

# **STEREO Science Center Status Report**

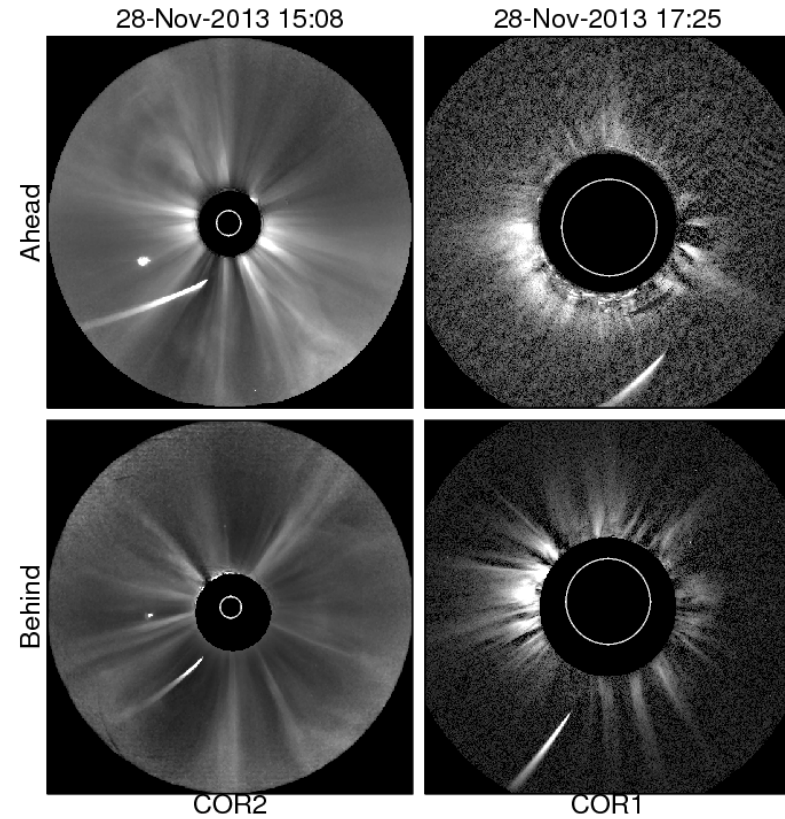
William Thompson  
NASA Goddard Space Flight Center

STEREO SWG #23  
21 March 2014  
(via telecon)

# Recent Science Events

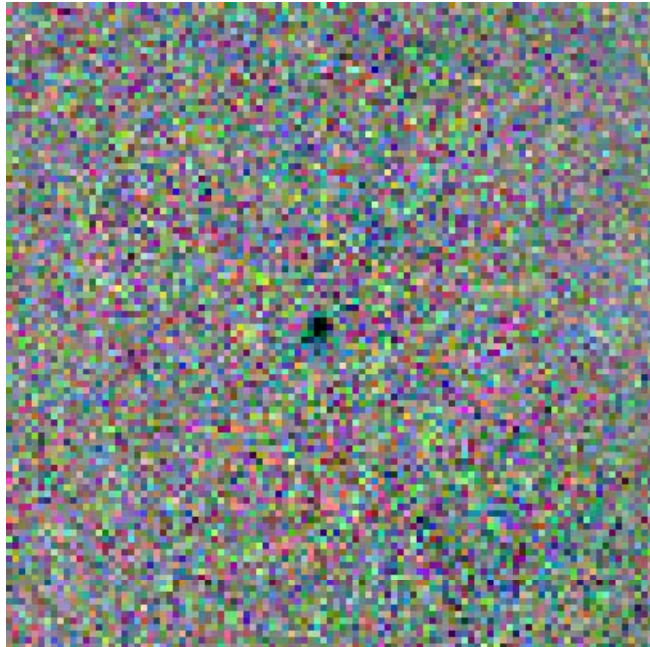
- SCOSTEP Observing and Modeling Campaign On Space Weather Events (SOMCOSE), March 29-April 30, tracking return of NOAA 11429.
- Hubble measurements of affect of Venus transit on Jupiter, September 20, 2012. Simultaneous measurements from SDO and STEREO-Ahead to monitor solar activity.
- MiniMax24, year-long Max Millenium campaign, 2013
- Passage of Comet PanSTARRS through HI1-B, March 10-16, 2013.
- Passage of Comet Lemmon through HI2-A, April 17-May 7, 2013.
- Comet ISON:
  - Observations start in HI2-A, October 10, 2013.
  - Special rolls on Behind start October 24, 2013
  - Perihelion passage on Thanksgiving Day, November 28, 2013
  - Special rolls on Ahead start December 4, 2013
  - Last rolls on December 11, 2013
- Mercury transit seen from Ahead, December 12, 2013

