification (all images; use  $\geq 1.25$  for 3D flowlines):

# Projets en cours

# SPASE (1)

## SPASE, Space Physics Archive Search and Extract

- Une organisation en vue de gérer l'ensemble :
  - Standards des données
  - Standards des métadonnées
  - Déploiement
- Des centres de données prêts à collaborer activement :  
CAA, CDPP, RAL, NSSDC, SRI  
(ESA, France, UK, USA , USA)  
+ accrétion en cours (Japon, Europe, USA)

# SPASE (2)

- Définition du dictionnaire des méta-données:  
version 1.0 sur le point d'être finalisée
- Définition du modèle des données
- La phase d'expérimentation devrait commencer

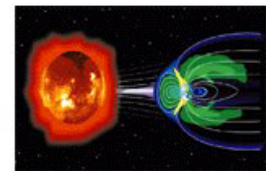
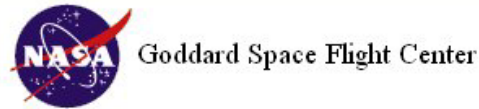
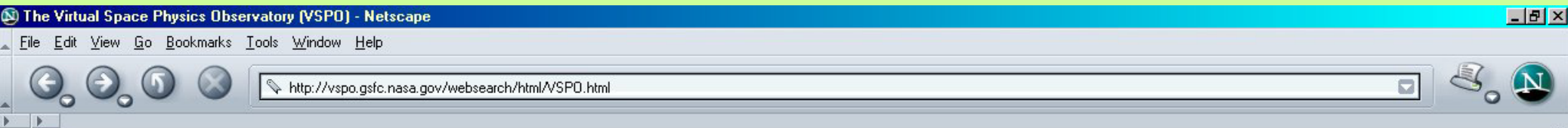
## **Difficultés:**

pas de format de fichiers standard

les données restent très hétérogènes

grande variabilité dans l'approche des données

# VSPO: Virtual Space Physics Observatory (1)



## The Virtual Space Physics Observatory

Funded by NASA's Living With a Star Targeted Research and Technology Program,  
with seed funding from the Applied Information Systems Research Program

PI: D. Aaron Roberts, NASA GSFC

Software Developer: Aaron Smith, Aquilent

Content Development: Joe King, QSS

Data Model Development: [The SPASE collaborative](#)

Many thanks to: The LWS Ad Hoc Data Environments Working Group, Members of the [VHO](#), SRAS, [VSO](#), [SPDML](#), [EGSO](#), [CoSEC](#), and [MIDL](#) teams, various people at [NSSDC/SPDF](#), and many others.

[Click here to find Space and Solar Physics Products \(Data, Plots, Images\)](#)

### What is VSPO?

Current plans at both the NASA and the community wide Sun-Earth connection level include making data easily available from all missions relevant to the global problem of the effects of solar particles and fields on the Earth. The VSPO is an evolving system for accomplishing this task. The basic philosophy, shared with the Virtual Solar Observatory and many other such projects, is to register data products from disparate repositories using a common language that allows searching across datasets in a uniform way.

### First Step: A Space and Solar Physics Product Site Finder

For our first instance of a VSPO, we have developed [Space Physics Product Site Finder](#) - a website that allows users to quickly find data files (e.g., on an ftp site) and interfaces to data from a wide variety of missions. The goal of the Site Finder is to provide a direct link to data and mission/instrument sites. The Site Finder interface enables the user to formulate complex queries and quickly find the desired data products. The user has an option to construct queries using a specific set of dictionary terms, or by using the text search feature. We have initially populated the Site Finder using publicly available information on many products. We have not been nearly as complete as we would like in our descriptions. Any changes you wish to make should be sent to us by [e-mail](#).



