STEREO Science Center Status Report

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STEREO SWG
March 27-28, 2007

Upcoming Events

- Momentum dumps occuring about once every six weeks. Next expected dumps are:
  - Ahead: April 12th
  - Behind: April 5th
- High gain antenna calibrations on both spacecraft April 3rd.
  - Spacecraft are rolled by ±2° to find best signal.
  - Occurs regularly during the mission.
- SECCHI calibration maneuvers:
  - April 17th: Stepped roll (Behind)
  - April 19th: SECCHI GT off-point (both)
    - Offpoints on the order of 1 arc minute
- SECCHI campaign, May 4-17
  - Extra downlink pass to bring down SECCHI data

Joint Observing Programs

- JOP 187: SECCHI campaign, May 4-17
  - “Stereoscopic Observations of Coronal Structures”
- ICAL 01: Intercalibration 1 (EUV)
  - Pre-existing JOP to which STEREO has been added

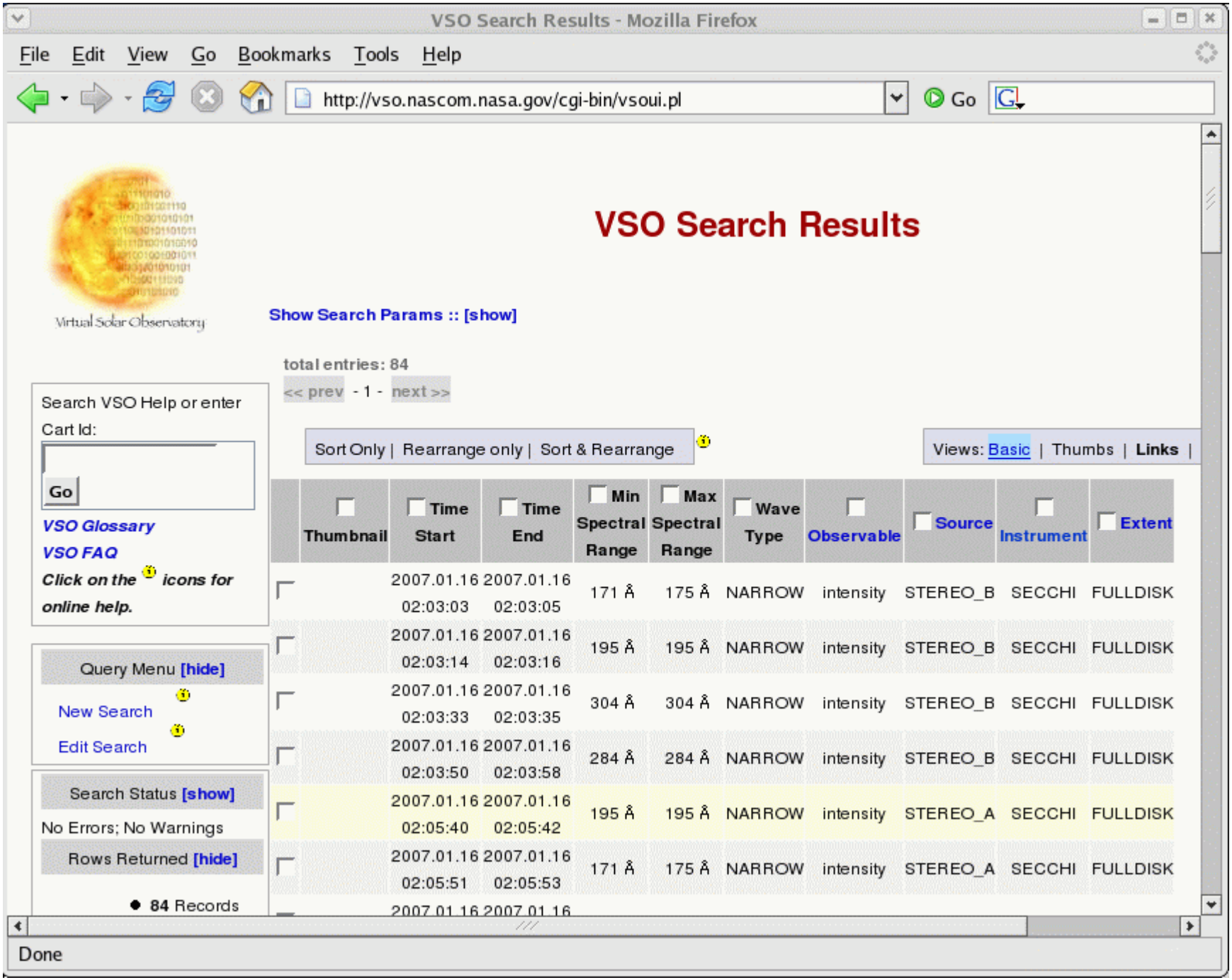
Possible science collaborations

- SUMER/Hinode campaign, Mar 13-Apr 30
- Ulysses quadrature, Dec 2006-May 2007
  - Radio scintillation, May 7-13
  - Hinode observations, May 14-20
- SECCHI campaign, May 4-17
- EIT shutterless, May 9th (TBC) & 16th
- Messenger – Venus flyby, June 5th
- Ulysses ecliptic plane passage, August 19th
- Ulysses quadrature, Dec 2007-May 2008
- Messenger – Mercury flybys
  - Jan 14, 2008
  - Oct 6, 2008
  - Sep 29, 2009

Archive Status

Currently working:

- Telemetry ingest
- Archiving of MOC data products
  - Level-0 telemetry organized by year and month
  - Generating DSN schedule summary page
- Archiving of instrument data
  - SECCHI, PLASTIC, SWAVES
- Virtual Solar Observatory
  - Serving SECCHI and PLASTIC data
- Software distributed through SolarSoft library
  - Organization of SPICE ephemerides within SolarSoft
    - SPICE orbit web browser, “Where is STEREO?”