# Comet ISON



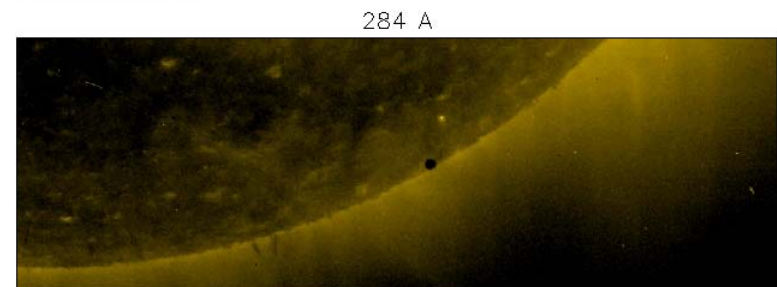
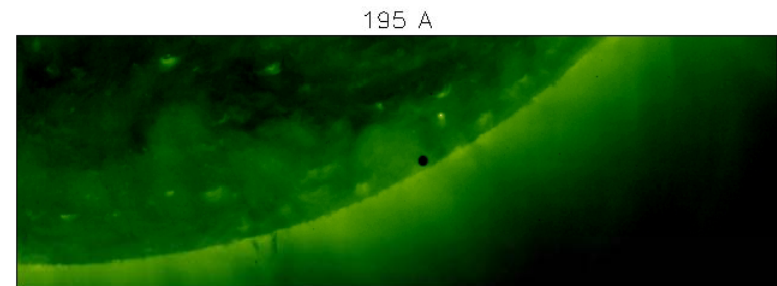
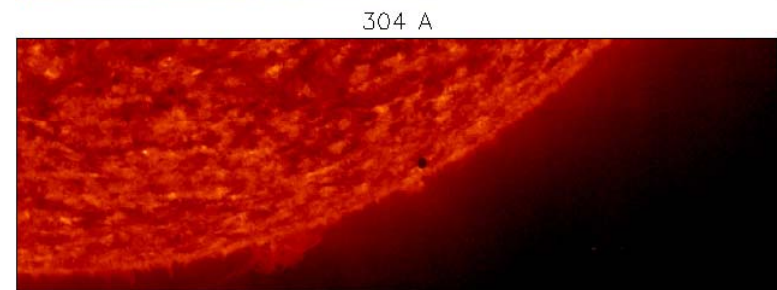
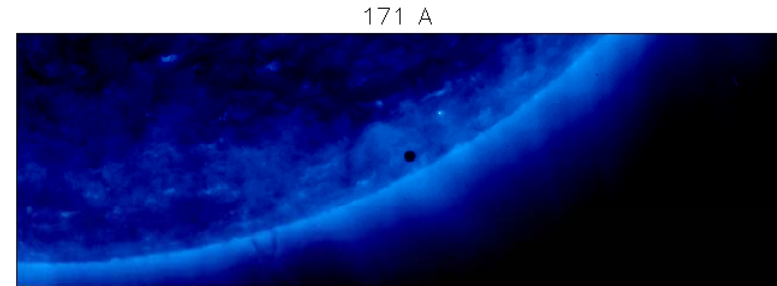
- No EUV emission seen
- Did not survive perihelion passage

# Mercury Transit



COR1, combination of  
all three polarizer angles,  
full resolution

EUVI



# Upcoming Science Opportunities

- 2014
  - **Behind: Mercury transit, Apr 29**
  - Comet Siding Spring, Sep 7-Nov 15, Mars encounter Oct 17.
  - MAVEN arrives at Mars, Sep 21
- 2015
  - DAWN arrives at Ceres
  - **STEREO goes behind Sun**
    - Ahead, Feb 11–Jul 8
    - Behind, Jan 14–Mar 19
      - Possible interference Aug 25-Oct 19
- 2016
  - Juno arrival at Jupiter, Jul 5
- 2018
  - **Ahead: Mercury transit, Mar 5**