# VSPO: Virtual Space Physics Observatory (2)

Space and Solar Physics Product Finder - Netscape

File Edit View Go Bookmarks Tools Window Help

http://vsपो.gsfc.nasa.gov/websearch/dispatcher

## Space and Solar Physics Product Finder

Virtual Space Physics Observatory



click above to return to the general page  
**contact us**

- VSPO Guide
- Journal Search (NASA ADS)
- Space Weather (LWS)
- Heliocentric Orbits (HeliWeb)
- Geocentric Orbits (SSCWeb)

**Text search:**



**Time-range:**

If the ending date is omitted, present time will be assumed. The time range of matched products will intersect the specified time range.

YYYY MM DD YYYY MM DD












**Current product list restrictions:**

None

- Click the element name to search on:**
- Measurement type** - The category of the measurement, roughly corresponding to the type of instrument used.
  - Observatory** - The spacecraft or station that made the observations recorded in the product.
  - Storage repository** - Identifies the repository where the product is located.
  - Project** - Describes a collection of observatories, grouped for convenience (e.g., GOES for all the numbered satellites).
  - Instrument** - Identifies names and abbreviations of the instrument.
  - Product type** - Identifies the product type, such as numerical data or images.
  - Resolution** - Number of seconds between readings.
  - Observatory region** - A region occupied by the observatory in the course of its orbit.
  - Observed region** - The main region imaged. Applicable to remote sensing products.
  - Spectral range** - Distinguishes the spectral range of the photons involved in the observations.
  - Time-span** - The overall time range in which data were gathered (ignoring gaps). Allows to select comparison method.
  - File format** - The file format of the data product, e.g., as a CDF, HDF5, or IDFS file.
  - Access rights** - The permitted level of use for the product.

Product list		
#	Product name	Access URL
1	ACE 27-day Survey Plots	• Polar-Wind-Geotail 'gif-walk' site
2	ACE Daily Survey Plots	• Polar-Wind-Geotail 'gif-walk' site
3	ACE GSE 12-min Position Data	• in CDF via ftp from CDAWeb • Satellite Situation Center • CDAWeb <input type="button" value="get data"/>
4	ACE MAG 1-hr Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb
5	ACE MAG 1-hr magnetic field data	• ACE Science Center (ASC) • in HDF via ftp from ASC • CDAWeb <input type="button" value="get data"/> • in CDF via ftp from CDAWeb • in ASCII via ftp from NSSDC
6	ACE MAG 16-s Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb <input type="button" value="get data"/>
7	ACE MAG 4-min magnetic field data	• ACE Science Center (ASC) • CDAWeb <input type="button" value="get data"/> • in CDF via ftp from CDAWeb • in ASCII via ftp from NSSDC
8	ACE MAG 5-min Key Parameter (recent) data	• in CDF via ftp from CDAWeb • CDAWeb <input type="button" value="get data"/>
9	ACE MAG SWEPAM 4-min merged IMF+plasma data	• NSSDC/FTPBrowser with subset, graphical display and listing options • ACE/MAG/SWEPAM 4-min data in ASCII via ftp
10	ACE MAG SWEPAM 64-s merged IMF+plasma data	• ASC interface with subset, graphical display and listing options • ACE/MAG/SWEPAM L2 data in HDF via ftp



# VSPPO: Virtual Space Physics Observatory (3)

Location: [http://cdaweb.gsfc.nasa.gov/tmp/AC\\_H1\\_MFI\\_-15218c6a\\_1074c1dc4e5\\_-7fef\\_000.gif](http://cdaweb.gsfc.nasa.gov/tmp/AC_H1_MFI_-15218c6a_1074c1dc4e5_-7fef_000.gif)  
 Width: 640px  
 Height: 1430px  
 Size of File: 26.41 KB (27046 bytes)  
 Alternate text: *Missing*

Browser History News Email Weather AIM

Virtual Space Physics Observatory



click above to return to the general page  
[contact us](#)

## Text search:

## Time-range:

If the ending date is omitted, present time products will intersect the specified time range.

