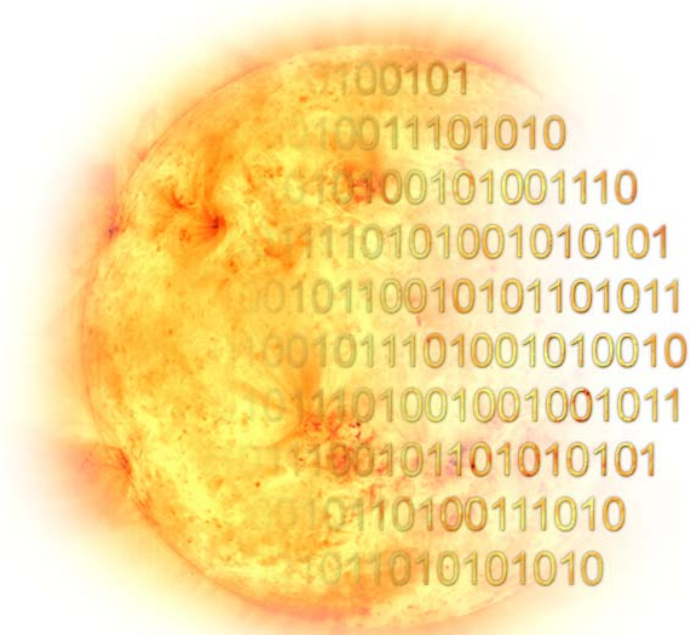


# Why VSO?



Virtual Solar Observatory

# First ... What is VSO?

- Virtual Solar Observatory
- Allows you to search multiple archives with a single interface
- The archives may be in multiple places, or structured completely differently
- VSO allows scientists to spend more time on science, less time on finding data
- VSO allows programmers to automate data collection

# Advantages of using VSO

- Can automate data gathering
  - IDL client in SolarSoft
  - API (Application Programming Interface) for other languages
- Easier to write new and innovative interfaces
  - Can write it once, and have it work with multiple data archives
  - VSO handles updates if the individual archives change

# So ... Why VSO?

- Because we said we'd support it in the PDMP.
- To reduce effort in developing a completely new data distribution system for STEREO.
- So any improvements to VSO are available to people using STEREO data.
  - And likewise, any improvements to searching for STEREO data serve as a stepping stone to improve searching for **any** solar data archive.

# What about the insitu folks?

- Data will also be available through CDAWeb Plus, AstroGRid, VSPO, and VHO.
- We are committed to working with VHO, VSPO and the other VxOs to disseminate information.
  - VSO is already accessed by EGSO, VSPO, AstroGrid and CDAWeb Plus
  - VSO is working on ways for other VxOs to identify newly available data products
  - VSO is participating in development of SPASE

# Are there any STEREO specific VSO improvements?

- Improving support for searching by data layout (image, time series, movie) or image extent (corona, full disk, etc.)
- Adding ability to search for spectral range type (line, narrow, broad)
- Adding support for searching by detector or filter names, or by processing level
- Browsing data by STEREO-based event catalogs
- ... whatever else there's demand for

# What can I search on?

- For all instruments:
  - Date & Time of observation
  - Spacecraft (aka. Observatory / Source, ie. STEREO-A or STEREO-B)
  - Instrument
  - Detector (aka. Telescope)
  - Level of Processing
  - Last Modified Time

# What can I search on?

## ➤ For SECCHI:

- Resolution (FITS NAXIS, NAXIS1/2, BITPIX)
- Product Descriptor (aka. SEB\_PROG in FITS)
  - Eg, SERIES, NORMAL, DARK, SEQ, LED, CONTIN, DOUBLE

## ➤ EUVI only:

- Filter
- Spectral Range (for EUVI only)
  - Eg, 171/195/284/304 Å

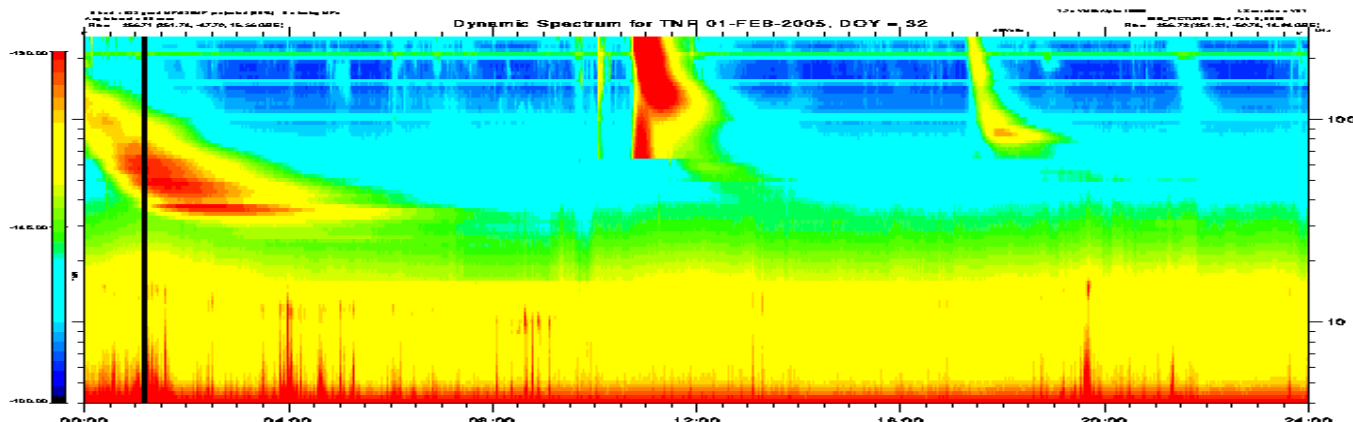
## ➤ COR1 and COR2 only:

- Polarization



# What can I search on?

- PLASTIC and IMPACT:
  - Product Descriptor
    - Eg. DIST, DISB, MOM, etc.
    - (or whatever the final keywords are)
- S/WAVES:
  - (nothing additional from the basic list)



# But I want to search on (x)!

- Tell me what you want, and how to read it from the files.
- Or give me a catalog to search against.

