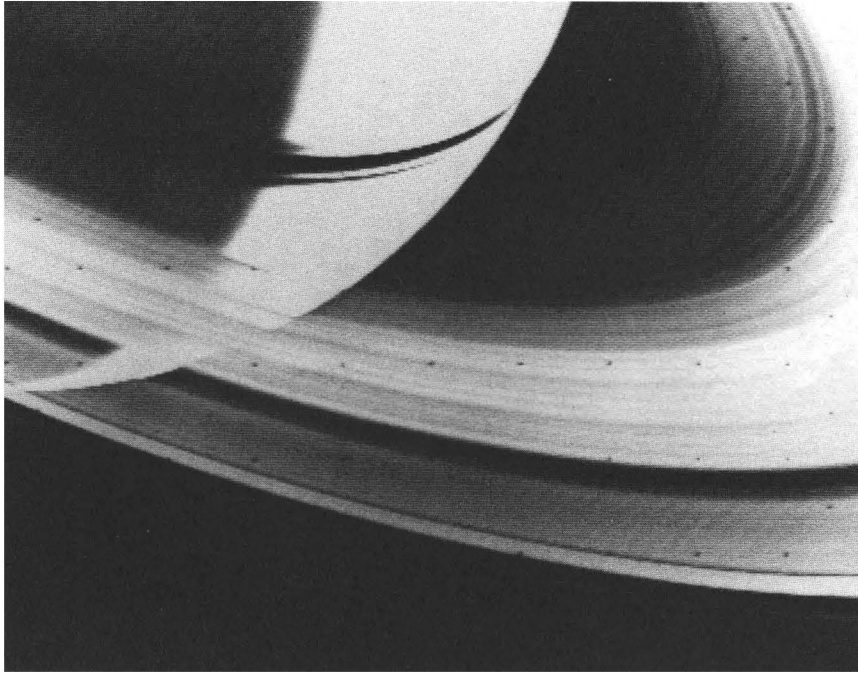


Voyager Bulletin

MISSION STATUS REPORT NO. 59 NOVEMBER 21, 1980

Voyager 1 11/13/80 1,500,000 km (930,000 mi)



PARTING SHOT — Looking strangely serene, the crescent of Saturn, the planet's rings and their shadows are seen in this image as Voyager 1 began to leave the Saturn system. The bright limb of Saturn is clearly visible through the A, B, and C rings, while the dark band cutting through the crescent is the shadow of the rings. The crescent appears artificially brighter since this image was overexposed to bring out detail in the rings.

SATURN SYSTEM — This montage of images was prepared from an assemblage of images taken by Voyager 1 during its Saturn encounter in November 1980. This artist's view shows Dione in the forefront, Saturn rising behind, Enceladus and Rhea off Saturn's rings to the lower right, Tethys and Mimas fading in the distance to the upper left, and Titan in its distant orbit at the top.



Voyager 1 11/17/80

NASA

National Aeronautics and
Space Administration
Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Voyager 1: Saturn Plus 9 Days
Voyager 2: Saturn Minus 277 Days

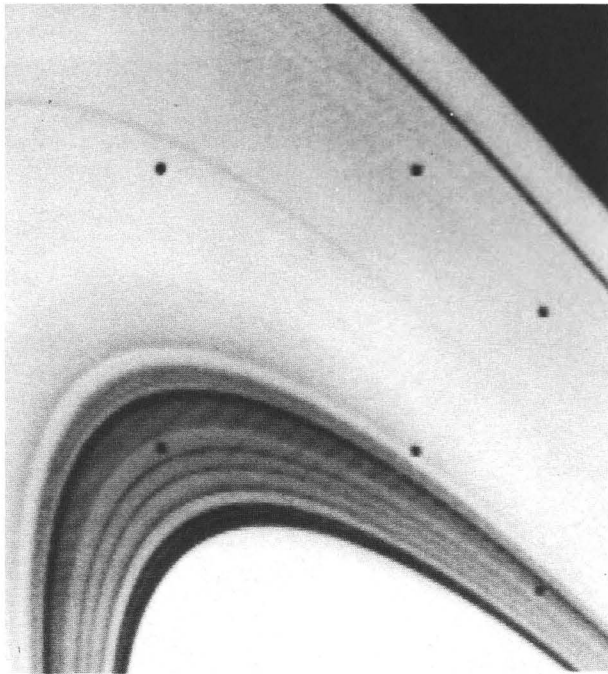
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Voyager 1 11/12/80 720,000 km (446,000 mi)



