RBSP/SOC

From ViRBO

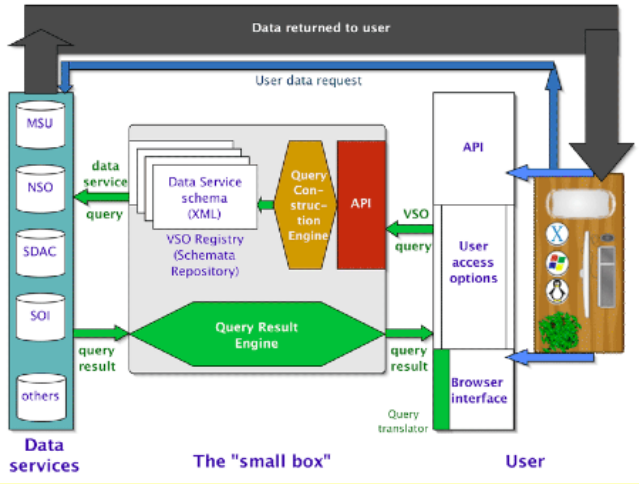
1 Slides

1.1 Introduction

Desired Outcomes:

- Understanding of RBSP's connections and interaction with ViRBO
- Feedback to ViRBO from scientists about what features they would want but are missing in the tools I demonstrate;
- The software developers to know that we have developed many metadata management and data visualization tools, and that there may be a mutual benefit if they work with the developers of these tools instead of building their own ad-hoc;
- The software developers to realize that there are many forums for finding out about who is developing what tools.

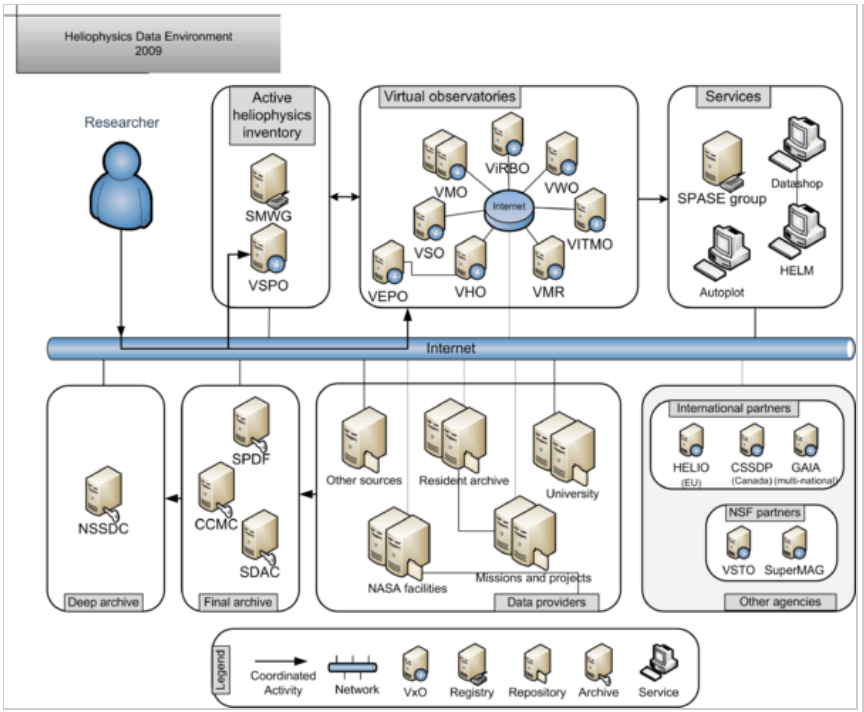
1.2 The VxO



1.3 The HPDE

Heliophysics Data Environment

See also the HDMC Senior Review Proposal [2] (http://hpde.gsfc.nasa.gov/HDMC_SR_Final_15_June_2009nb.pdf)



From Weigel et al, 2009 [1] (http://adsabs.harvard.edu/abs/2009EOSTr..90..441W)

1.4 My Job

- Work with community members to make more data, model code and output, movies, tools, available to the rest of the community. More and more individuals are creating specialized data sets or tools (i.e., event lists, filtered data, etc.). They need to work with their VO to identify ways in which their data can be made available to the greater HPDE (besides just posting a text file or zip file on their web page).
- Work with their community to improve metadata or create a standard if it does not already exist. (I will discuss this later).
- Connect existing services to meet their communities modern research needs. The VxO PI serves as a liaison between the data-centric user community and the technology-centric aspects of the HPDE.
- Make requests to existing services to meet new community needs. For example, if there is a community need for fast visualization or subsetting, then the VO serves as a liaison to the technology-centric VO community to modify the existing services to meet a community need. If this is not reasonable, a proposal is written to justify the creation or augmentation of an existing service.

1.5 ViRBO Connections to SPDF

- What I specialize in (Interfaces to data, search, SPASE) Note that I put this doc on a web page because I am sensitive to search - ppts are black holes in that regard - can't address them (but can archive them).
- What SPDF specializes in (CDF)
- How we interact (Telecons, etc.)

