

ViRBO and Autoplot

ViRBO Overview

- Virtual Radiation Belt Observatory
- Facilitate **Search, Access, and Visualization** of Radiation Belt Data
- **Search** – Develop SPASE Metadata associated with RB data. *ViRBO will handle SPASE generation for RBSP data products.*
- **Access** – Collect code and tools for access; host meeting web pages
- **Visualization** – Autoplot is our primary tool

Sample SPASE Record

Instrument

Instrument ID spase://SMWG/Instrument/RBSP/RPS

Name Relativistic Proton Spectrometer (RPS)

Description "The RPS will measure inner Van Allen belt protons with energies from 50 MeV to 2 GeV. Presently, the intensity of trapped protons with energies beyond about 150 MeV is not well known and thought to be underestimated in existing specification models. Such protons are known to pose a number of hazards to astronauts and spacecraft, including total ionizing dose, displacement damage, single event effects, and nuclear activation. This instrument will address a priority highly ranked by the scientific and technical community and will extend the measurement capability of this mission to a range beyond that originally planned. The project's goal is development of a new standard radiation model for spacecraft design." Measurements include: Energetic protons responsible for total dose in MEO for shielding thickness over 200 mils aluminum; Protons responsible for displacement damage; Telescope consists of 8 silicon detectors and a Cherenkov detector; Stacked Si detectors used for 50 MeV to ~400 MeV, incident angle constrained by 8-fold coincidence; Cherenkov detector used for >400 MeV; Absolute flux accuracy: dJ/J ~10%; Energy resolution: dE/E ~30% @ 50 MeV, to 100% @ 2 GeV; Angular resolution: 30° instantaneous, 5° deconvolved " [http://rbsp.jhuapl.edu/spacecraft/instruments/instruments_rps.php]

Additional information [RPS Web Page](#) RPS Web Page

Contact

Role

Person ID

1. Principal Investigator spase://SMWG/Person/Devid_Davis

Search example

Query form

Search string [\[?\]](#):

Return

Sort by:

Section [\[?\]](#):

Category [\[?\]](#):

Element [\[?\]](#):

Predefined Categories [\[?\]](#)

AutoplotVAP [\[21\]](#)

Found **8** records in 3.33s.

Search constraints: String=**Lon** Path=**/AutoplotVAP**

[Cluster 1 EDI](#)

Created on 2011-08-27T00:54:54, record path: /AutoplotVAP/Cluster/, 11 {view(s)}, 0 {vote(s)}, 0 {bookmark(s)}, 0 {c
Cluster 1 EDI

[Cluster 1 STA](#)

Autoplot Overview

- Autoplot interface was a project originally developed for ViRBO.
- Goal: Given a URL to a data file, make a sensible plot. A browser for data on the web.
- Used existing libraries (“das2”) and tools and extended them for VxO use.
- Continued support or code contributions from HPDE, ViRBO, VMO, RBSP-ECT, and the Radio and Plasma Wave Group at The University of Iowa.

Comparison

- View many types of data from many data sources
- Works on any operating system
- Analysis possible (Python)
- No license
- One-click launch
- Bookmarks
- Configuration files

Three Access Points

1. Through CDAWeb interface – click Autoplot link after selecting data
2. Launch Autoplot - select CDAWeb bookmarks (will be a part of default install soon)
3. Using View links on ViRBO web page

1. Through CDAWeb Interface

← → ↻ cdaweb.gsfc.nasa.gov/cgi-bin/eval2.cgi

Use custom start/stop times

Start: (YYYY/MM/DD HH:MM:SS.mmm)

Stop: (YYYY/MM/DD HH:MM:SS.mmm)

Select an activity:

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

Also create PS and PDF outputs (all plot types except images and plasmagrams).

Many panels per dataset are allowed but ≤ 4 panels optimal for standard Y-axis height and single page display. **NEW**

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 or VIRBO Autoplot demonstration: *select one or more variables from the list below and press submit.*

Create Version 3.0 compatible CDFs (Default is Version 2.7.2) **NEW**

2. Through CDAWeb bookmarks (available soon)



The screenshot shows a web browser window with the address bar displaying "autoplot.org". The page layout includes a navigation menu on the left with links for "Start Autoplot", "Help", "Screenshots", "Cookbook", and "Developer notes". A central area features a logo consisting of two yellow arrows pointing upwards and a yellow waveform. Below the logo, the text "0.4" is visible. A search bar with a "Search" button is located at the bottom left. On the right side, there are tabs for "Log in / create account", "article", and "discussion". The main content area on the right contains sections for "Getting Started", "About", and "Key Features".

