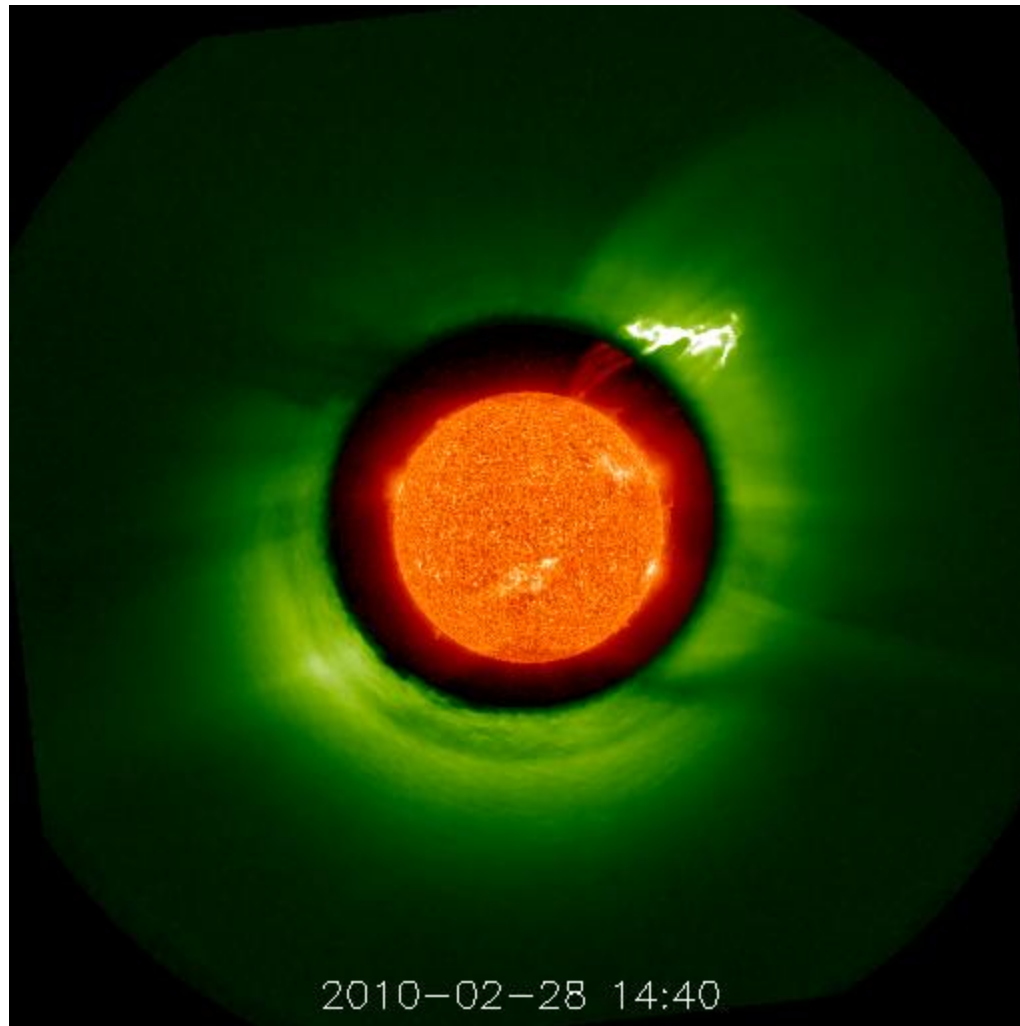


COR1 Status



William Thompson
SECCHI Team Meeting, Dublin, Ireland, March 2010

COR1 team at Goddard

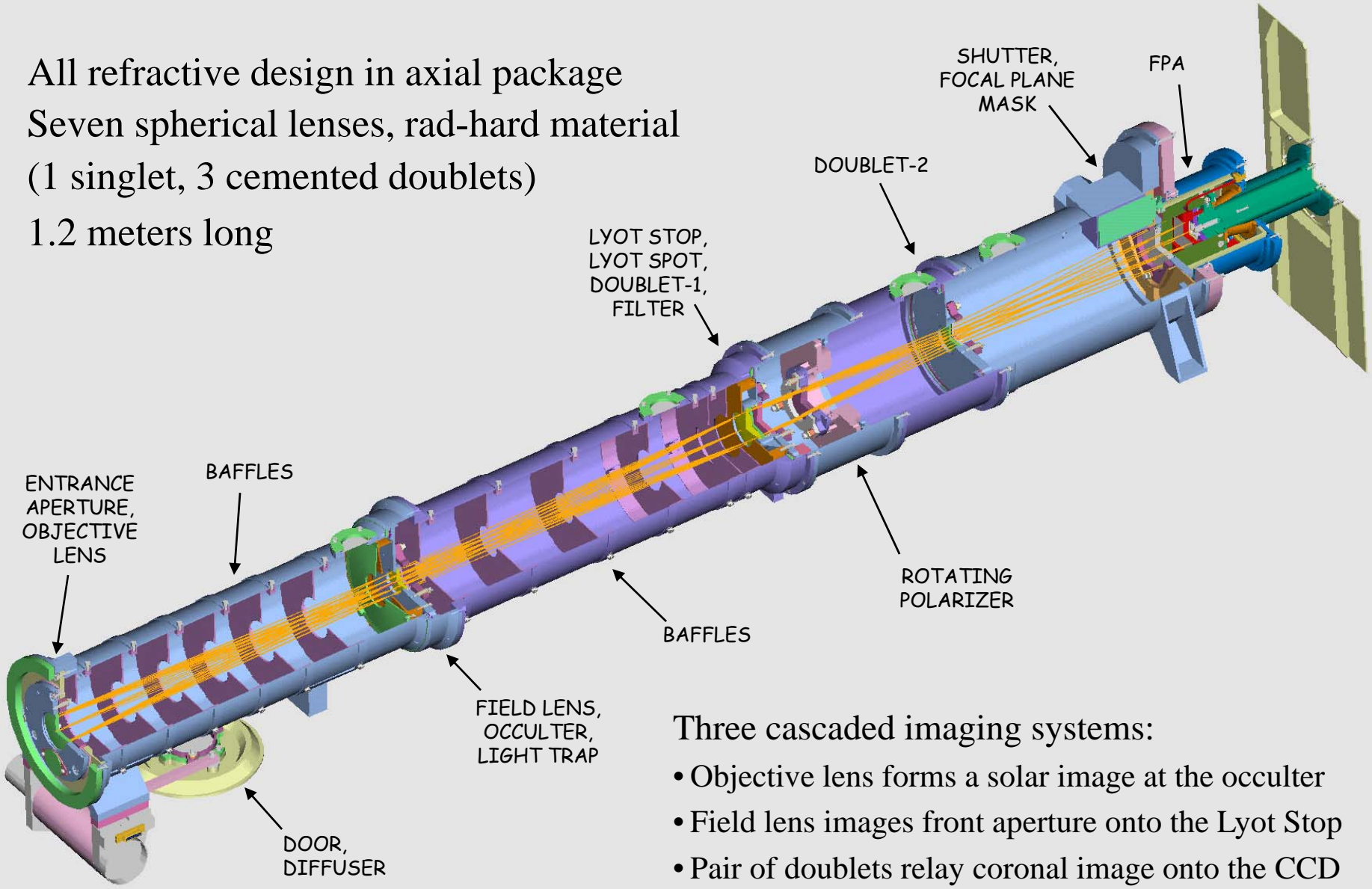
- Joe Davila
- Bill Thompson
- Chris St. Cyr
- Maxim Kramar
- Shaela Jones
- Hong Xie
- Nelson Reginald
- Tom Moran
- Kevin Wei
- Kevin Addison

- Seiji Yashiro
- Sachiko Akiyama
- N. Gopalswamy
- Doug Rabin
- Jim Klimchuk
- Spiros Antiochus
- Barbara Thompson
- Judy Karpen
- Holly Gilbert
- Terry Kucera

External team members

- James McAteer
- Joan Burkepile
- Rich Frazin
- Russ Hewett
- Guillermo Stenborg
- Marilena Mierla
- Hebe Cremades

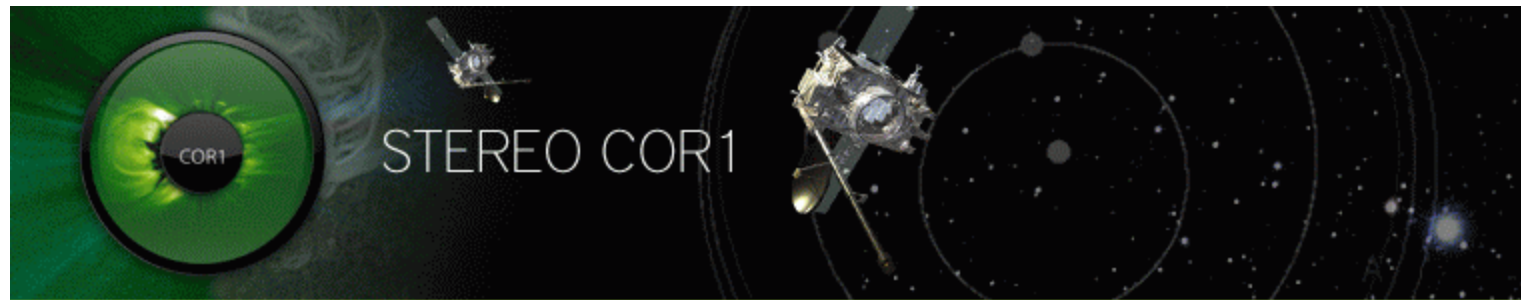
All refractive design in axial package
Seven spherical lenses, rad-hard material
(1 singlet, 3 cemented doublets)
1.2 meters long



Three cascaded imaging systems:

- Objective lens forms a solar image at the occulter
- Field lens images front aperture onto the Lyot Stop
- Pair of doublets relay coronal image onto the CCD

cor1.gsfc.nasa.gov



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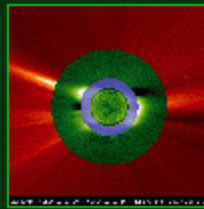
▶ [MOVIE GALLERY](#)

▶ [IMAGE GALLERY](#)

▶ [COR1 USERS GUIDE](#)

WHAT'S NEW

PICTURE OF THE MOMENT



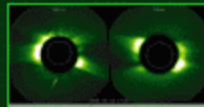
Composite Images - 08/10/2008

Composite images are now routinely prepared and available at:
http://mlso.hao.ucar.edu/cgi-bin/mlso_homepage.cgi

» [View](#)

» [View more images](#)

FEATURED MOVIE



Bright sungrazing comet observed by COR1 on May 23, 2008

An extremely bright sungrazing comet was seen by COR1 on May 23, 2008 on both Ahead and Behind. Because of the separation of the two spacecraft, the comet appears quite differently in each. This is the brightest comet yet seen by COR1. The comet does not survive its approach to the Sun, and is not seen to come back out.

