CASSINI SOST SEGMENT

Rev 215 Handoff Package

Segment Boundary 2015-129T08:15:00 – 2015-131T18:00:00

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Science Highlights

Notes & Liens

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DOY 129 (9 May 2015)
During the equatorial passage through Saturn's outermost ring, the E ring, CDA will gather information about the inclination distribution of E ring ice grains in the inner part, 4 – 7 Rs, of the E ring. In contrast to the dense rings, the E ring is "puffed up" and particles are expected to show a wide variety of inclinations at any given point. Compositional variations of ice grains in the inner E ring will be observed. CDA will also look for icy dust trails of small moons embedded in the E ring. The dust trails the orbits of the bigger moons Dione (Helene, Polydeuces) and Tethys (Telesto and Calypso) at the Lagrangian points L4 and L5.

Also on DOY 129, observations of Dione, Tethys, Polydeuces and smaller satellites will be made by CIRS, ISS, UVIS and VIMS. The observation time will provide CIRS with additional daytime observations of the boundary between Dione's weak thermally anomalous and background regions, which will allow the boundary region to be mapped and the change in thermophysical surface properties to be better constrained. CIRS will also use these data to continue the search for activity on Dione, particularly over its wispy terrain. CIRS will gain additional medium-spatial resolution nighttime observations of Tethys' thermally anomalous region, to help provide a better constraint on the region's anomalously high thermal inertia. One of the best opportunities for a spatial-resolution observation of Dione's co-orbital satellite Polydeuces, which was only discovered in 2004, will help constrain its shape, orbit and surface properties. UVIS will map portions of Dione, Tethys, Enceladus and the small satellites to look for compositional relationships, effects of exogenic processes, and to compare effects of E-ring grain bombardment and coverage.

DOY 130 (10 May 2015)
DOY 130 starts with ISS taking the opportunity for an Enceladus plume observation. After a downlink to playback data, CDA will gather information about the inclination distribution of E ring ice grains in the outer part, 13 - 15 Rs, of the E ring where the ice particles are more varied than those in the inner E ring. The compositional variations of the outer E ring ice grains will be studied. ISS follows CDA with a long observation of the outer moon Kiviuq. Observation goals are to find constraints on the pole axis orientation of this satellite, the rotation direction, the shape, and the question if Kiviuq might be a contact binary or binary object.

DOY 131 (11 May 2015)
The ISS Kiviuq observation goes into DOY 131 followed by the spacecraft turing to earth to play back all the remaining data gathered for this segment.

Notes

- Pointing:
  - Several requests have collaborative riders. For CIRS_215PO_POLYDEU001_PRIME, ISS is the actual prime instrument for science and CIRS is the rider. CIRS is doing the pointing to enable scans in the design.
  - RBOT:
    - Chose waypoint safe secondaries for Enceladus pointed waypoints or MAPS downlink defined secondaries for Earth pointed attitudes
    - CDA PIEs are rocking inclination scans where the s/c would turn about 35 degrees back and forth around the y-axis. They have prepared static pointing designs to remove the rocking if it is RBOT prohibitive
- Data Volume:
  - No issues
- DSN:
  - Warning: 70m usage for sequence exceeds project commitment of <= 35%; is at 50% - okay, periapse segment
  - Warning: number of sequence upload passes is 0 – okay, not segment not at end of sequence
- Resource checker:
  - No issues
- Opmodes:
  - No issues
- Hydrazine:
  - N/A
- Special Activities:
  - None
- Liens:
  - None put as a SPLAT item but see RBOT note above regarding CDA inclination scans