Log in / create account
article discussion

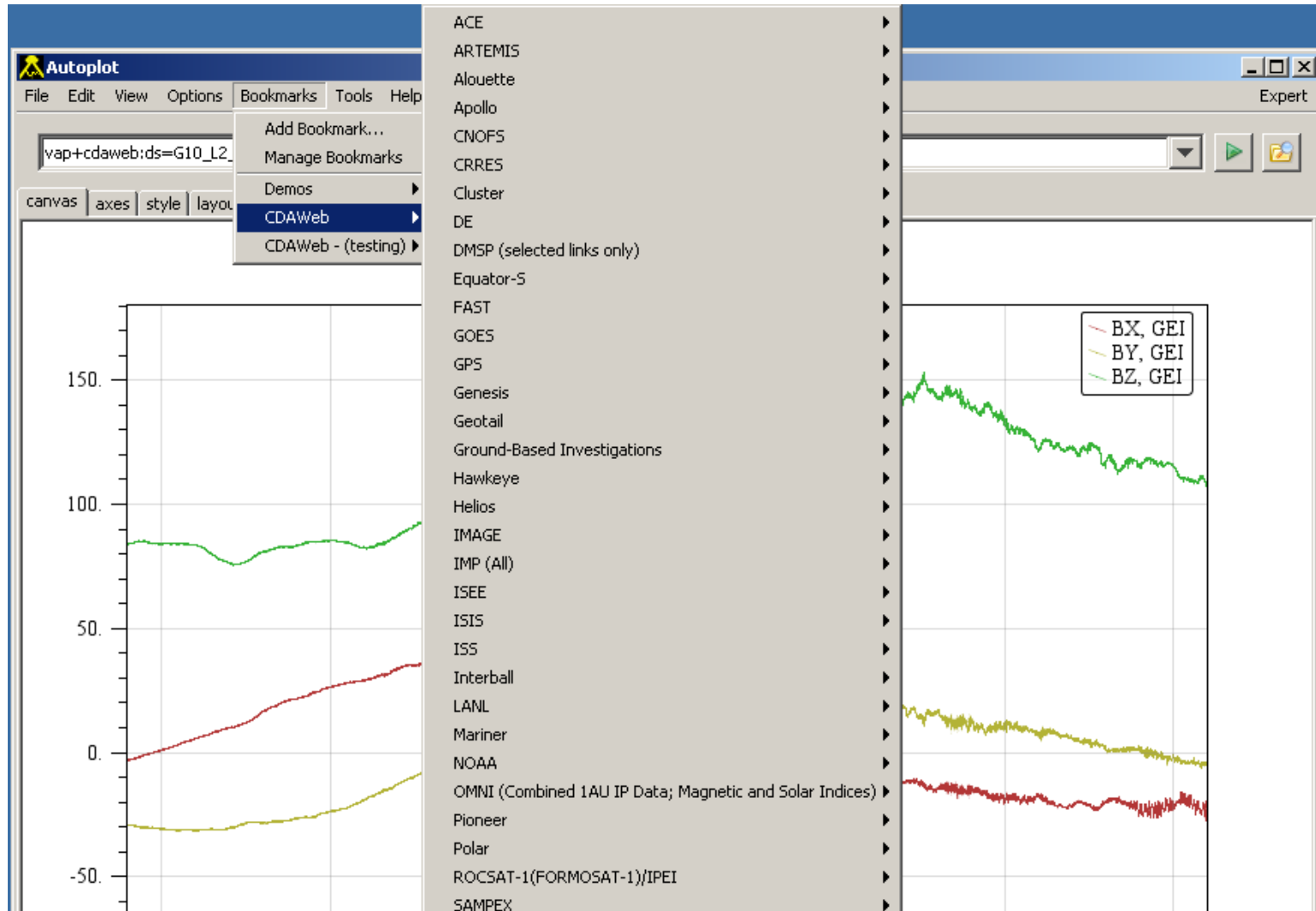
Getting Started
Click the [Start Autoplot](#)

About
Autoplot is an interactive
developed to allow quick :
poster.