» [View](#)

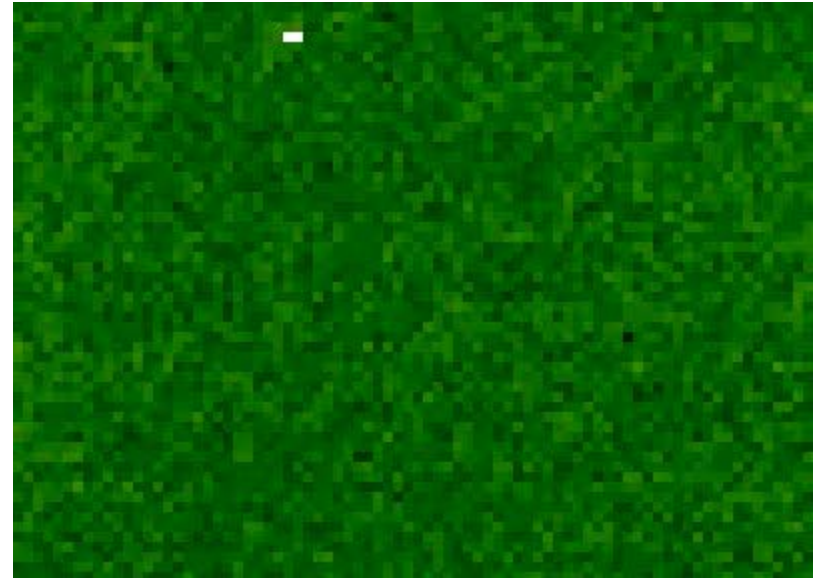
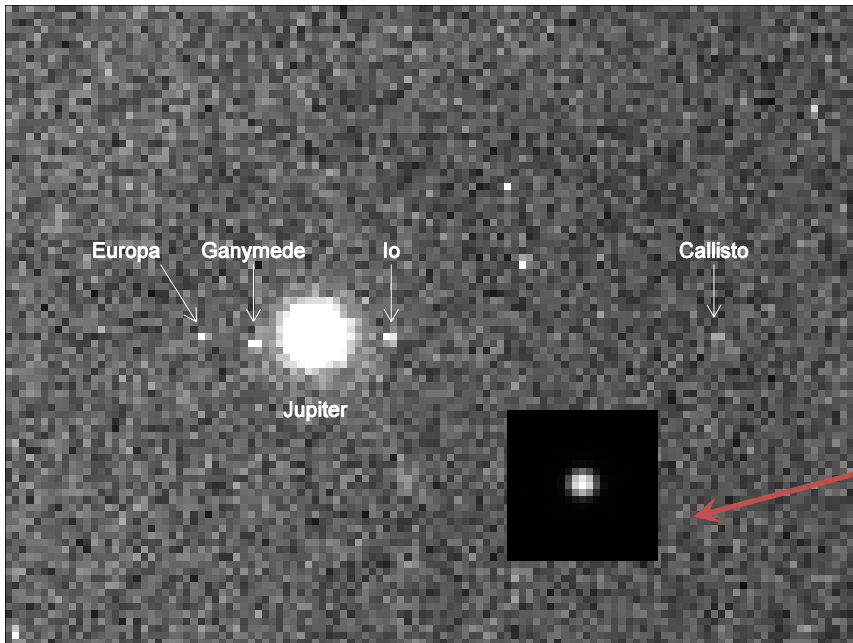
» [View more movies](#)

Operations

- Standard operating mode is to bring down 3 polarizer angles (0° , 120° , 240°) to form both ***B*** and ***pB***.
- Normal cadence is **5** minutes.
- Changed image format to **512×512** on 19 April 2009 due to decreasing telemetry rate (was **1024×1024**).
- Future telemetry decreases will require bringing down total ***B*** images summed onboard.
 - COR2 already does this.
 - Will still sum 3 images to preserve signal-to-noise, and to maintain continuity
 - Some images still planned to be ***pB*** sequences.