VSO Search Results - Mozilla Firefox
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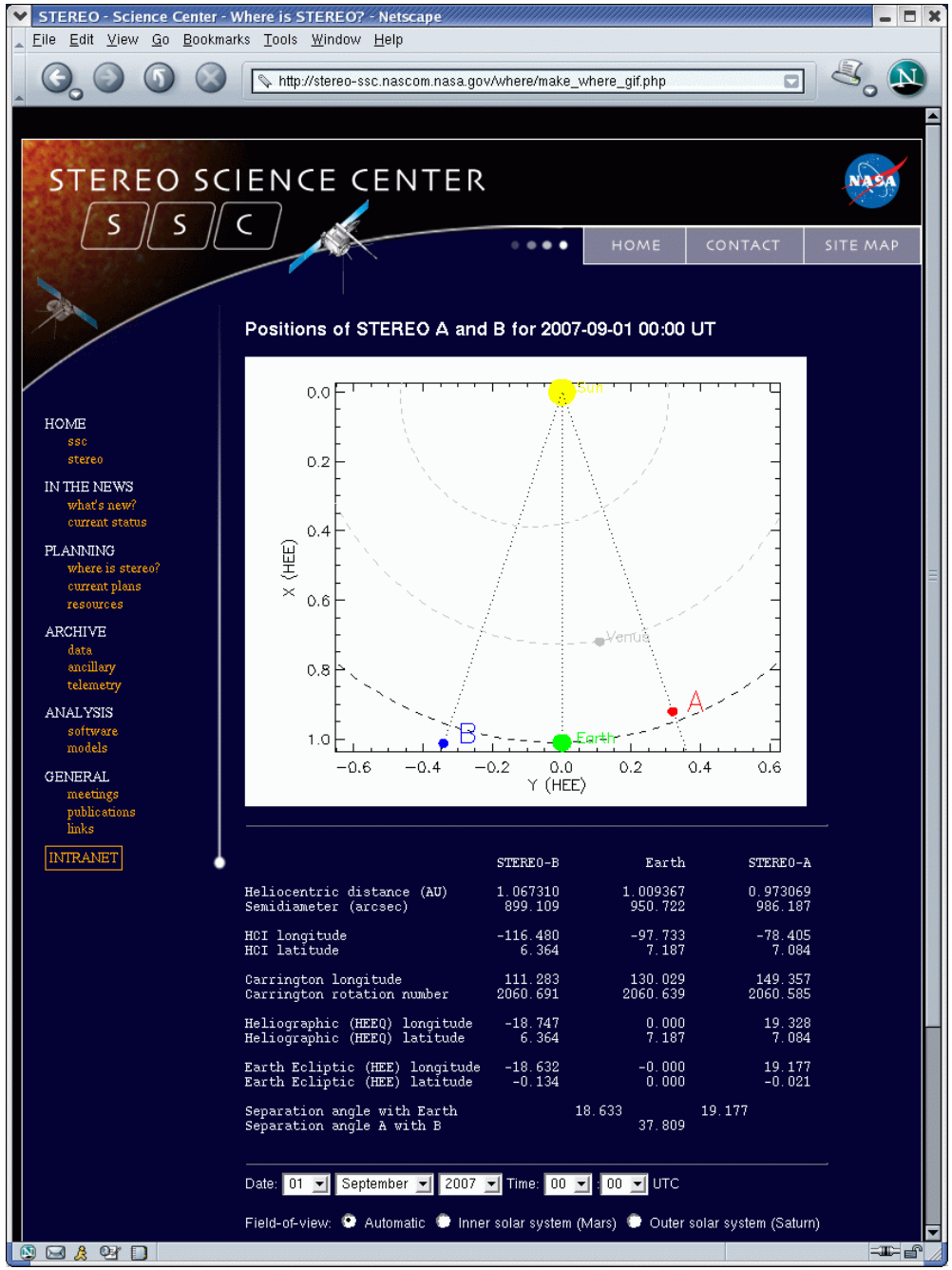
Time Start
Time End
Min Spectral Range
Max Spectral Range
Wave Type
Observable
Source
Instrument
Extent
2007.01.16 02:03:03 2007.01.16 02:03:05 171 Å 175 Å NARROW intensity STEREO_B SECCHI FULLDISK
2007.01.16 02:03:14 2007.01.16 02:03:16 195 Å 195 Å NARROW intensity STEREO_B SECCHI FULLDISK
2007.01.16 02:03:33 2007.01.16 02:03:35 304 Å 304 Å NARROW intensity STEREO_B SECCHI FULLDISK
2007.01.16 02:03:50 2007.01.16 02:03:58 284 Å 284 Å NARROW intensity STEREO_B SECCHI FULLDISK
2007.01.16 02:05:40 2007.01.16 02:05:42 195 Å 195 Å NARROW intensity STEREO_A SECCHI FULLDISK
2007.01.16 02:05:51 2007.01.16 02:05:53 171 Å 175 Å NARROW intensity STEREO_A SECCHI FULLDISK
Done

STEREO Orbit Tool

- Web-based tool for plotting STEREO's position in the solar system.
- Can also plot Ulysses and Messenger positions, Parker spiral.
- Also prints out summary information.
- Uses IDL RPC server, with a PHP front-end.



Beacon Status

- Ephemerides and viewperiod files being generated for ground stations.
- Successful tests of beacon reception Chilbolton, England and Koganei, Japan
  - Locked onto both spacecraft and recorded telemetry
  - Sent telemetry through socket connection to SSC server
  - Automatically processed telemetry into data files and web plots
  - Additional work needed to send telemetry in realtime
  - Lock on to spacecraft from Fairbanks, Alaska
- Also processing realtime telemetry from DSN through MOC interface.
  - Processing SECCHI, IMPACT, PLASTIC

Beacon and Daily Browse Plots

- Realtime SECCHI beacon images and IMPACT/PLASTIC plots are now online.
  - SWAVES requires onboard software change, expected soon
  - Numerous improvements are in the works
- Search tool for SECCHI images

  http://stereo-ssc.nascom.nasa.gov/cgi-bin/realtime
- Browse tool for daily summary images and plots

  http://stereo-ssc.nascom.nasa.gov/browse

Beacon & Daily Summary Plots

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Latest SECCHI beacon images

Shown here are the latest SECCHI beacon images. The STEREO space weather beacon telemetry mode is a very low rate, highly compressed data stream broadcast by the spacecraft 24 hours per day. These data are used for space weather forecasting. Because of the large compression factors used, these beacon images are of much lower quality than the actual science data.