Key Features

- Reads multiple ASCII
TSDS; FITS; Excel; W
- Data is located with c
- Wildcards can be use

2. Through CDAWeb bookmarks (available soon)



3. Using View Links

- We have extended Autoplot to allow “views” of data to be saved as a configuration (VAP=ViRBO Autoplot file).
- We are in the process of creating view pages for data products.
- View metadata will be searchable via ViRBO

Search example

Query form

Search string [\[?\]](#):

Return

Sort by:

Section [\[?\]](#):

Category [\[?\]](#):

Element [\[?\]](#):

Predefined Categories [\[?\]](#)

AutoplotVAP [\[21\]](#)

Found **8** records in 3.33s.

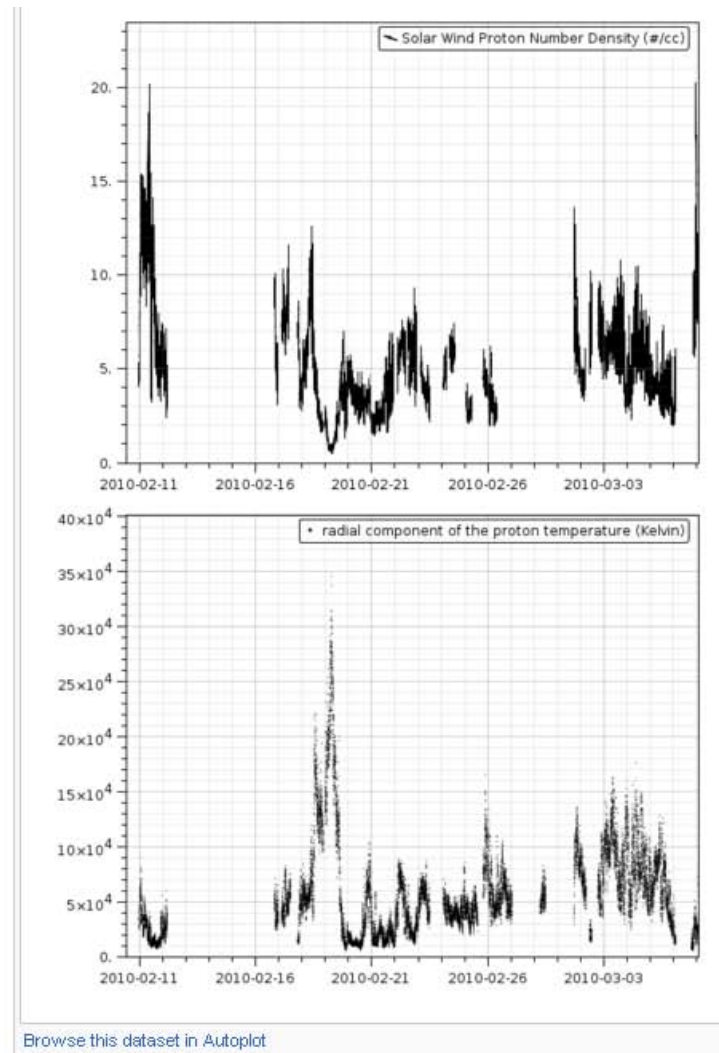
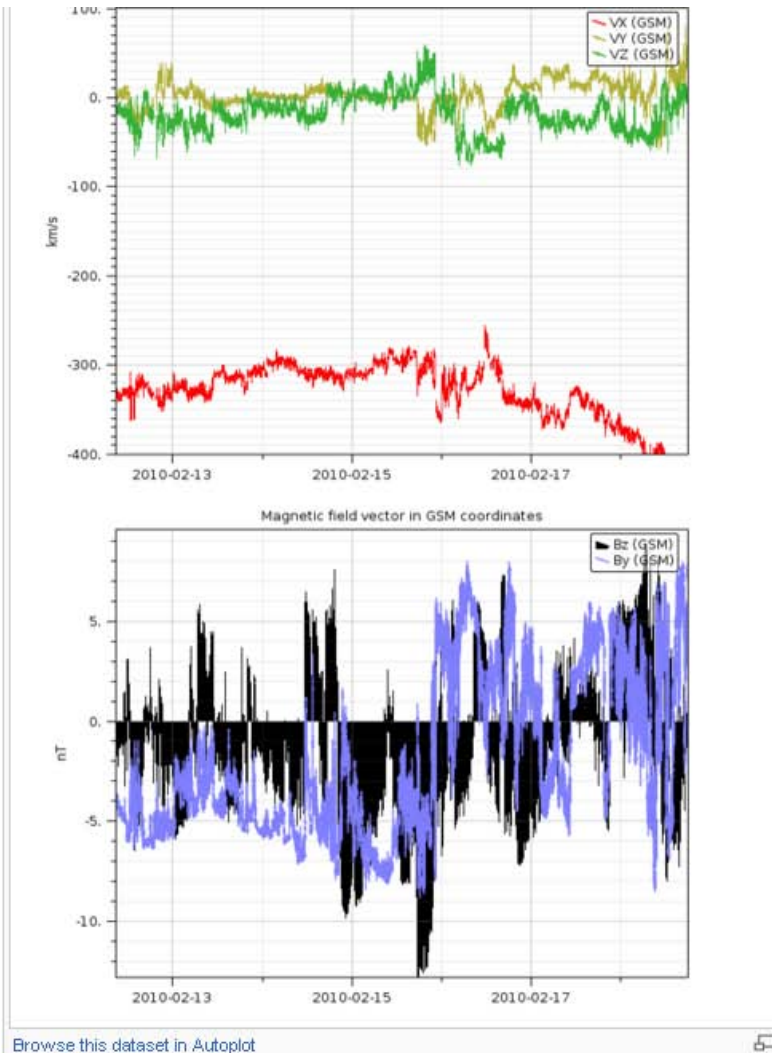
Search constraints: String=**Lon** Path=**/AutoplotVAP**