1.6 ViRBO Capabilities Now

- Data "Granule" visualization
- High-level Metadata storage
- High-level Metadata search
- Data delivery - mostly merged files (unique product)

1.7 ViRBO Capabilities Developing

Capabilities that you may want to use in the next few years to reduce your software development workload.

An overview of what we will be doing in the next two years. What they can use it for now and the plan for how you will use it at launch time.

I will clarify that ViRBO will primarily handle RBSP metadata and not data.

List of email lists and rss feeds to stay up-to-date

1.8 VxO Capabilities Now

Highlights of what we have developed over the past three years

1.9 VxO Capabilities Developing

Overview - I will demo a few things in part II.

Capabilities that you may want to use in the next few years to reduce your software development workload

List of email lists and RSS feeds to stay up-to-date

1.10 Metadata - Introduction to SPASE

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<Spase>
    <Version>1.2.0</Version>
    <Person>
        <ResourceID>spase://SMWG/Person/Robin.J.Barnes</ResourceID>
        <ReleaseDate>2010-08-04</ReleaseDate>
        <PersonName>Robin J. Barnes</PersonName>
        <OrganizationName>JHU/APL</OrganizationName>
        <Address>Applied Physics Laboratory Johns Hopkins University, 11100 Johns
Hopkins Road, Laurel MD 20723-6099</Address>
        <Email>Robin.Barnes@jhuapl.edu</Email>
        <Url>keyUrl</Url>
    </Person>
</Spase>
```

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<Spase>
    <Version>1.2.0</Version>
    <Observatory>
        <ResourceID>spase://SMWG/Observatory/RBSP</ResourceID>
        <ResourceHeader>
            <ResourceName>Radiation Belt Storm Probe Satellite</ResourceName>
            <AlternateName>Radiation Belt Storm Probe</AlternateName>
            <ReleaseDate>2010-08-11T00:00:00</ReleaseDate>
            <ExpirationDate/>
            <Description>The fundamental processes that ...</Description>
            <Acknowledgement/>
            <Contact>
                <PersonID>spase://SMWG/Person/Nicola.J.Fox</PersonID>
                <Role>DeputyPI</Role>
            </Contact>
            <InformationURL>
                <Name>Mission Web Page</Name>
                <URL>http://rbsp.jhuapl.edu/index.php</URL>
                <Description>Mission Web Page</Description>
            </InformationURL>
            <AssociationID/>
            <PriorID/>
        </ResourceHeader>
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        <Location>
            <ObservatoryRegion>Earth.Magnetosphere</ObservatoryRegion>
            <CoordinateSystemName/>
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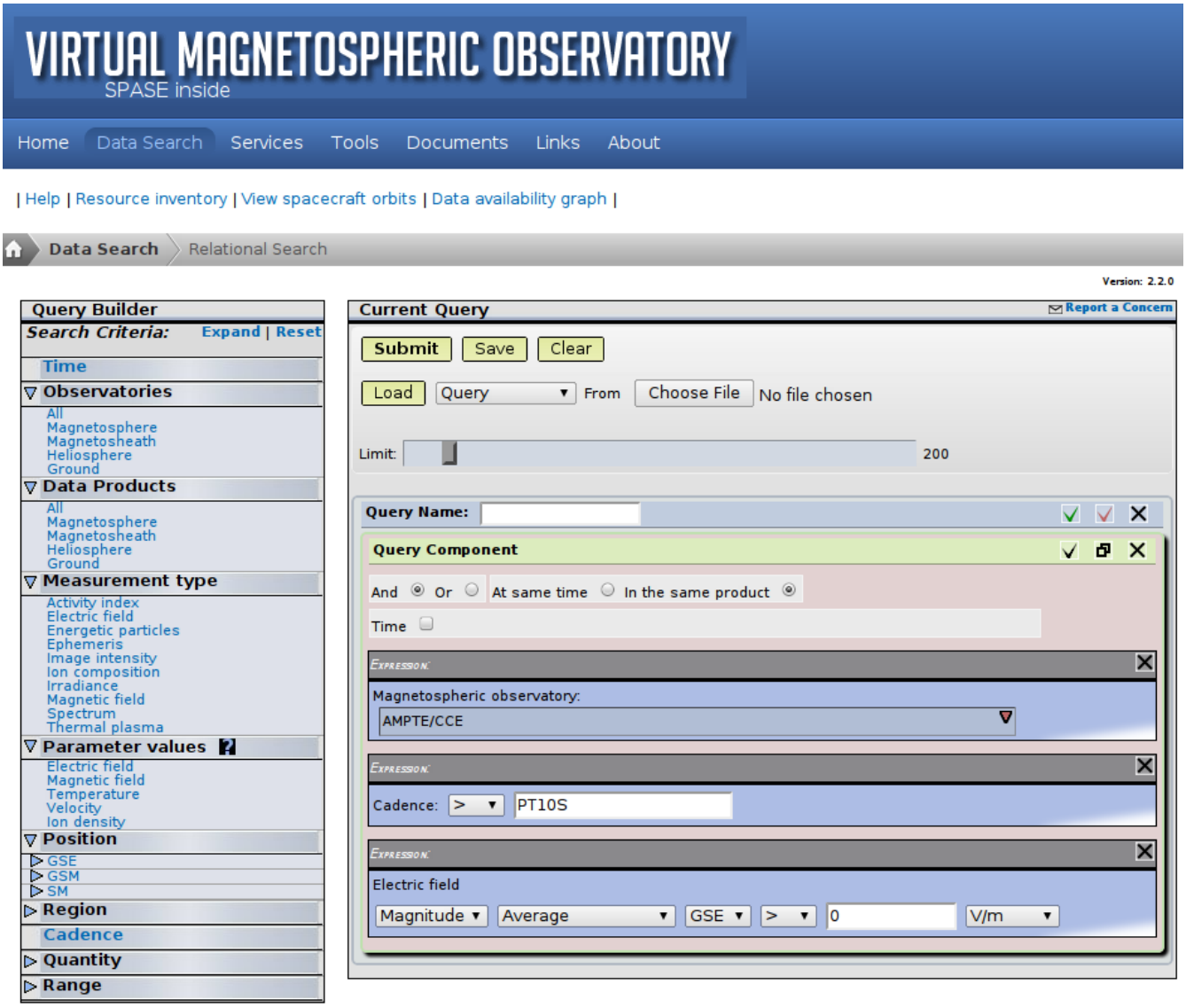
1.11 Metadata - Introduction to SPASE

SPASE metadata is primarily for finding and relating data and metadata

A data product query tool at the VMO (http://vmo.gsfc.nasa.gov)



1.12 Metadata - Introduction to SPASE

SPASE metadata is primarily for finding and relating data and metadata

A metadata linkage tool build for SPASE metadata.

Links

Dr. Nicola J. Fox
JHU/AP ...
type: common
1 links
Michele Weiss
JHU/AP ...
type: common
1 links
Alexander Y. Ukhorskiy
JHU/APL ...
type: common
2 links
Dr. T. Paul O'Brien
The Aerospace Corporation ...
type: common
0 links
