

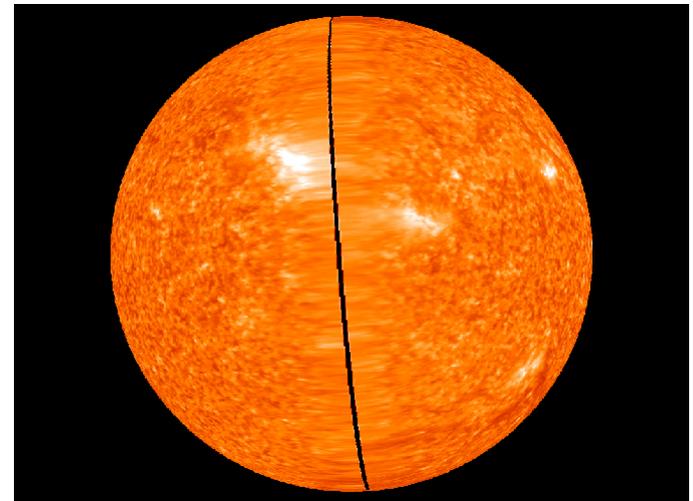
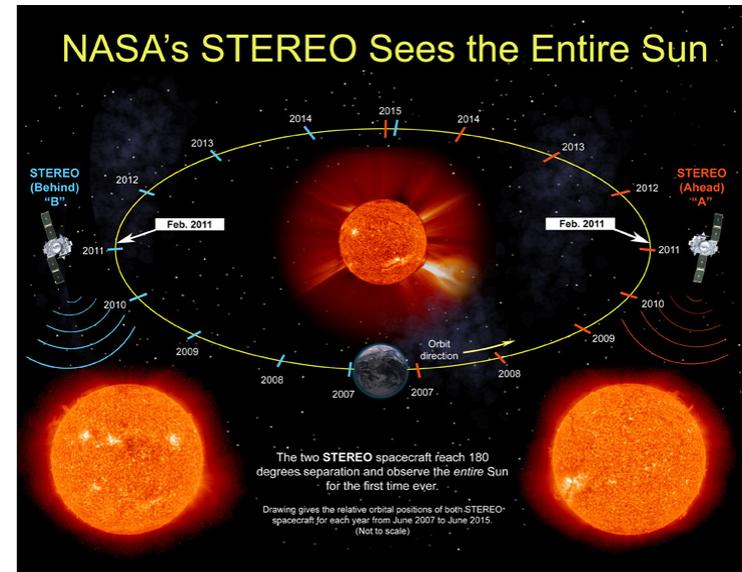
STEREO Science Center Status Report

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STEREO SWG #22
(via telecon)

Recent Science Events

- EVE calibration sounding rocket launch, May 3
- SUMER campaign (with STEREO participation), June 18-29
- Total solar eclipse, July 11,
 - also HOP 114: Coordinated Diagnostics of Prominence Cavities
- SUMI sounding rocket launch, July 30
- **Spacecraft at 180° separation, Feb 6**
- MESSENGER Mercury orbital insertion, Mar 18



Upcoming Science Opportunities

- 2011
 - DAWN arrives at Vesta, July
- 2012
 - DAWN leaves Vesta, July
 - **Total solar eclipse, November 13, Australia**
- 2013
 - **Ahead: Mercury transit, Dec 12**
- 2014
 - **Behind: Mercury transit, Apr 29**
 - MAVEN arrives at Mars, September
- 2015
 - DAWN arrives at Ceres
 - **STEREO goes behind Sun**
 - Ahead, Mar 17–Jul 14
 - Behind, Jan 20–Mar 28, Aug 25–Oct 19
- 2018
 - **Ahead: Mercury transit, Mar 5**

Telemetry Rates

- Both spacecraft are currently operating at **240 kbps**.
- Some passes are conducted at 720 kbps using a 70 m DSN station.
 - Use 480 kbps on 70 m stations beginning July
- Switch to **160 kbps** on Ahead: **Jun 27**,
Behind: **Jul 15**
- Switch to **120 kbps** on Behind: **Nov 4**,
Ahead: **May 2012**
- Lower telemetry rates are no longer anticipated.
- After 2015 the telemetry rates start increasing again

Beacon Status

- Receiving telemetry regularly from the following stations:
 - Koganei, Japan
 - Toulouse, France
 - Kiel-Ronne, Germany
 - Bochum, Germany
- Chilbolton (UK) station has dropped out of network—signal dropped too low.
- Still no station in U.S.—gap in coverage.
- Large gaps also seen when Koganei unavailable—no other stations in Asia.
- Modulation index for the beacon recently changed on both spacecraft, improving the link margin
- NOAA examining link margins for extended mission
 - Switch from Convolutional to Turbo encoding (*delayed*)

Archive Status – IMPACT

- Level-1
 - CDF-format: LET, MAG, SEPT, SIT, STE, SWEA
 - HET data only available as ASCII (Level-2)
 - Some data products delayed because of problem with .fin telemetry file from November 2010
- Level-2
 - CDF product not yet defined
 - Some ASCII products available on instrument web sites
- Level-3
 - Event lists (ICME, SIR, Shocks) in XLS and PDF