OUTBOUND – Voyager 1 gave us this view of Saturn's rings from above, eight hours after its closest approach to the planet. The unique lighting highlights the many hundreds of bright and dark ringlets comprising the ring system. The C-ring (dark gray area) seems to blend into the brighter B-ring as the concentric features radiate out from the planet. The dark spoke-like features seen in images taken during the approach to Saturn now appear as bright streaks, indicating that they possess a strong forward-scattering property, and may be smaller particles preferentially separated from larger particles, perhaps by static electricity along the magnetic field lines passing through the B-ring.

Voyager 1 11/8/80 6,000,000 km (4,000,000 mi)



FAR FROM EMPTY – Once believed devoid of material, the Cassini Division may be filled with over 20 ringlets of its own. Discovered by Cassini in 1675, the Division is a 3500-kilometer (2200-mile) stretch between the classical A- and B-rings (the region between the two dark ringlets). A number of individual features (from its outer boundary to the inner boundary) are visible here: a medium dark ringlet, 800 kilometers (500 miles) wide; four brighter ringlets, approximately 500 kilometers (300 miles) wide and separated by dark divisions; and a new, barely visible, narrow (about 100 kilometers or 50 miles), bright ringlet at the inner boundary.

Voyager 1 11/12/80 750,000 km (470,000 mi) P-23099



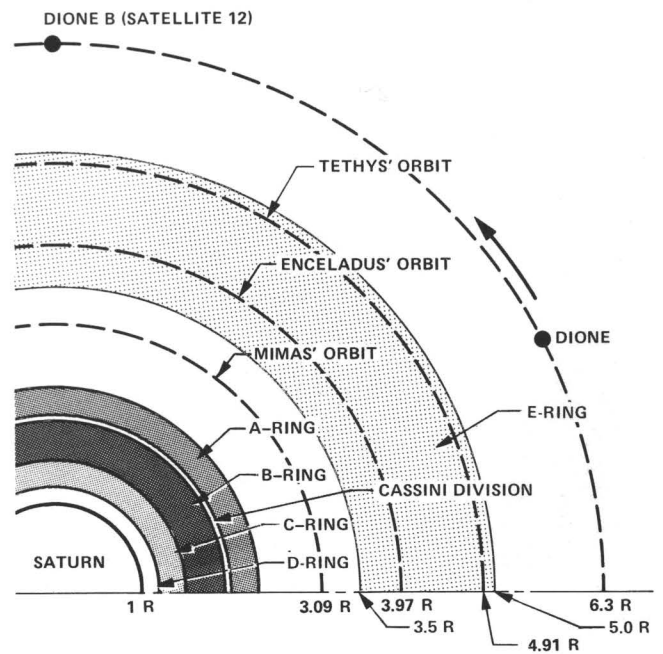
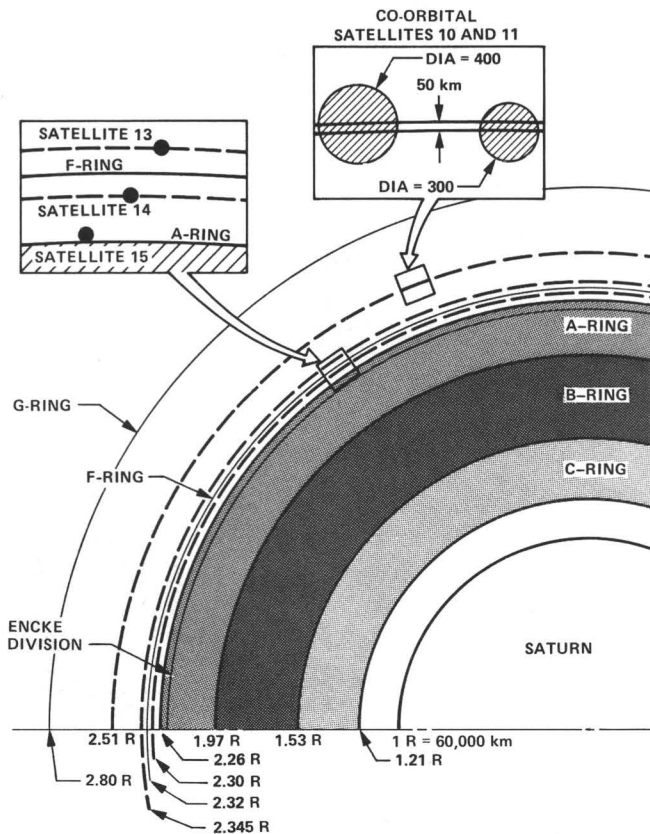
BRAIDED F-RING – Two narrow, braided, bright rings that trace distinct orbits, as well as a broader, very diffuse component about 35 kilometers (20 miles) in width can be seen in the F-ring. Also seen are "knots," which probably are local clumps of ring material, but may be mini-moons. The photo was taken from the unilluminated face of the rings.