[Cluster 1 EDI](#)

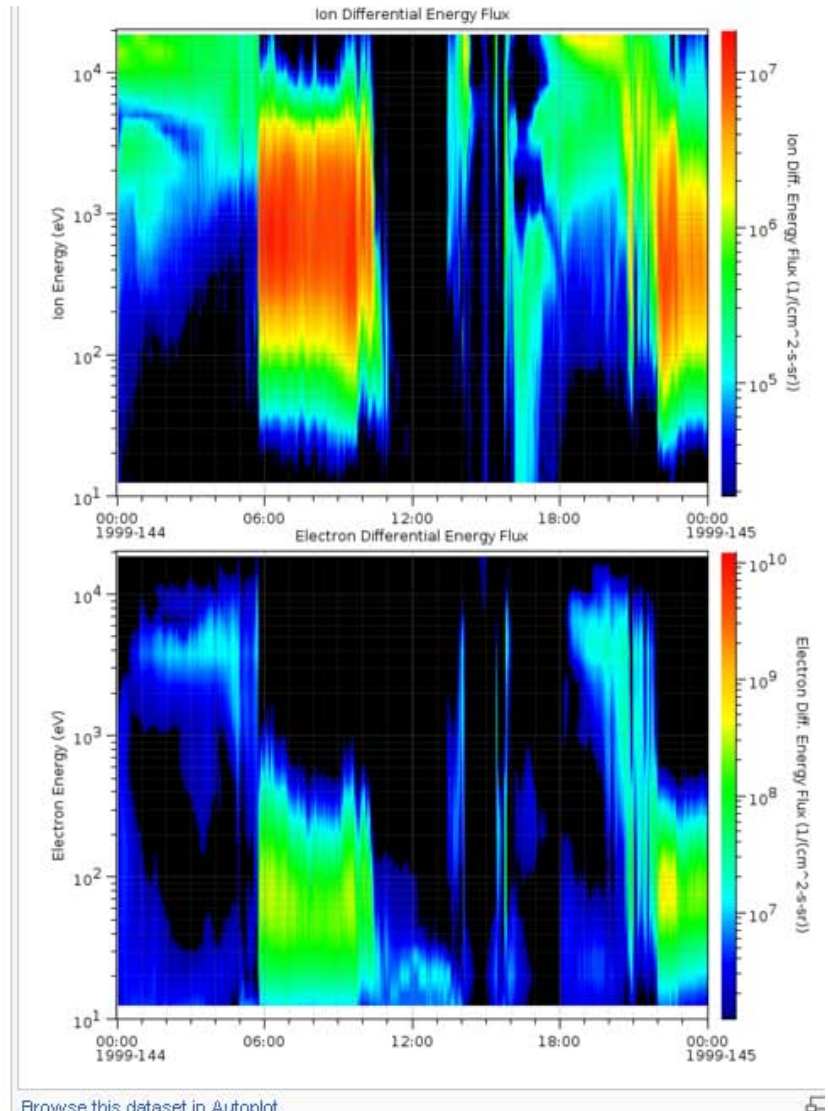
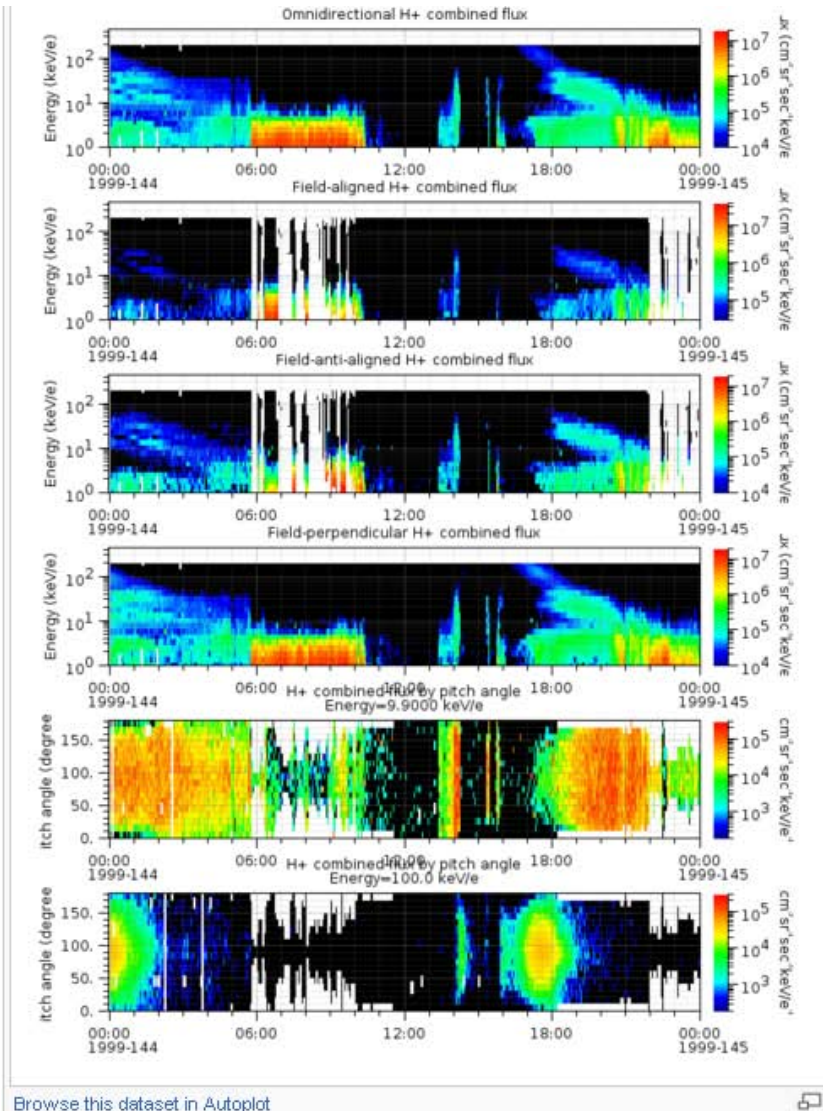
Created on 2011-08-27T00:54:54, record path: /AutoplotVAP/Cluster/, 11 {view(s)}, 0 {vote(s)}, 0 {bookmark(s)}, 0 {c
Cluster 1 EDI

[Cluster 1 STA](#)

View Example Web Page



View Example Web Page



ViRBO/RBSP interaction

- We will develop views of RBSP data using Autoplot/CDAWeb interface.
- We will develop basic views and request feedback.
- We will continue to develop software that makes view development easier.