Radiometric Calibration

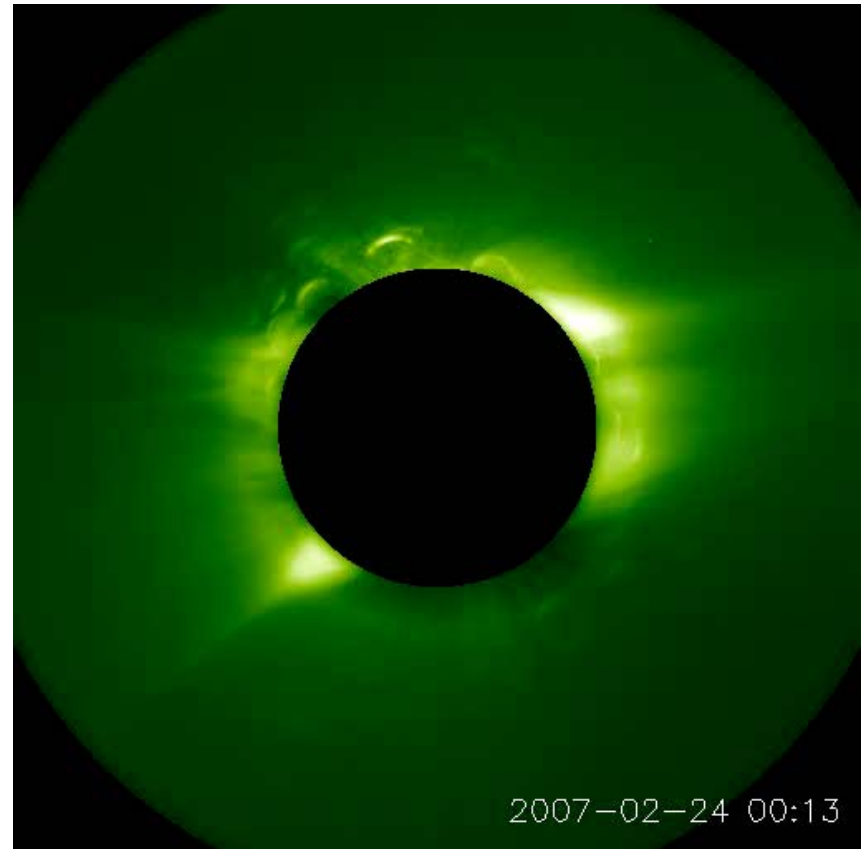
- Current COR1 calibration based on observations of Jupiter.
- Calibration good to 10% absolute, and 1% relative.
- Stability monitored using star observations.



- Jupiter is partially resolved in COR1 and just below saturation
- Inset shows true appearance without scaling for moons
- Paper on calibration published in *Solar Physics*, **250**, 443-454 (2008).

Pointing Calibration

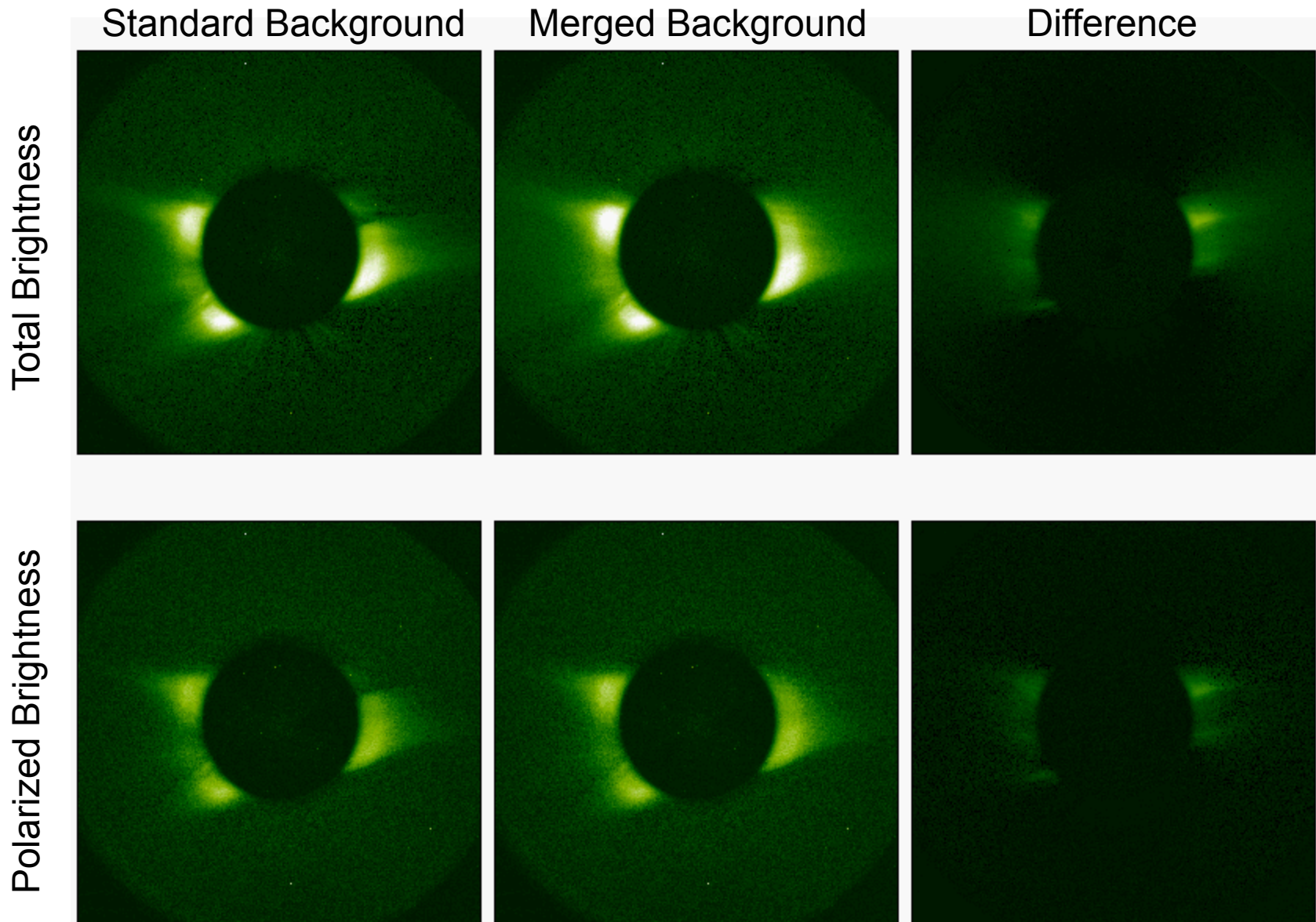
- Pointing calibration is based on lunar transit for Behind (Feb 24-26), and on the star λ Aquarii (Feb 28-Mar 1) for Ahead
- Continue to monitor bright stars which pass through the field of view of both telescopes
- COR1_POINT was updated January 17, 2008 to correct a bug that was affecting data from the first few months of the mission