# How can you help?

- Use VSO
  - Try it out, so that you can ...
- Complain
  - Let us know what you don't like
- Give Suggestions
  - Let us know what we can do to improve your ability to search for meaningful data
  - Let us know which data archives are useful to you



Virtual Solar Observatory

<http://virtualsolar.org/>



# What isn't VSO?

- VSO is not a user interface.
  - It's an architecture that allows for customized user interfaces
  - The Web based GUI doesn't show all of the search parameters that VSO can handle.
- VSO is not a data archive.
  - VSO tracks data archives, and routes user requests to the correct archive
  - VSO never touches the data, only metadata

# How VSO Works ... Finding

- The Solar Physicists (or Equivalent), makes a request through a User Interface
- The User Interface translates the request into terms that VSO can understand, and sends it to a VSO Instance
- The VSO Instance consults its Registry to see which Data Providers may be able to fulfill the request

# How VSO Works ... Finding

- The VSO Instance sends the requests to the Data Providers.
- The Data Providers respond back to the VSO Instance
- The VSO Instance combines the results, and sends it back to the User Interface
- The User Interface formats the results and presents it to the Solar Physicist



# Things that can go wrong

- The Registry is stale
  - How often do new Data Providers come online?
- The Registry can't find any Data Providers to fulfill the query
  - That means a really quick 'no records found' message
- A Data Provider doesn't really have the data they claimed to
  - The Registry can use a different level of granularity to mark that the data sets are not available

# Things that can go wrong

- A Data Provider isn't available
  - The VSO Instance will give up, and return what it did get back, and a message about the problem provider
- The VSO Instance isn't available
  - User Interfaces can fail over to another VSO Instance
- Too much data is returned
  - That's a problem?
  - Use a more specific query

# How VSO Works ... Ordering

- The Solar Physicist selects which data products from their searches that they'd like to retrieve in the User Interface
- The Solar Physicist specifies how they'd like to obtain the data products
- The User Interface sends a request to the VSO Instance

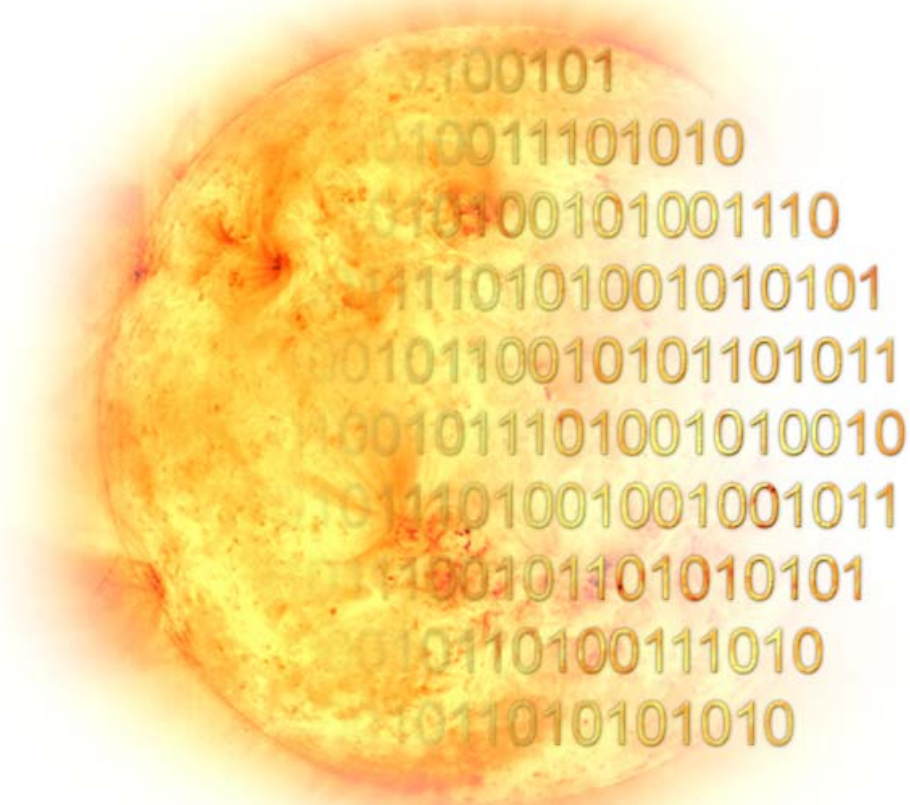
# How VSO Works ... Ordering

- The VSO Instance breaks up the request into parts, and send each part to the correct Data Provider
- The Data Providers act upon the requests, and send a response to the VSO
- VSO combines the results, and sends it back to the User Interface
- The User Interface formats the results and presents it to the Solar Physicist

# Things that can go wrong

- Need to agree on a data transfer method
  - Can repeat the request until you agree
- Some Data Providers may require additional information to complete the request
  - Can repeat the request with the needed info





Virtual Solar Observatory

<http://virtualsolar.org/>