Voyager 1 11/12/80 128,000 km (79,500 mi)

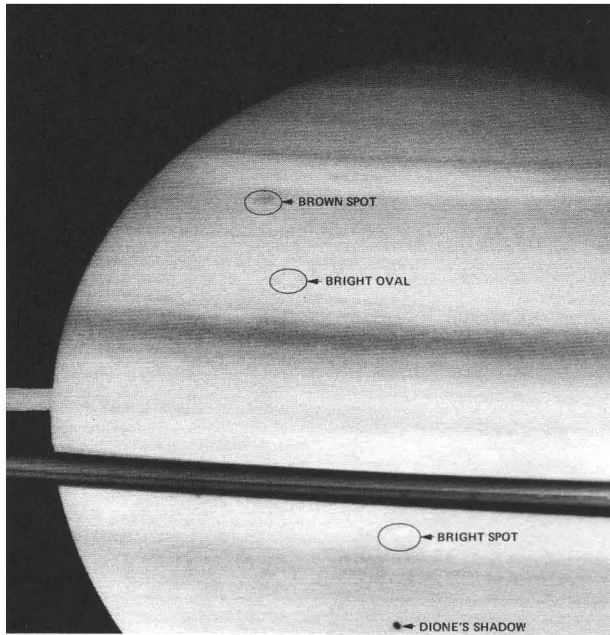


RHEA — One of the highest-resolution color images of Rhea shows one of the satellite's most heavily cratered areas, indicating an ancient surface dating back to the period immediately following the formation of the planets 4.5 billion years ago. The photograph shows surface features about 2.5 kilometers (1.5 miles) in diameter, similar to a view of Earth's Moon through a telescope. Other areas

of Rhea's surface are deficient in the very large (100 kilometers or 62 miles or larger) craters, indicating a change in the nature of the impacting bodies and an early period of surface activity. White areas on the edges of several of the craters are probably fresh ice exposed on steep slopes or possibly deposited by volatiles leaking from fractured regions.



Voyager 1 11/11/80 1,750,000 km (1,087,000 mi)