Background Subtraction

- Now creating daily and “monthly” background images, along with roll minimum backgrounds when available. “Monthly” files created on 10-day cadence.
- Monthly backgrounds subtracted automatically by SECCHI_PREP. Files distributed through SolarSoft Database (SSWDB).
- Regularly scheduled spacecraft calibration rolls started in early 2008. Rolls scheduled at roughly 3 months intervals, at perihelion, aphelion, and halfway between. These are used to improve the background determination.
- Two versions of monthly background:
 - Normal version (default)
 - Combined with calibration roll (**/CALROLL**). (*Not recommended for 2007.*)
- Paper on background subtraction published in *Solar Physics*, **262**, 213-231 (2010).

Ahead - 1-Feb-2008



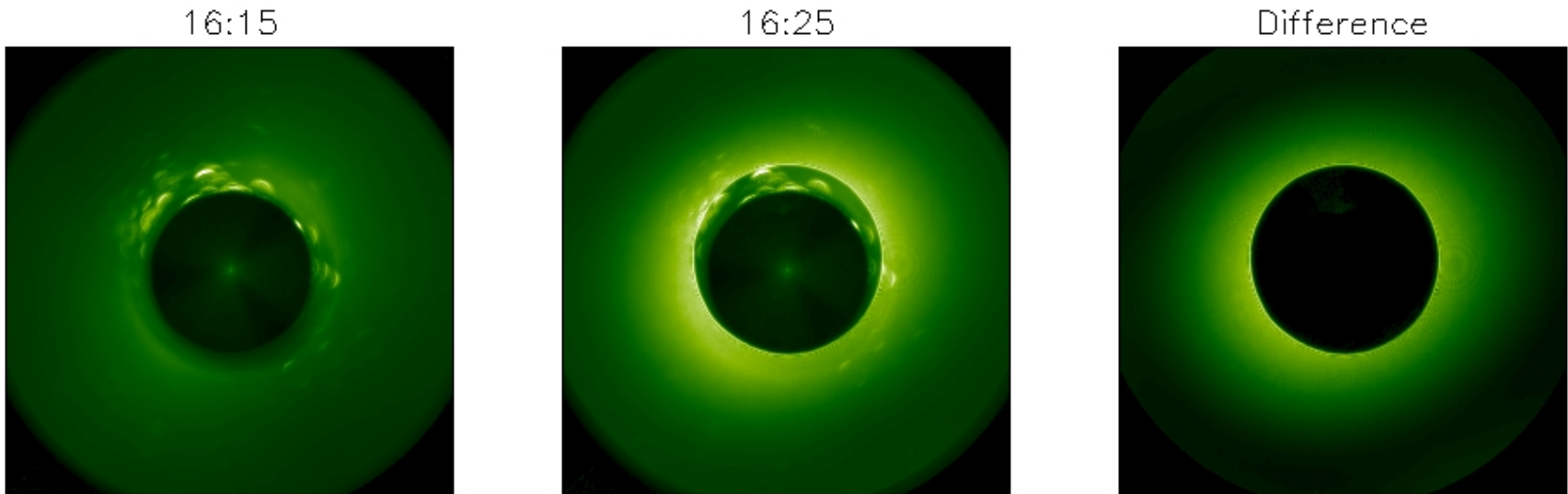
Intercalibration Workshop

- Held an intercalibration workshop at GSFC in January 2009.
- Attending were people from Goddard, NRL, HAO, and Marseilles (via telecon).
- Also attending were users from the tomographic reconstruction community.
- Put together a wiki site for intercalibration discussions at