STEREO Behind	STEREO Ahead
STEREO Behind EUVI 304	STEREO Ahead EUVI 304
2007–02–13 20:22:44	2007–02–13 18:07:31
2048, 1024, 512, 256, 128	2048, 1024, 512, 256, 128
STEREO Behind EUVI 171	STEREO Ahead EUVI 171
2007–02–13 20:22:27	2007–02–13 18:07:14
2048, 1024, 512, 256, 128	2048, 1024, 512, 256, 128
STEREO Behind EUVI 195	STEREO Ahead EUVI 195

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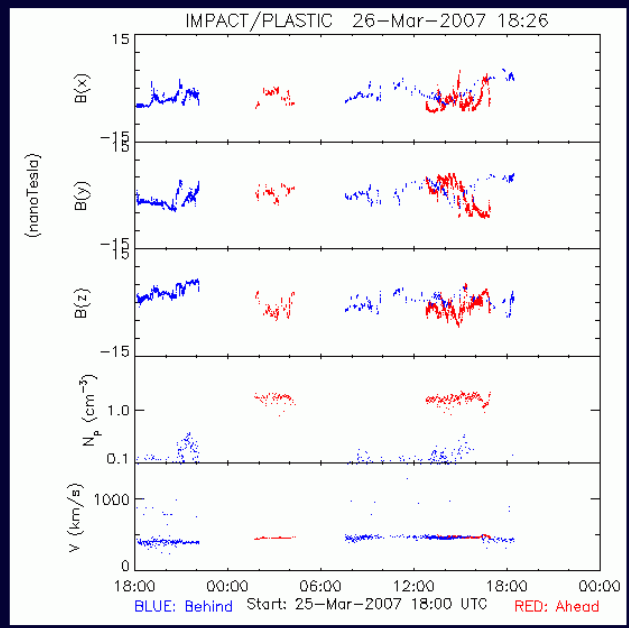
STEREO In-Situ Space Weather Beacon Data

Shown here are plots of the latest in-situ particle and fields data from the STEREO IMPACT and PLASTIC instruments. The STEREO space weather beacon telemetry mode is a very low rate, highly compressed data stream broadcast by the spacecraft 24 hours per day. These data are used for space weather forecasting. Because the data are produced in real-time, the calibrations may not match those used for the final data product.

See also the latest SECCHI beacon images.