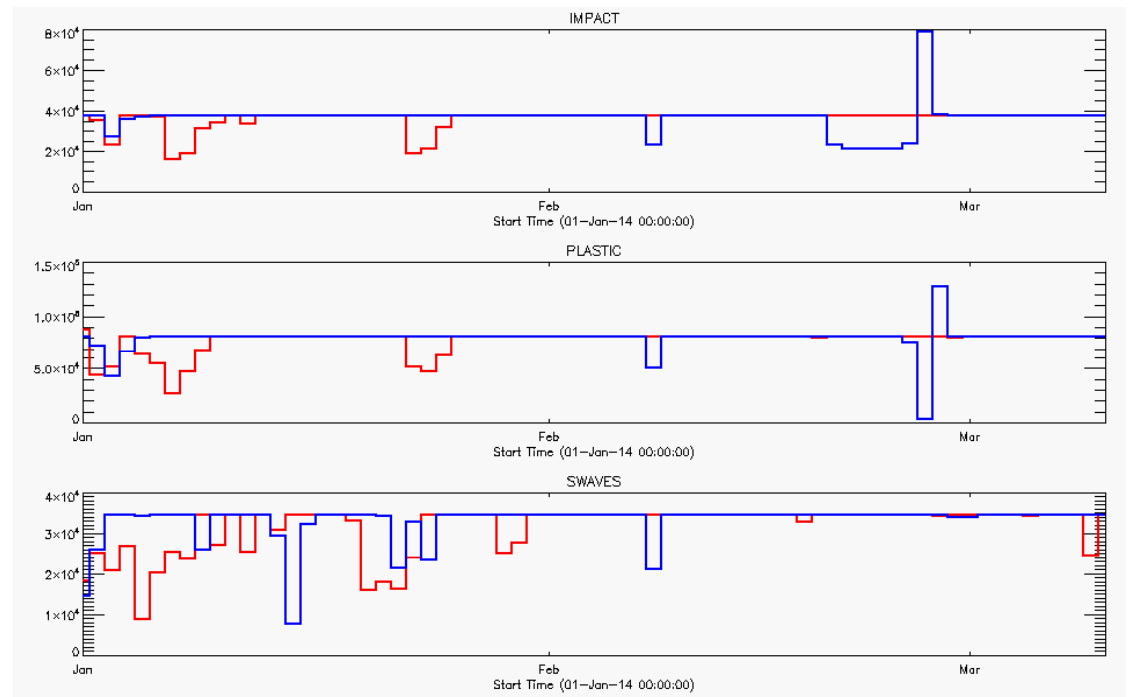
# Telemetry Rates

- Both spacecraft are currently operating at **120 kbps** on 34 m stations, and **480 kbps** on 70 m stations.
- Rates are **160 kbps** and **720 kbps** respectively if elevation above  $25^\circ$  for entire pass.
  - Station D26 at **160 kbps** nominally, and **240 kbps** if above  $25^\circ$ .
- Lower telemetry rates are no longer anticipated.
- After 2015 the telemetry rates start increasing again

# Telemetry Shortages

- Periods of significant telemetry shortages have been experienced during the winter months on one or both spacecraft for the last two years.
- These shortages have had a significant effect on data completeness from the *in situ* instruments.
- Support from ESA results in considerable improvement in completeness.

*Dropouts for 2014 so far.*



# Beacon Status

- Receiving telemetry regularly from the following stations:
  - Koganei, Japan
  - Toulouse, France
  - Kiel-Ronne, Germany
  - Bochum, Germany
- Still no station in U.S.—gap in coverage.
- Large gaps also seen when Koganei unavailable—no other stations in Asia.
- Station in Beijing, China attempting to capture beacon telemetry, but not yet successful for unknown reason.
- Beacon data using Turbo encoding since Apr 2, 2013.



# Archive Status – IMPACT

- Level-1
  - CDF-format: **HET**, LET, MAG, SEPT, SIT, STE, SWEA
  - SWEA MOM and PAD files in (gzipped) ASCII format.
- Level-2
  - **Combined MAG and plasma data in CDF format**
- 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 through **2010**
  - Iron abundances and charge states through **2011**
    - CDF, ASCII, PNG
  - Protons through **2013**: CDF and ASCII
- Level-3
  - He<sup>+</sup> and Suprathermals through **2012**, 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
  - New version currently being ingested

- **SWAVES**

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

# STEREO E/PO

- Despite cuts to NASA SMD E/PO, STEREO continues to perform E/PO activities as described in our Senior Review Proposal (thanks to the PS and PIs)
- Think Scientifically e-book partnership with SDO
- STEREO 360 – JPL producing Magic Planet format movies
- Student intern support at UNH plus continued partnership with McAuliffe Shepard Discovery Center
- Cal Day at UCB
- Continuing to supply images and video to the Internet and Science Centers in partnership with ViewSpace, SOS, AstroBulletins, TheSunToday....