YYYY MM DD YYYY MM

## Current product list restrictions:

None

## Click the element name to search on:

**Measurement type** - The category of the instrument used.

**Observatory** - The spacecraft or station.

**Storage repository** - Identifies the repository.

**Project** - Describes a collection of observations (the numbered satellites).

**Instrument** - Identifies names and abbreviations.

**Product type** - Identifies the product type.

**Resolution** - Number of seconds between observations.

**Observatory region** - A region occupied by the spacecraft.

**Observed region** - The main region imaged.

**Spectral range** - Distinguishes the spectral range of observations.

**Time-span** - The overall time range in seconds. Select comparison method.

**File format** - The file format of the data.

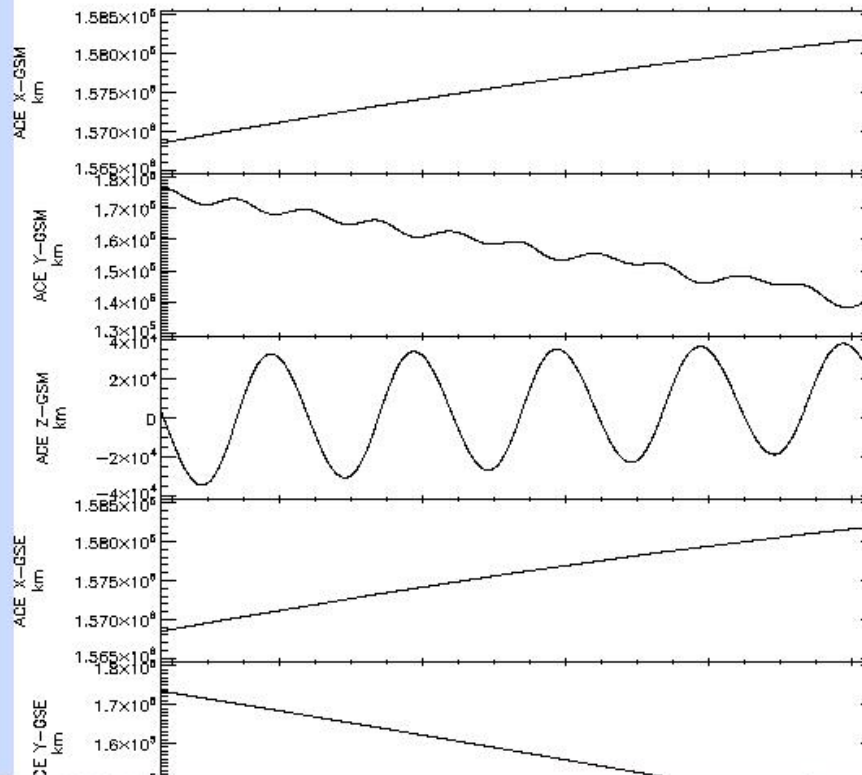
**Access rights** - The permitted level of access.

CDAW accessor results - Netscape

## ACE MAG 4-min magnetic field data

### Images

AC MAG>ACE Magnetic Field Instrument H1>4-Min Level 2 Data



Geotail 'gif-walk' site

Geotail 'gif-walk' site

to from CDAWeb

ation Center

[get data](#)

to from CDAWeb

Center (ASC)

to from ASC

[get data](#)

to from CDAWeb

ftp from NSSDC

[get data](#)

to from CDAWeb

Center (ASC)

to from CDAWeb

[get data](#)

ftp from NSSDC

to from CDAWeb

[get data](#)

rowser with subset, graphical  
 sting options

WEPAM 4-min data in ASCII via

e with subset, graphical  
 sting options

WEPAM L2 data in HDF via ftp

11 ACE SIS 1-Hr Key Parameter Data

in CDF via ftp from CDAWeb

• CDAWeb

[get data](#)

12 ACE SWEPAM 5-min Key Parameter (recent)


• in CDF via ftp from CDAWeb




# **VSPO: Virtual Space Physics Observatory (4)**

- **VSPO fournit un très vaste « annuaire » des données et des serveurs permettant d'y accéder**
- **VSPO n'est pas encore inter-opérant mais s'y prépare en s'appuyant sur SPASE**

# Quelques rares liens inter-opérants (exemple: CDPP ⇒ SSCWEB)












User Search Order Other

 **Data Sets Explorer**

Datasets archived at CDPP are listed below (organised by missions then experiments or instruments).  
The global archive time range of each dataset is provided (to view a detailed data inventory click at [experiment](#) or [dataset](#) level).  
The ,  and  icons give direct access to documents, quicklooks and events tables related to a specific dataset.  
To request data, select one or several datasets, optionally define a time span, and click "Order" button.  
"Plot Satellite Orbits" button provides the ability to plot the orbits of one or several satellites.