Reiner Friedel
Los Alamos National Laboratory ...
type: common
0 links
RBSP Mission Team
Photo of RBSP Team From: http://rbsp.jhuapl.edu/mission/images/team2008_lg.jpg ...
type: common
1 links
Image of RBSP Satellite
Image of RBSP Satellite from
http://rbsp.jhuapl.edu/spacecraft/images/instrumentMn_labeled1.jpg ...
type: common
1 links
RBSP Mission Animation
The Radiation Belt Storm Probes deploy their solar arrays. Credit: NASA/Johns Hopkins University
0 links
Prof. Craig A. Kletzing
University of Iowa ...
type: common

1.13 SPASE relationship to PRBEM-ISTP-CDF

PRBEM = Panel on Radiation Belt Environment Modeling PRBEM ISTP = The International Solar-Terrestrial Physics [3] (http://www-istp.gsfc.nasa.gov/)

- ISTP-CDF metadata are primarily for rendering data (as plot or table)
- SPASE metadata is primarily for finding and relating data and metadata

Informally

- ISTP-CDF is (mostly) like an ASCII table with rules for column widths and headers.
- SPASE is the README structured with certain conventions (but ISTP-CDF contains some README info ...).

Other details

- CDF is a data model (how bits are arranged in a file)
- A CDF file can have metadata in it
- ISTP-CDF is a standard for metadata conventions for CDF files
- PRBEM-ISTP-CDF is a standard for metadata conventions for CDF files
- SPASE is a much richer vocabulary than PRBEM-ISTP-CDF
- Mapping from (PRBEM)-ISTP-CDF metadata to SPASE is not trivial

1.14 VxOware Overview

Relationship to MediaWiki

1.15 Metadata - Creating SPASE records

(30 minutes) - Requires internet access.

Example of how a user can create a metadata record and modify or comment on a metadata record. Other examples will include linking a presentation document to another metadata record.

1.16 Metadata - Search

(10 minutes) - Requires internet access

1.17 Lunch

12:00-12:45 PM

1.18 Metadata - Image Galleries

(10 minutes)

Give example of creating image gallery for Yuri

1.19 Metadata - Bookmarks and VAP files

(30 minutes) - Requires internet access

I will show some examples of advanced views of data that can be created using Autoplot. I will also give an example of saving that view as a piece of metadata for later review. The final example will be of simultaneously viewing data from four different data services, including a remote and local ISTP-CDF file and a remote ASCII file.

Demo will finish with a search for the VAP file that was created.

1.20 Metadata - Management tools

(30 minutes) - Requires internet access

I will talk about how VxOware works and what it is capable of. I will primarily highlight some of the advanced search and subset features of VxOware including "outer" search, "federated" search, and searches for records that fall in a given time range or spatial domain. I will suggest that many features can be quickly added by simply creating an xslt or xq file that operates on VxOware's internal data model.

1.21 VxO Capabilities Developing

(30 minutes)

Capabilities that you may want to use in the next few years to reduce your software development workload

1.22 Software tools

Optional, if time or desired

(30 minutes)

I will work with developers to check out and run VxOware and/or Autoplot in Eclipse. I will also give information on the forums and email lists for keeping up-to-date on software development in the virtual observatory network.