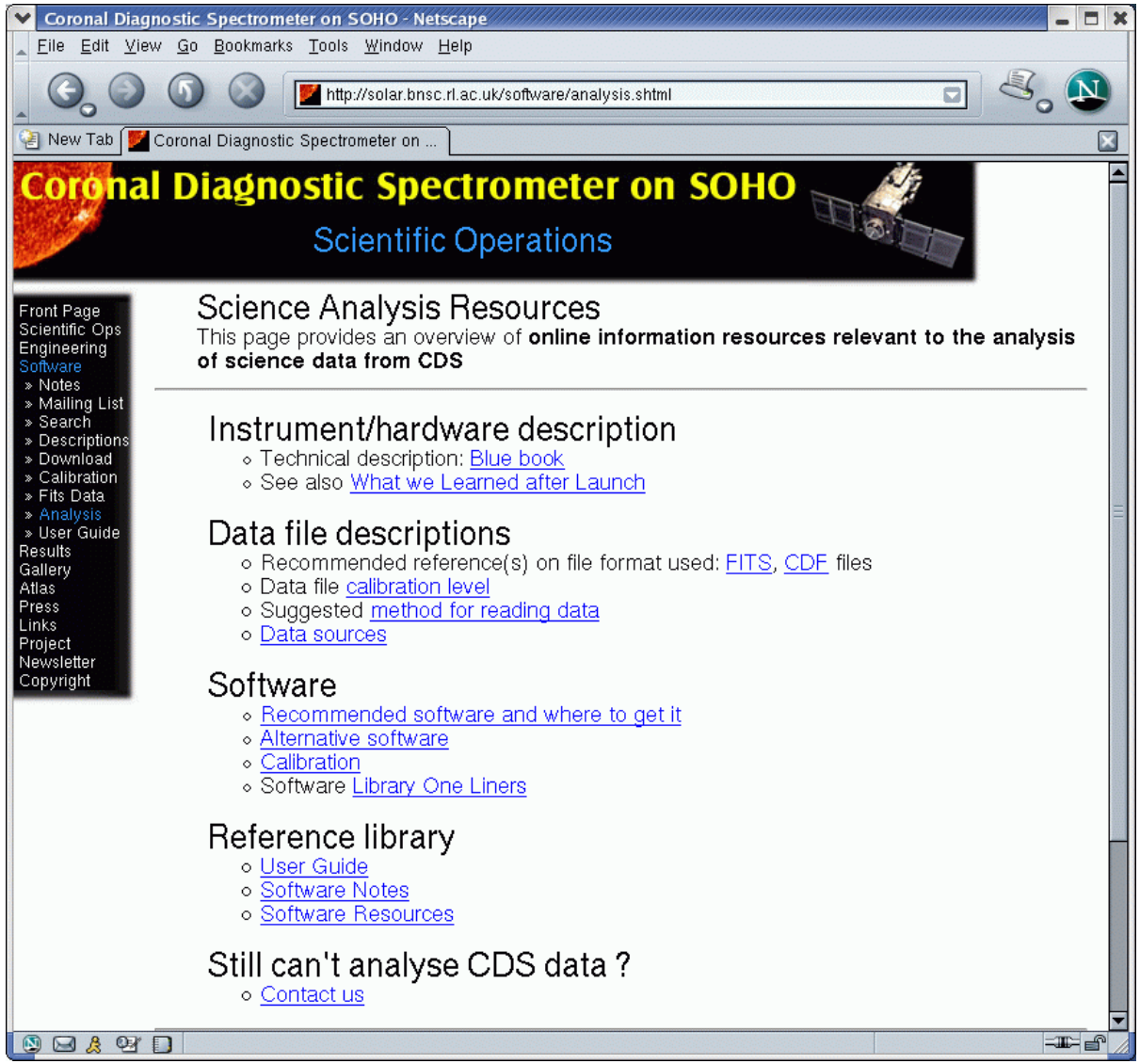
Plot revised: Monday, 26-Mar-2007 14:27:07 EDT

This page should automatically update every 5 minutes. Otherwise, use your browser's "reload" button to get the most recent plot.

Other Data Pages

- Also point to data browse/search tools provided by the instrument teams:
  - SECCHI Flight Images Database
  - SWAVES Daily Summary Plots
  - IMPACT/SEP Online Data
    - Includes orbit and attitude data
  - IMPACT Magnetometer Data Server
- Auxilliary Data (non-STEREO):
  - NSO/GONG Magnetogram Synoptic Map Images
  - L’Observatoire de Paris – Radio monitoring
  - SOHO archive