<http://secchi-ical.wikidot.com/>

Particle events

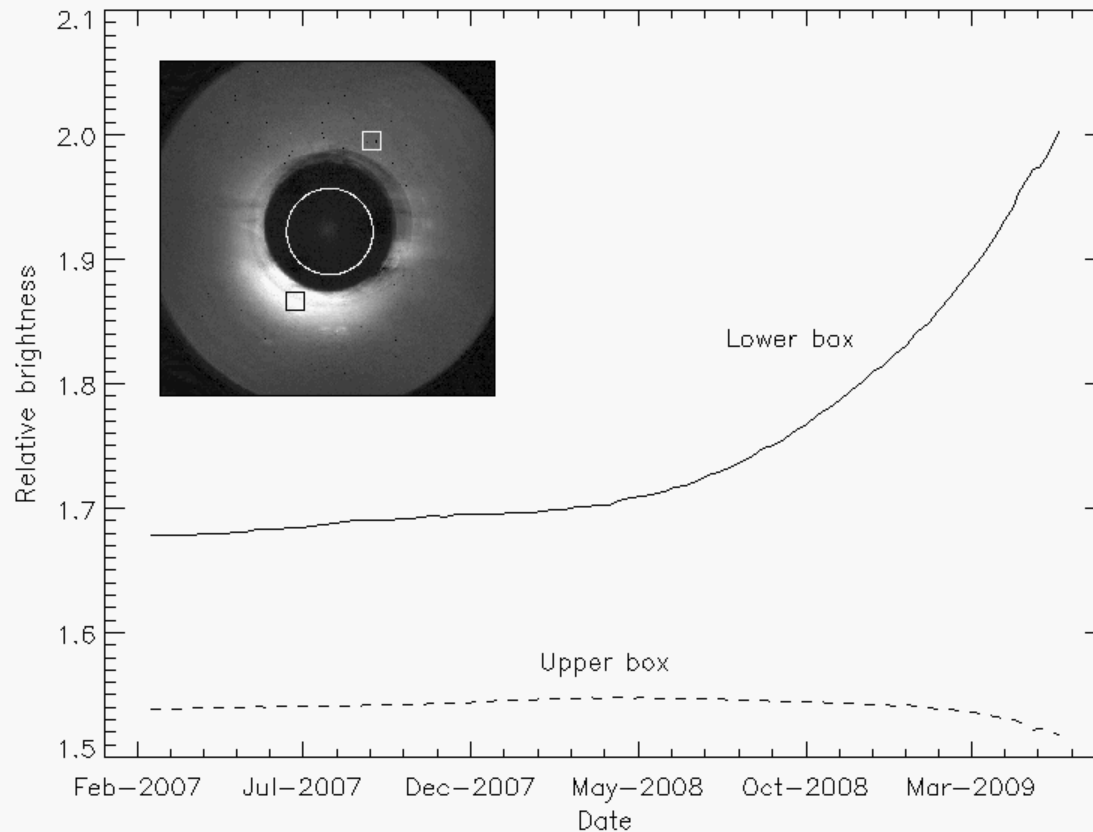
- Have seen isolated particles attach themselves to the objective lens on two occasions, once for each spacecraft.
- Particle landed on Behind objective lens on 30 January 2009. Behind scattered light now comparable to Ahead.
- Particle landed on Ahead objective lens on 27 January 2010. Background only changed by a few percent.



