

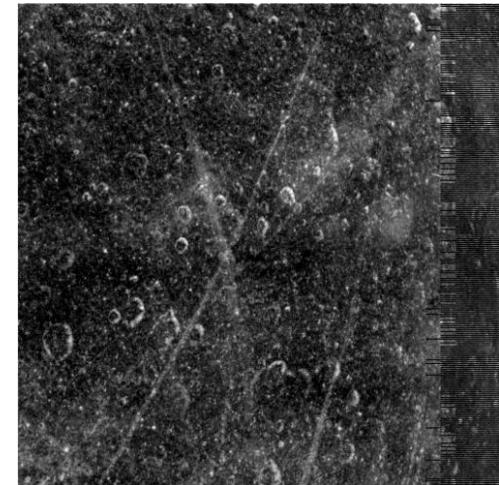
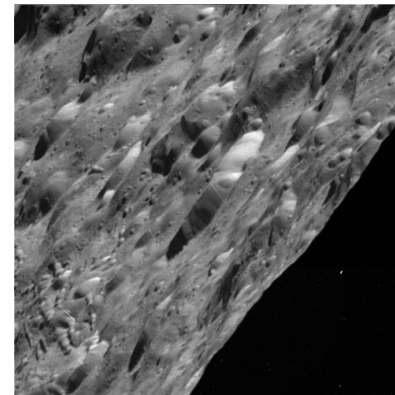
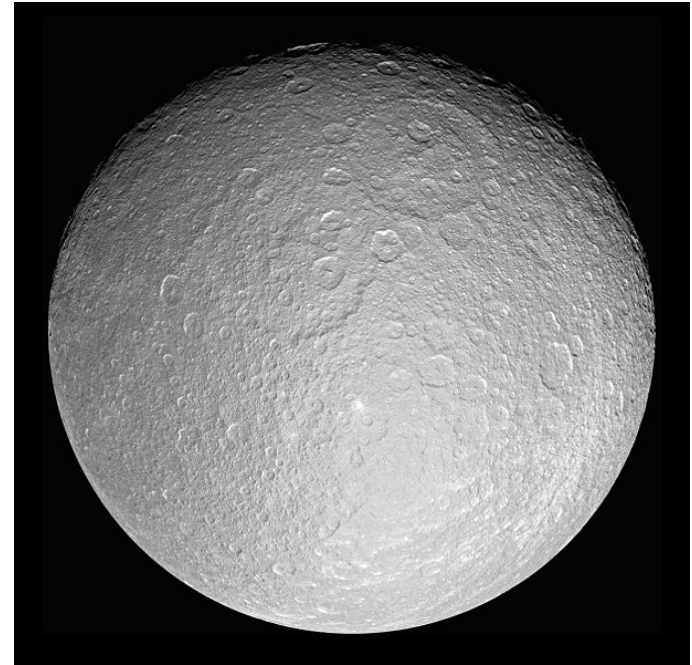
SOST PIE: UVIS Star Occultation

UVIS_151RH_ICYEXO001_PIE

2011-213T20:34:00-T21:38:00

(Saturn Segment): Orion two star occ

1. The main goal of this occultation is to search for possible volatiles (CO_2 , O_2 , OH , H_2 , etc.) in the vicinity of Rhea. The purpose of this work is to characterize the tenuous (trillionths of Earth's or 10^6 molecule/cc) CO_2 , O_2 atmosphere discovered last year by INMS/CAPS based on 3 previous flybys, and to understand the interactions between the surface of Rhea and charged particles and micrometeorites. These chemical and impact processes may leave products which are captured into a tenuous atmosphere of Rhea. (The geometry of this occultation is not suitable to detect or confirm rings.)
2. CIRS, VIMS and ISS are riding along in this observation (although the stars are UV-bright). The actual occultation is 21:04-21:08, but the total time includes turns and signal baselines.
3. This occultation also serves as an engineering test for the E15 UVIS stellar occ, as both occultations involve two stars in Orion's belt.



Images from the R3 flyby on Jan. 11, 2011: Left is the south pole, while the right shows faults from 41,000 km.

The Hyperion apoapsis observation: August 25, 2011 2011-237T15:30-20:30

ISS_152HY_HYPERION001

ORS in ridealong as well as INMS and Mimi

2100-237T15:30-20:30

High value observation in XD segment

Scientific Goals:

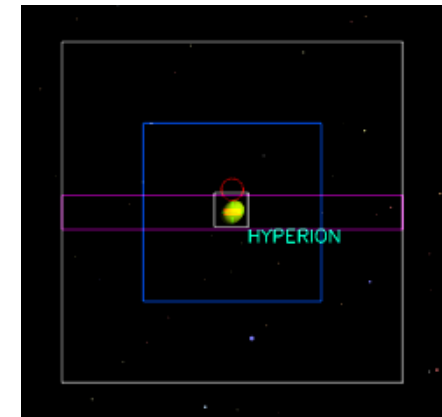
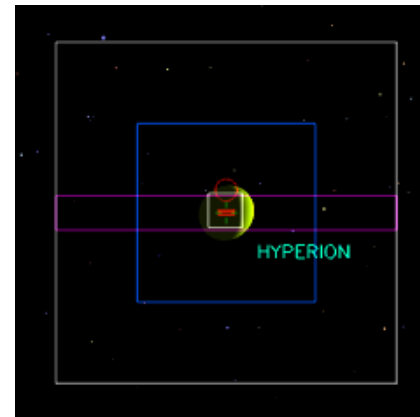
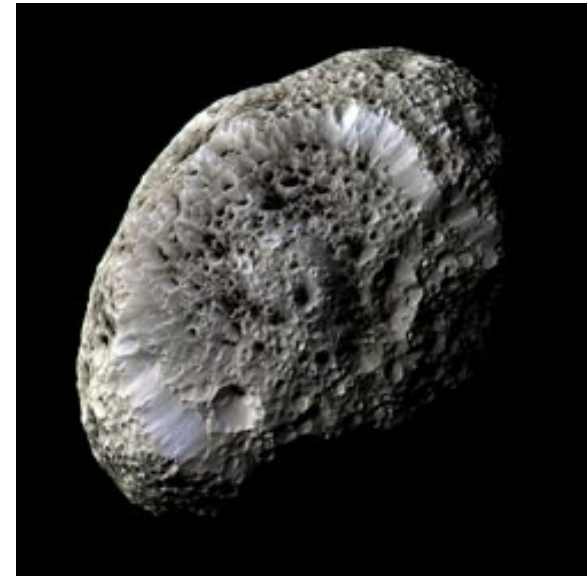
1. To image poorly observed regions for morphological and geophysical studies
2. To understand the dust environment
3. To obtain spectra of additional regions

Observing Strategy:

Sit and stare, except around C/A, where 2X2 or 1X2 ISS mosaics with 2-minute dwell times will be executed, and scans for UVIS CIRS done.

Geometry:

| | Start | C/A | Mid | End |
|-------------|--------|--------|--------|--------|
| Phase | 150 | 108 | 66 | 38 |
| Size (mrad) | 9.5 | 13 | 9.8 | 4.5 |
| Range | 34,700 | 25,100 | 33,600 | 72,700 |



Left: C/A at 2011-237T16:47 Right: 19:47:00
(not pointing designs – these are from Digit)

Engineering information

- Secondary pointing: critical for UVIS occ, but not critical for Hyperion observations
- PDT designers: Alain Jouchoux (alain.jouchoux@lasp.colorado.edu) for UVIS, and Tilmann Denk for ISS (tilmann.denk@gmx.de)

Rhea observation: IN2a

Hyperion observation. IN2d