STEREO Science Center
Status Report

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STEREO SWG
20-22 April 2008
Meudon, France
Upcoming Spacecraft Events

• Momentum dumps occurring about once every 6 weeks for Ahead and 9 weeks for Behind. Next expected dumps are:
  – Ahead: May 7
  – Behind: May 14

• SECCHI stepped calibration rolls now occur about once every 3 months. Next rolls will be:
  – Ahead: June 24
  – Behind: May 20

• High gain antenna calibrations on both spacecraft July 9.
  – Spacecraft are rolled by ±2° to find best signal.
  – Occurs about once every 3 months.
  – Small impact on science
Recent Science Events

• SECCHI Campaign
  – January 7-20
  – Second downlink each day for extra SECCHI data

• Whole Heliospheric Interval
  – March 20 – April 16
  – Multi-mission campaign to observe the Sun and heliosphere over a complete solar rotation
  – Successor to the Whole Sun Month campaigns of 1996-1999
  – STEREO participation is through synoptic data
Upcoming Science Opportunities

• 2008
  – SUMER/Hinode campaign sometime in the May/July time frame.
  – Messenger fly-by of Mercury, October 6
    • Behind magnetically connected
  – SUMER campaign Nov 1-Dec 15

• 2009
  – Messenger fly-by of Mercury, September 29
    • Behind in quadrature with Mercury
  – STEREO-Behind at L5, September-November
    • Interest as test for possible future SWx mission
    • Ahead at L4 about the same time
### Telemetry Rate Changes

<table>
<thead>
<tr>
<th>Date</th>
<th>Separation (deg)</th>
<th>Distance (AU)</th>
<th>Downlink (kbps)</th>
<th>Pass duration (hrs)</th>
<th>Daily volume (Gbits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2007</td>
<td>0</td>
<td>0</td>
<td>720</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Aug 2008*</td>
<td>67</td>
<td>0.6</td>
<td>480</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>May 2009*</td>
<td>96</td>
<td>0.8</td>
<td>360</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Aug 2009*</td>
<td>109</td>
<td>0.9</td>
<td>160</td>
<td>6</td>
<td>2.35</td>
</tr>
<tr>
<td>Nov 2010</td>
<td>165</td>
<td>1.4</td>
<td>96 (B)</td>
<td>6</td>
<td>1.4</td>
</tr>
<tr>
<td>Apr 2011</td>
<td>176</td>
<td>1.4</td>
<td>96 (A)</td>
<td>6</td>
<td>1.4</td>
</tr>
<tr>
<td>Aug 2012</td>
<td>237</td>
<td>1.7</td>
<td>30</td>
<td>10</td>
<td>0.44</td>
</tr>
</tbody>
</table>

- Red DSN pass durations not yet agreed to
- Current in-situ volume is 0.7 Gbits/day
- Spacecraft housekeeping volume goes down proportionally after August 2009—not included in above totals
- Lowering RT rate may improve daily volumes

*slightly later for Behind*
Archive Status

• Archive currently contains about 13 TB of data.
  – Current hardware is extensible—we have no concerns about being able to store the data.
  – New backup hardware has been installed.

• Older preliminary (".ptp") level-0 telemetry files are aged off the system when the final (".fin") versions are available.
  – Considerable savings in space
  – Decided at previous SWG meeting
Data Availability

• IMPACT SIT & STE level-1 data now available
  – Still no HET data
  – PLASTIC level-2 available in ASCII and Excel formats
    • CDF files starting to become available
  – IMPACT level-2 data not yet available
    • Some products available on instrument pages

• Instrument resource pages now available for PLASTIC, IMPACT, and SECCHI
  – Alex Young working on SWAVES page
  – Alex will also work with the instrument teams to help improve the resource pages

• Work still proceeding on customized interface to Virtual Solar Observatory
Level 1 software not yet delivered, but ASCII files available
Combined with WIND/WAVES
Provided as software

Combined with WIND/WAVES

In beta-test
ASCII files available for LET, HET, MAG
Level-3 Data Availability

SECCHI

Provided as software

PLASTIC

SWAVES

IMPACT

Nov-06 Feb-07 May-07 Aug-07 Nov-07 Feb-08
Instrument Data Pages

- Split off list of instrument data pages as a separate page
- Lists all data pages currently known
- Need to know what data should be archived within SSC

### Instrument Data Pages

- **SECCHI**
  - SECCHI Flight Images Database
- **IMPACT**
  - IMPACT Data Browser
  - IMPACT Primary Data Site (includes software links)
  - IMPACT LET ASCII Data (plus Orbit/Attitude ASCII data)
  - IMPACT HET ASCII data
  - IMPACT Magnetometer ASCII Data
    - Heliocentric Phase
    - Earth Orbit Phase
- **PLASTIC**
  - PLASTIC Browse Data
  - PLASTIC Data Plots
  - Solar wind proton bulk parameters
  - PLASTIC merged with IMPACT/MAG
- **SWAVES**
  - SWAVES Daily Summary Plots
  - Centre de Donnees de la Physique des Plasmas
Beacon Status

• Receive beacon telemetry from England, Japan, and France on a regular basis.
  – Toulouse station recently added
  – Not certain about continued funding for station in England
  – Wallops tracking is top priority—paperwork is main delay
  – NOAA examining link margins for extended mission

• All SECCHI telescopes are now included in the beacon pages.

• SWAVES radio plots are now generated in realtime.
  – However, the daily browse plots are still dependent on level-0 processing.
The STEREO publication database is now online.

Contains published papers only.

Links to online versions of the papers from the publishers

Send new entries to C.Alex.Young @nasa.gov
A lot of work has been done on the STEREO gallery

We encourage everybody to send us your best stuff

Should also inform us of upcoming press releases

i.e. Mike, Rani
Future Work

• Beacon processing:
  – Real-time ASCII files. *(Need software from IMPACT team.)*

• Customized search pages for VSO database
  – Search on individual instruments within suites
  – Already exists in IDL VSO software
    • SECCHI object-oriented wrapper will automatically retrieve files through VSO

• Daily summary images/plots:
  – Reach into instrument browse pages