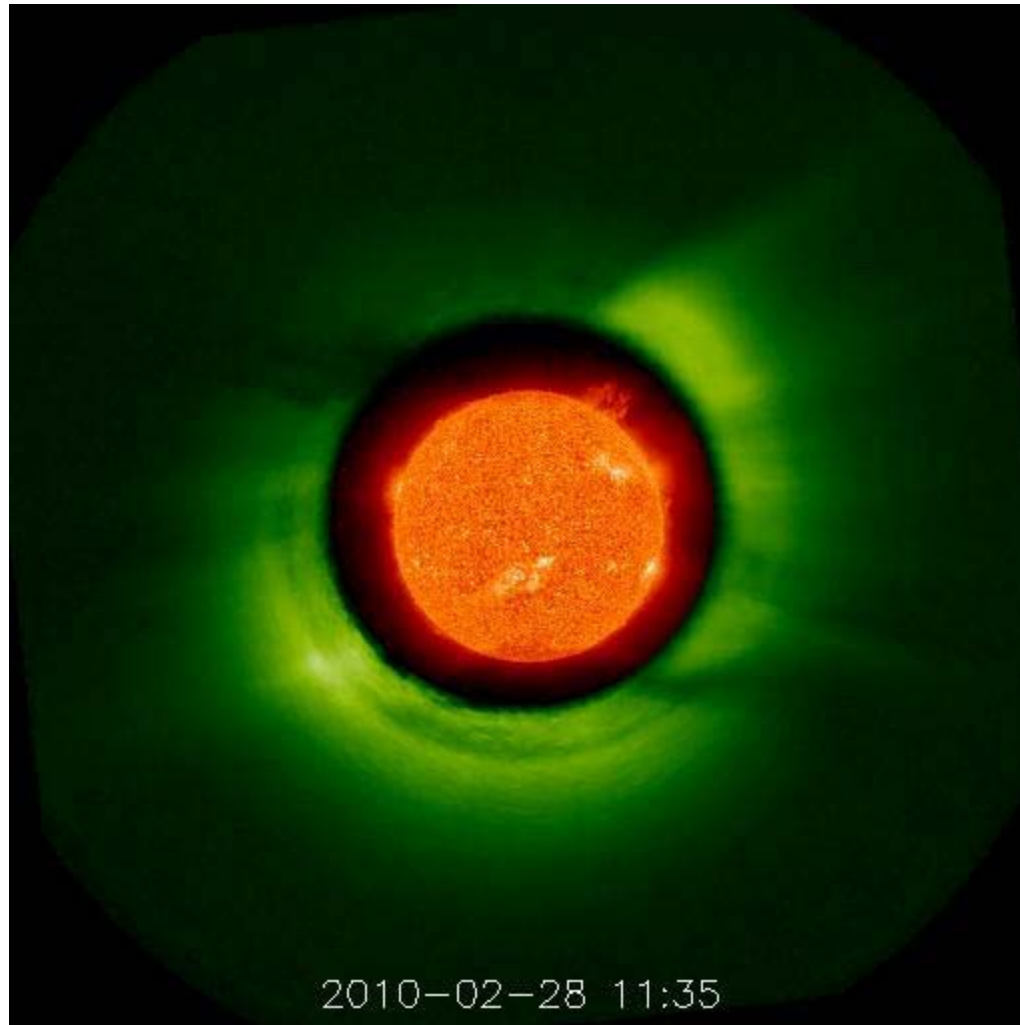
Behind change on 30 January 2009

Background evolution on Ahead

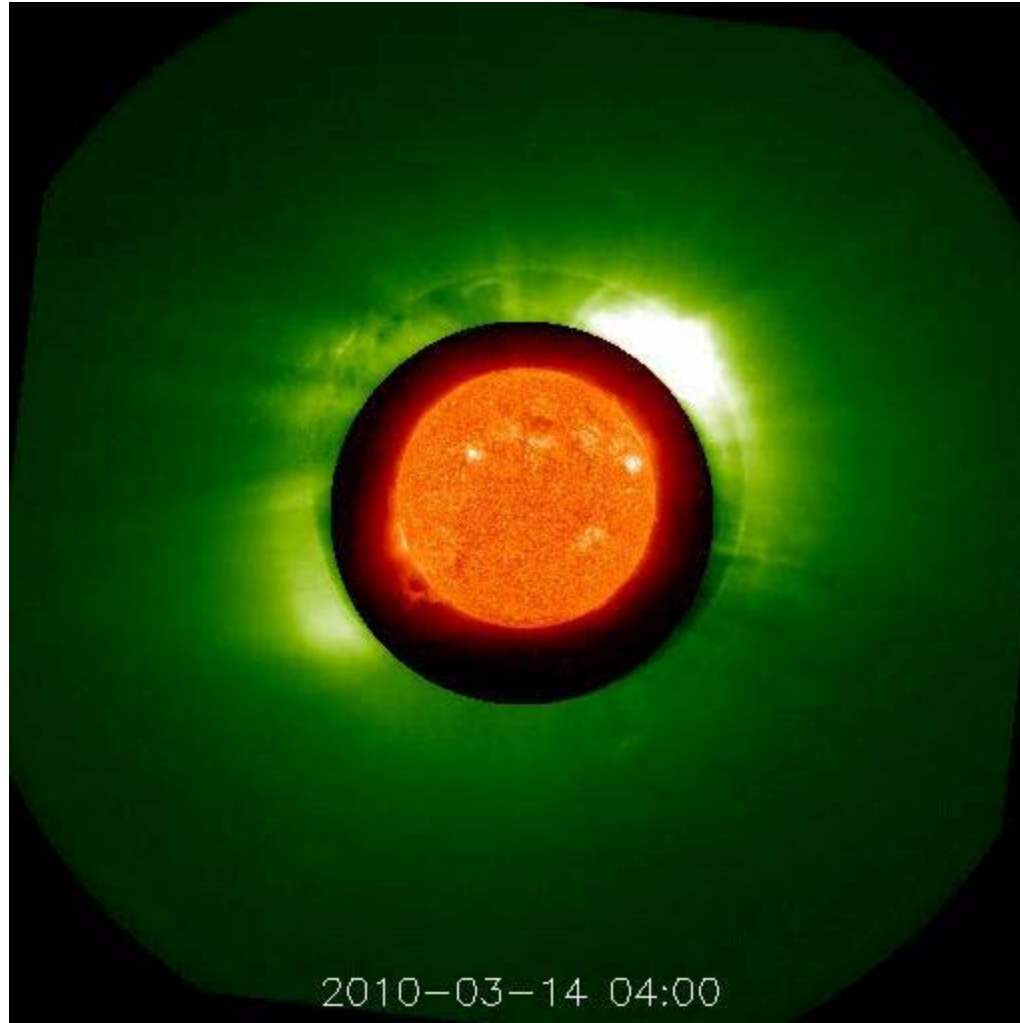
- COR1-A is showing a slow evolution in the area to the south-east of the occulter. The cause is currently unknown.
- This change in brightness only shows up in ***B***, not in ***pB***.