[Expand All / Shrink All](#)

**Select Data Sets**

-  ARCAD-3 Mission ([documents](#))
-  CLUSTER Mission ([documents](#)) ([quicklooks](#))
-  DEMETER Mission ([documents](#))
-  European GEOS Mission ([documents](#))
-  INTERBALL Auroral and Tail Mission ([documents](#))
-  ISEE3/ICE Mission ([documents](#))
-  ULYSSES Mission ([documents](#))
-  Swedish VIKING Mission ([documents](#))
-  WIND Mission ([documents](#))
-  EISCAT Radars ([documents](#))
-  Geomagnetic Indices ([documents](#))


**Time span selection**

Format: **YYYY/MM/DD[-[HH]:MM[:SS]]**  
Example: 1997/01/01-01:01:00 or 1997/01/01

Start Date and Stop date have to be separated by at least by a space character " " and one time interval per line is requested.


1975/01/01-00:0

[Order Selected Data Set\(s\)](#) [Plot Satellite Orbits](#)

 Centre de Données de la Physique des Plasmas

Plot Satellite Orbits - Netscape

File Edit View Go Bookmarks Tools Window Help

 **Plot Satellite Orbits**  
A service provided by [SSCWEB](#)

Satellites	Plot Type
DMSP-15	<input checked="" type="radio"/> Orbit Plot
DMSP-16	<input type="radio"/> Mapped Projection Plot
DMSP-8	<input type="radio"/> Time Series Plot
DMSP-9	
Double Star 1	
Equator-S	
FAST	
Freja	
Genesis	
Geotail	
GMS-3	
GOES-10	
GOES-11	
GOES-12	
GOES-6	
GOES-7	
GOES-8	
GOES-9	
Hawkeye	
IMAGE	