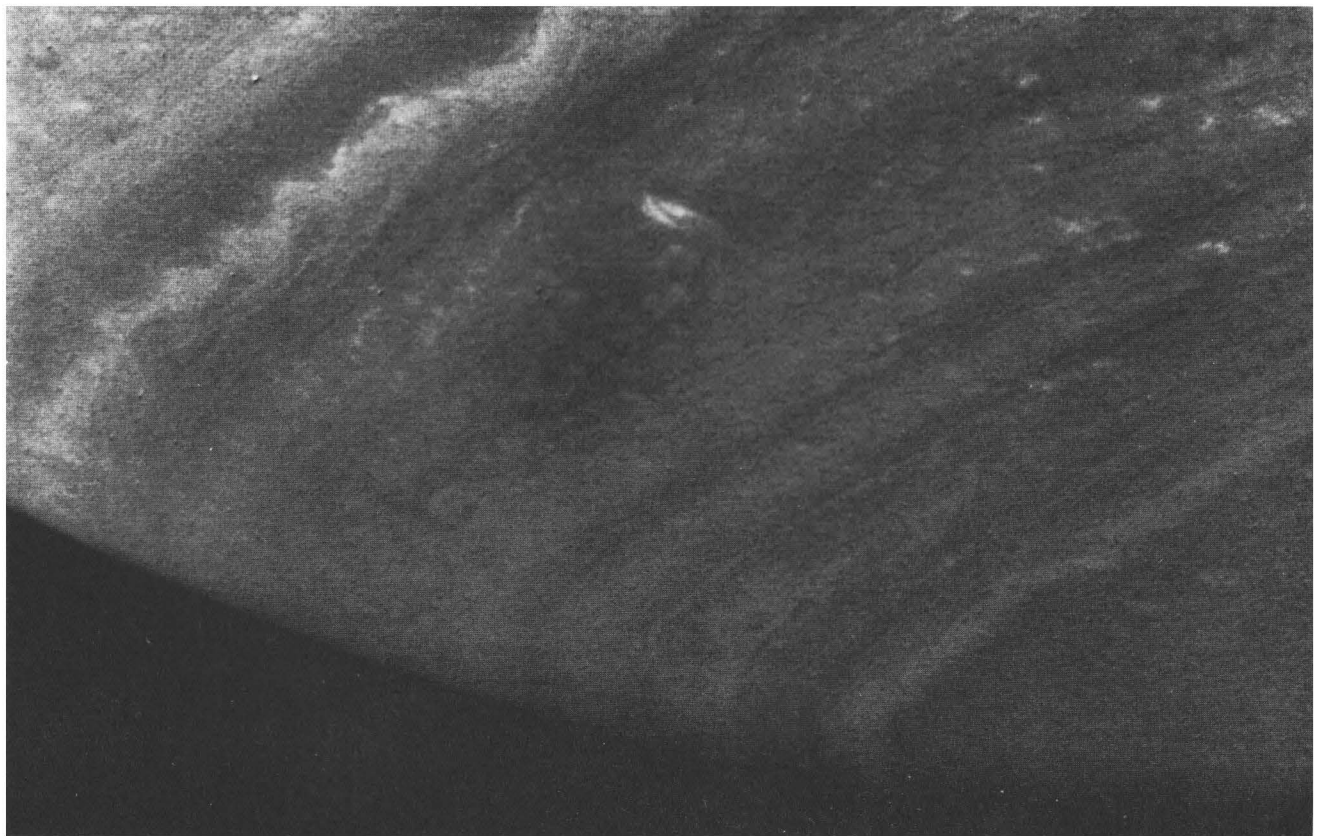
MUTED FEATURES — Low-level contrast between features in Saturn's cloud deck is shown in this composite photograph. The brown spot in the northern hemisphere (center, left) and the bright oval below it have been observed by Voyager for several weeks. Wind speeds in this latitudinal area are as high as 60 meters per second (90 miles per hour), so distances between these features increase rapidly. A deep atmospheric haze mutes all features. The banded belt/zone structure extends to higher latitudes than at Jupiter. Taken near ring plane crossing, the edge-on view of the rings seems to blend into the ring shadows cast on the planet's face.

Voyager 1 11/12/80 3,200,000 km (1,990,000 mi)



IAPETUS — A large circular feature about 200 kilometers (120 miles) across with a dark spot in its center is visible in this photograph of Saturn's satellite Iapetus. The satellite's leading hemisphere is to the left, and the trailing hemisphere, which is about four to five times brighter, is to the right. The large circular feature is most probably a large impact structure outlined by dark material, possibly thrown out by the impact.

Voyager 1 11/12/80 442,000 km (265,000 mi)



SOUTH POLE — Numerous small cloud features are shown in this wide-angle image of Saturn's south polar region and mid-southern latitudes. At these polar latitudes the large-scale light and dark bands break down into small-scale features, seen here as waves and

eddies. After crossing Saturn's ring plane during its Titan flyby, Voyager 1 proceeded south toward a closest Saturn approach over the southern hemisphere, 5-1/2 hours after taking this photograph. The closest approach point was on the unlit side.