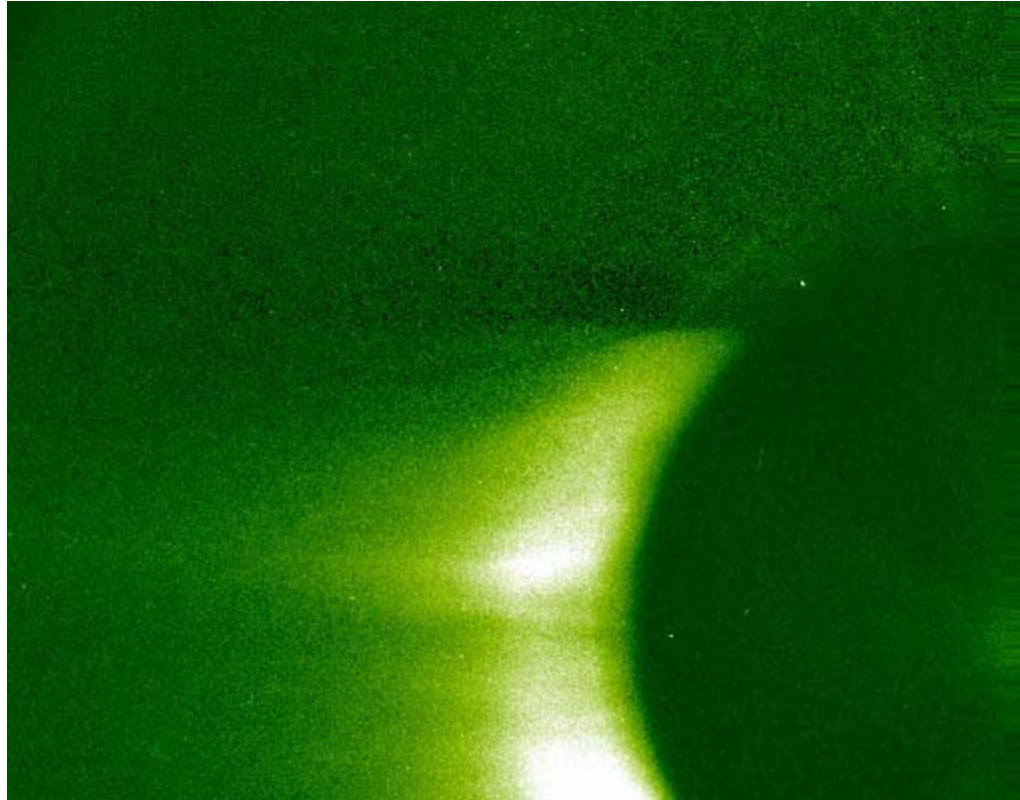
Prominence Eruption



Another Prominence Eruption

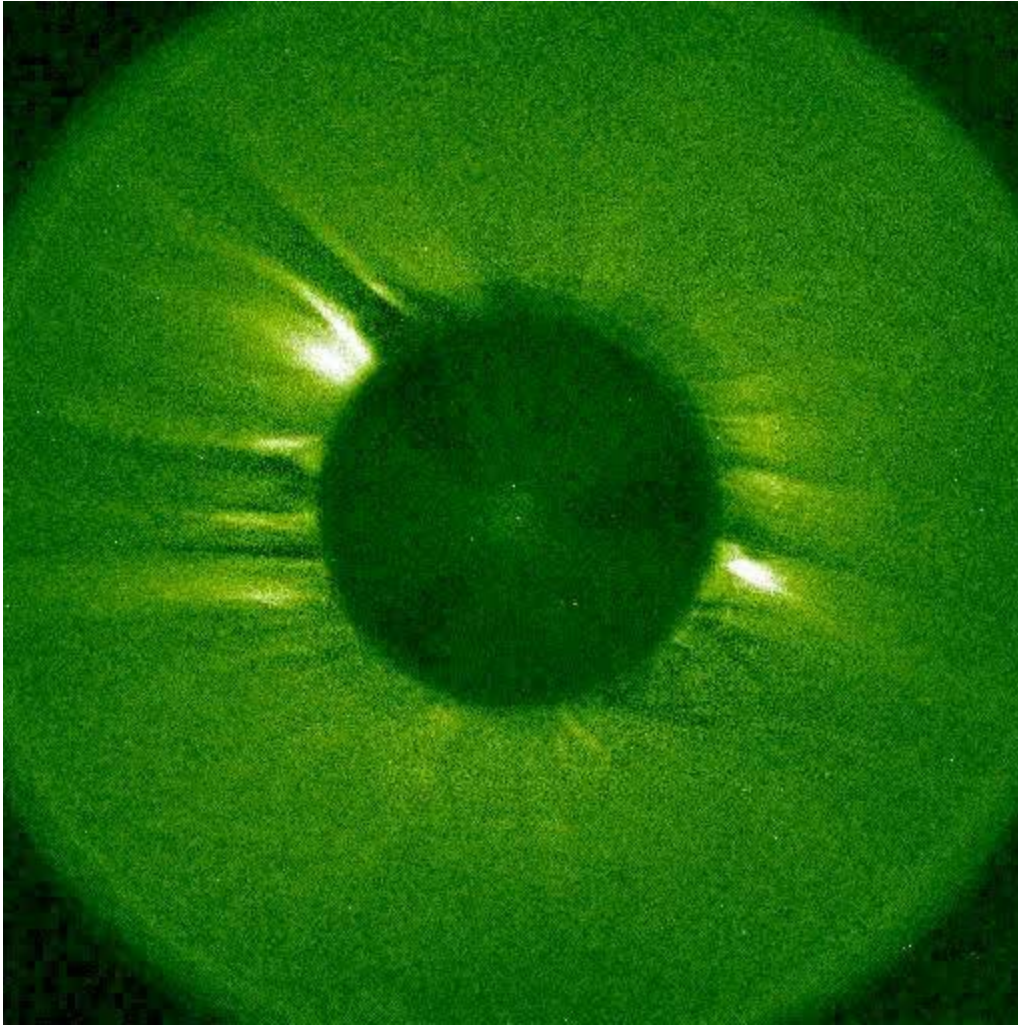


Mercury Transit



27 October 2007

Comet: 12 March 2010



Note faint tail drifting
out after perihelion