

Key Plume Pies in S77

I. RINGS_179 (plume_179_ten_p3 PIE)

2013-018T06:30:00-018T08:30:00

II. RINGS_181 (plume_181_ten_p2 PIE)

2013-045T02:50:00-045T04:50:00

III. SATURN_182 (plume_182_ten_p3 PIE)

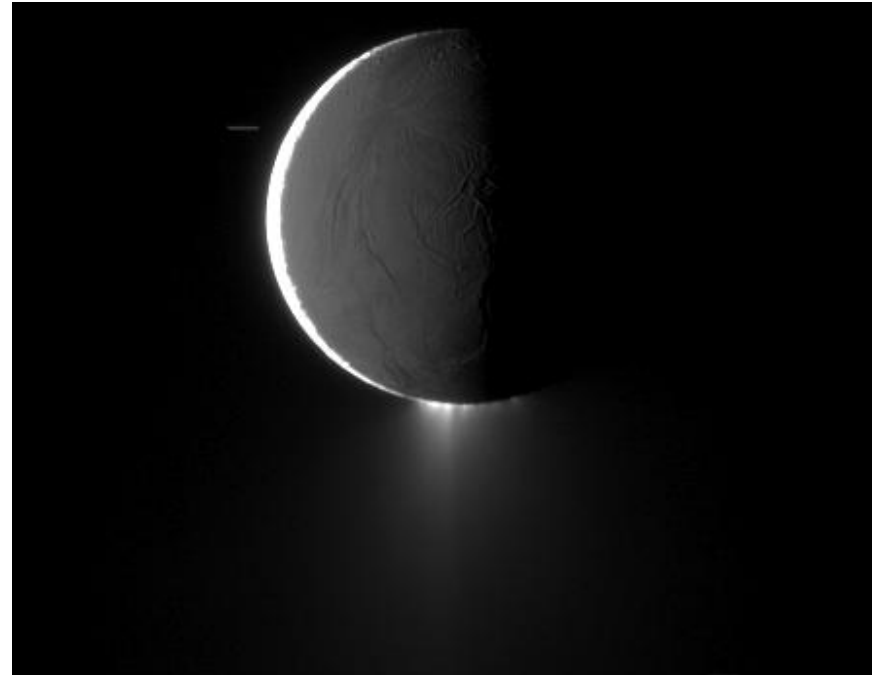
2013-056T10:25:00-056T12:25:00

Why so many plume observations?

To obtain different viewing geometries which better characterize plume morphology, particle size, and the relationship between plumes and surface features and thermal anomalies. Specific jets are mapped to specific locations. In addition, large distances are required for context and to understand the relationship of the plumes to E-ring (tendrils observations useful here).

Observations of both jets and plumes required.

To understand the variability of geologic activity on Enceladus.



ISS Enceladus image of the surface and the plume

R4: RSS targetted flyby

Segment: 2013-067T14:29-69T14:29

**C/A: 2013-068T18:17:28.26 (9 March 2013;
1000 km)**

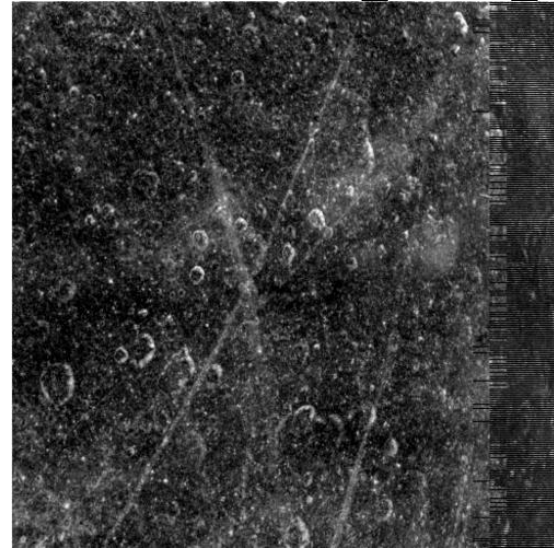
**Science suite of Rhea flybys: R1: RSS;
R2 and R3: MAPS; R4: RSS (no ORS)**

RSS results from R1 suggest partial differentiation and the possibility of a non-hydrostatic figure, perhaps from the impact crater Tirawa, which may not be gravitationally compensated.

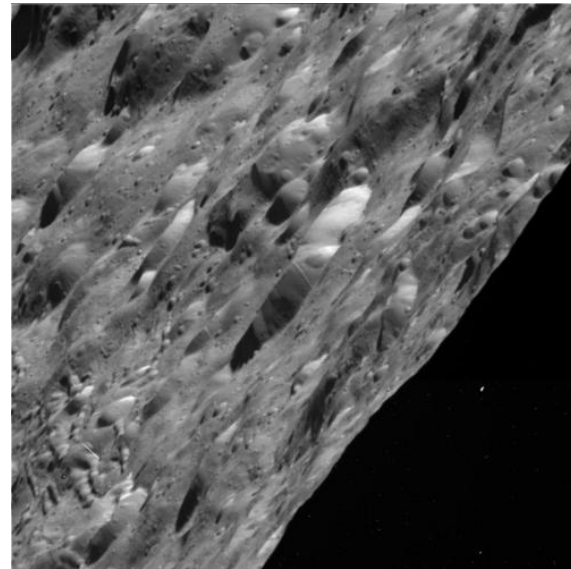
The goal of this flyby is to determine: 1. the figure of Rhea and to what extent it is in hydrostatic equilibrium; and 2) the internal structure of Rhea in more detail. MAPS (CDA) is in ridealong to determine the source and amount of the exterior dust flux into the system (Rhea is a gravitational focuser).

RSS observations at C/A from -1.5 to +1.5 hours, and for three hours during downlinks at -11 and +5 hours. At C/A the ORS FOVs are dragged across the surface, to provide a “threefold” experiment. (There are no dedicated ORS flybys of Rhea).

Other observations: ISS observations of outer irregular moon Hyrokkin for 20 hrs to determine its rotational state; on the inbound (dark) approach, CIRS search for thermal anomalies in the S. Pole to determine whether frost can condense there during the southern winter; ISS acquisition of regional maps and color global maps of the N. Pole during the lit exit.



Rhea at 4100 km



The S. Pole of Rhea