**Time span selection**

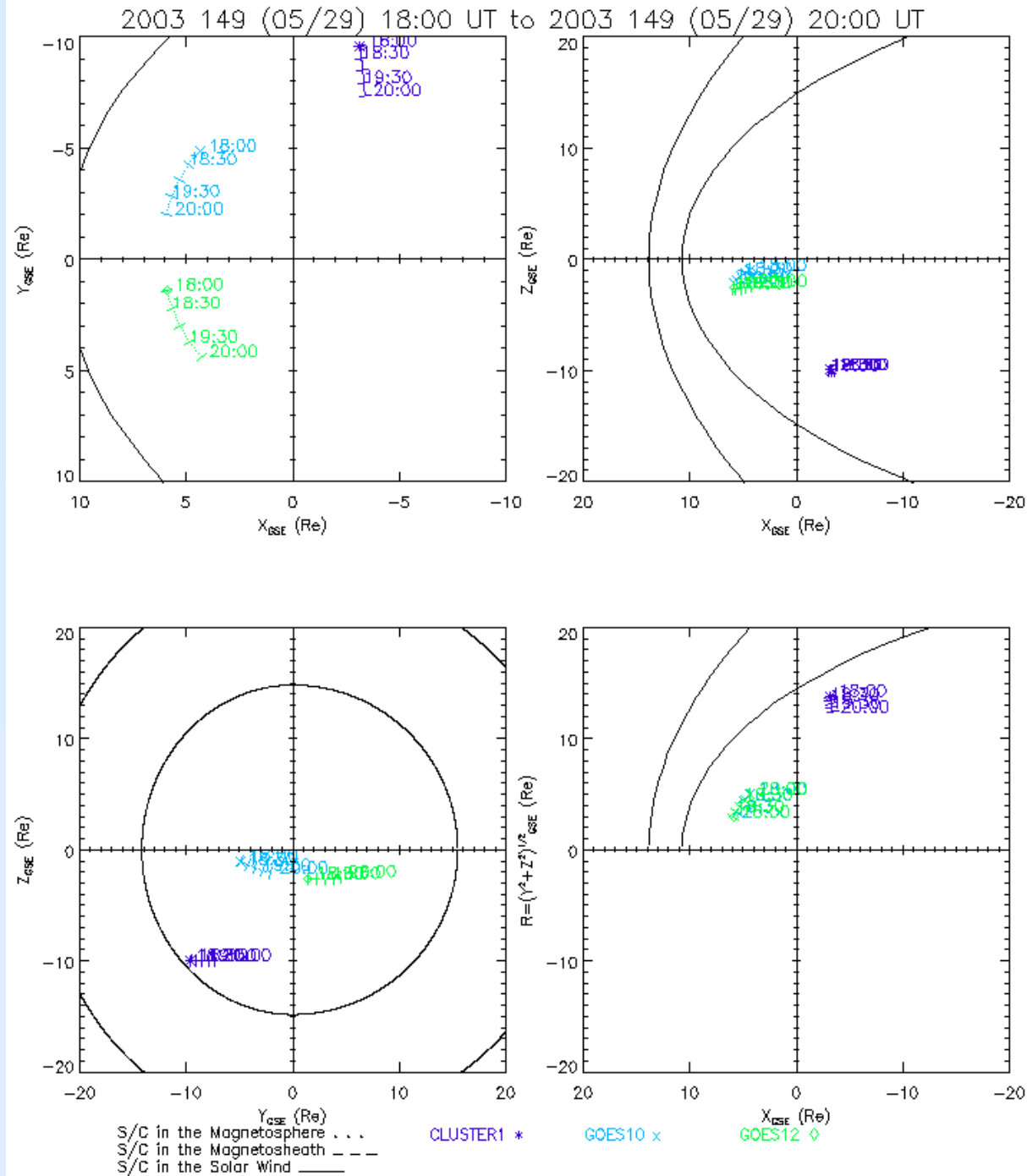
Start Date (inclusive)	Stop Date (inclusive)
2003/05/29-18:00:00	2003/05/29-20:0:0

Format: **YYYY/MM/DD[-[HH]:MM[:SS]]**  
Example: 1997/01/01-01:01:00 or 1997/01/01

[Plot](#)

Centre de Données de la Physique des Plasmas

# CDPP $\Rightarrow$ SSCWEB (2)





# Conclusions

- **Le patrimoine de données de physique des plasmas spatiaux est très vaste, mais:**
  - dans des formats et structures hétérogènes
  - plusieurs formats « standards » (CDF, Flat, CEF, netCDF, ...) sont utilisés
  - les données hautes résolution sont souvent dans des formats et structures « maison »
  - pas ou peu d'outils de recherche de données
- **Or, les études sur les plasmas spatiaux requiert l'utilisation simultanées de multiples jeux de données: analyse multi-points, analyse multi-instruments**
  - ⇒ consommation importante de temps et de sueur pour l'utilisateur
- **Il existe aussi un riche patrimoine d'outils et de modèles disséminés dans le monde**
- **les observatoires virtuels et les systèmes intégrés vont permettre une avancée non-linéaire dans la discipline**



## Conclusions (2)

- **A l'heure actuelle, il n'existe pas de système intégré opérationnel,**
- **mais la dynamique est lancée:**
  - SPASE
  - quelques liens inter-opérants
  - les centres de données se développent dans la perspective des OV
- **En France,**
  - le CDPP est fortement impliqué dans cet effort
  - la réflexion sur un OV Soleil-Terre est engagée dans le cadre de l'ASOV (MEDOC, BASS2000, planétologues, CDPP) et notamment autour de STEREO