Archive Status – PLASTIC

- Level-1
 - Available as CDF
- Level-2
 - Alpha particles: CDF and ASCII (Ahead only)
 - 10 min: through June 2010)
 - 1 hour: through 2010
 - Iron abundances and charge states: CDF, ASCII, PNG
 - Protons: CDF and ASCII
- Level-3
 - He⁺ and Suprathermals available as ASCII

Archive Status – SECCHI/SWAVES

- SECCHI

- Primary data product archived as Level-1
 - Higher level products generated via *SolarSoft*
- Instrumental background data also archived for coronagraphs and HIs
- Level-2 files archived for HI-1 and HI-2 with UK-derived backgrounds subtracted

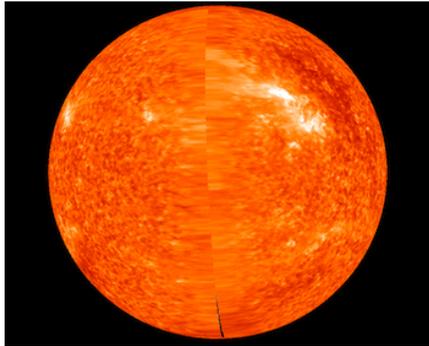
- SWAVES

- Level-1 data archived as IDL save files, ASCII
- Plots in PDF, PNG, PS formats
- Level-3 event lists available on instrument website

STEREO

EPO Status

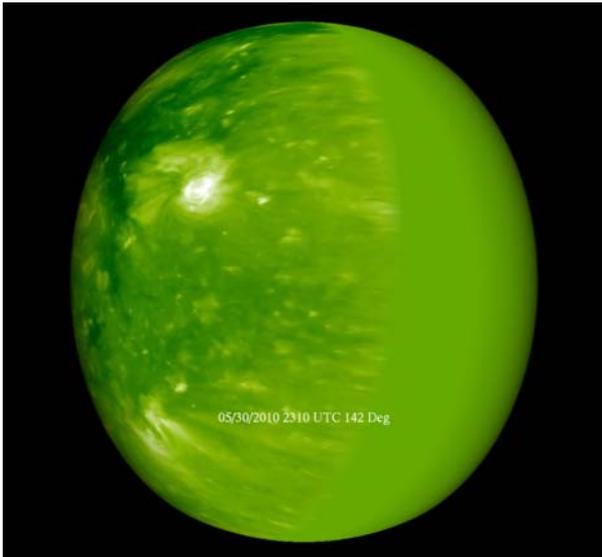
This February NASA's twin STEREO spacecraft reached the points where they were 180° apart, ushering in an eight-year period during which the STEREO observatories, combined with NASA's Solar Dynamics Observatory (SDO), will be able to observe 360 degrees of the Sun. NASA issued a media web release to publicize this event. The STEREO mission also sought to use the event for education and public outreach through various venues.



- Telecon presentation to 31 NASA Museum Alliance members and Solar System Ambassadors
- Materials were requested or events registered for activities in New Jersey, Texas, New Hampshire, Florida, and Louisiana. Also public events in France, Greece, and India
- Astronomy Picture of the Day
- Article, images and podcast to appear on the Sun Earth Day web pages
- Twitter Q&A with 25 questions answered in an hour
- Regularly updated Sun 360 images, constructed from STEREO and SDO data, are available for Science on a Sphere and Magic Planet projections systems

STEREO on a Sphere

STEREO EUVI data provides an excellent match with Science on a Sphere, a theatrical display system in which images are projected on a 6 foot sphere. The SOS network, organized by NOAA, includes 42 museums and science centers which utilize this innovative display system. Working with the Goddard Visitor Center the STEREO mission is now making available regularly updated spherical video of our active and ever changing Sun as seen in extreme ultraviolet light. STEREO data also being used on other spherical projections systems systems, including Magic Planet.



STEREO map of the Sun projected on an SOS system. The uniform green area shows where the Sun is still not imaged. Starting in Feb. of 2011 STEREO images the entire far side of the Sun

Full-sun frames now being generated inside SSC, including SDO data

Solar Science Symposium & Aerospacefest 2010

Solar Science Symposium: Twenty-four K-12 educators took part in the Solar Science Symposium at McAuliffe-Shepard Discovery Center in Concord, New Hampshire, June 28-July 2, 2010 .



Aerospacefest 2010: A 3-day, 22-hour aerospace festival at McAuliffe-Shepard Discovery Center. April 30-May 2, 2010.

Both sponsored in part by the U. New Hampshire STEREO/PLASTIC team

Other EPO Activities

- IMPACT: Working on an outreach booth oriented towards teenagers
- Sonification: Marty Quinn and IMPACT working on sonification of IMPACT and SECCHI data.
- JPL SECCHI Co-Is working with Tony Phillips to develop a set of *all sun* planetarium products. These will be created in both Full Dome High Definition Television (HDTV) versions , and will be made available via Solar MUSE web site.
- New STEREO lenticular postcard available