Instrument Resources Pages

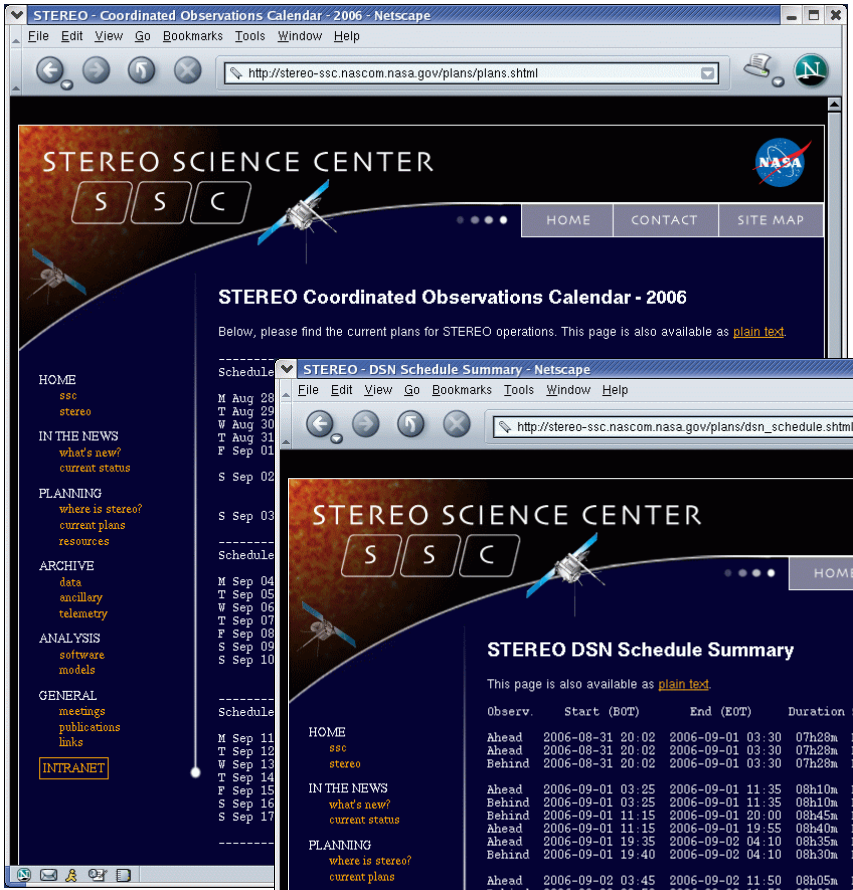


- **A useful concept is to have resource pages for each instrument.**
- **Similar format for each instrument.**
- **Provides information about file formats, calibration, analysis software, and contact information.**
- **We ask that each team provide and maintain such a page.**
- **See the SOHO pages at the URL below for examples.**

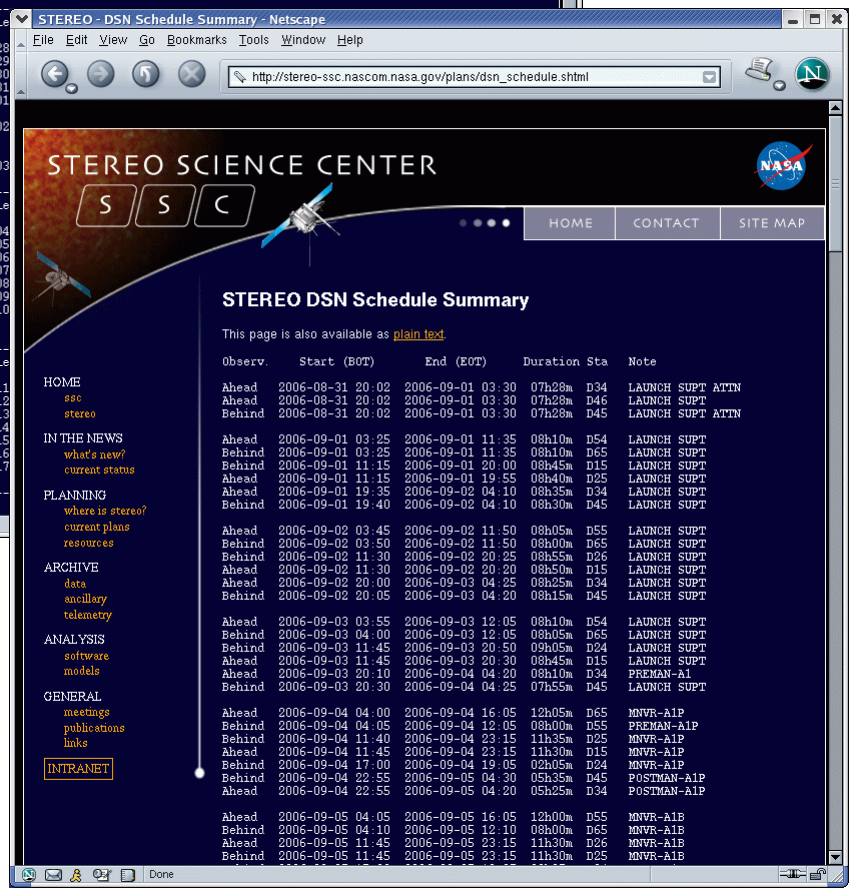
http://soho.nascom.nasa.gov/mission/instruments.html

Science Coordination Status

- Science planning web pages:
  - –Current plans
    - Archived as-run plans
  - –DSN Schedule Summary
  - –Weekly meeting minutes
  - –Early Orbit Summary
  - –STEREO Orbit Tool

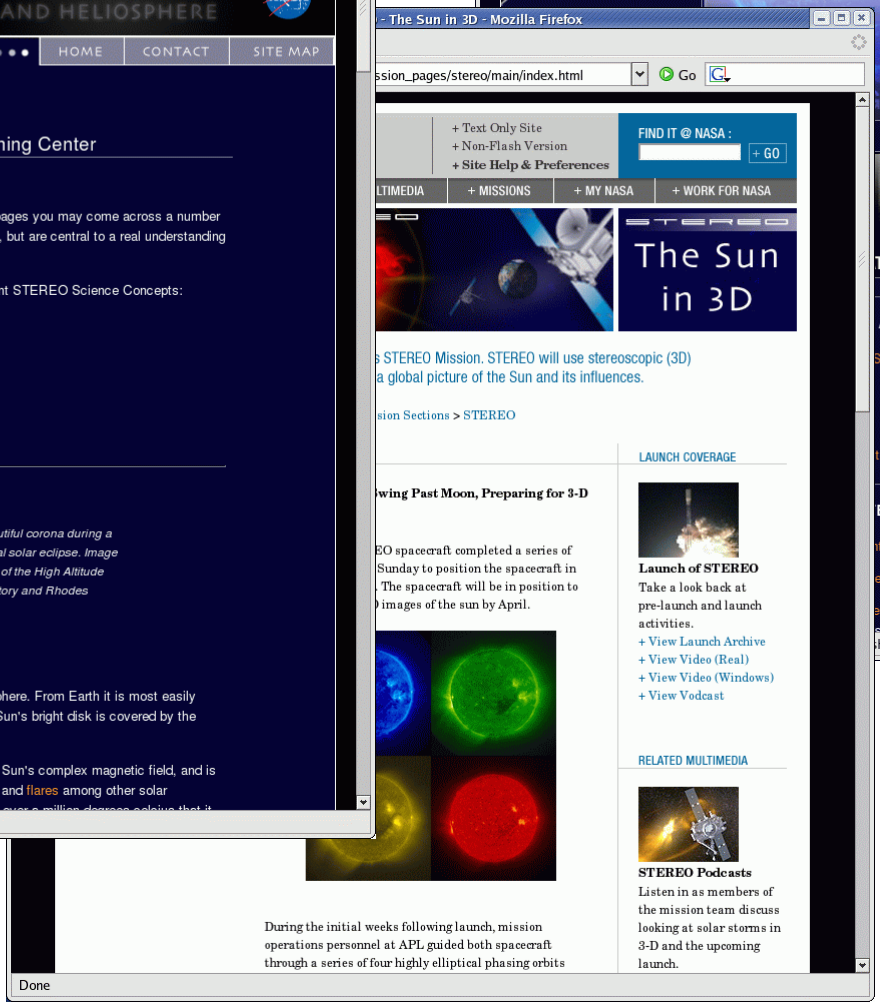


Planning Calendar & Meeting Minutes



DSN Summary

Education & Public Outreach



Galleries, classroom activities, etc.

Includes coordination with NASA Portal

Future Work

- Beacon processing:
  - Incorporate SWAVES
  - SECCHI coronagraphs and HI
  - More detailed plots of IMPACT & PLASTIC telemetry (hourly)
- Daily summary plots:
  - Same comments as above
  - Need to incorporate non-STEREO data
    - SolarSoft has software to retrieve WIND, ACE, SOHO data
- “Latest events” pages under development