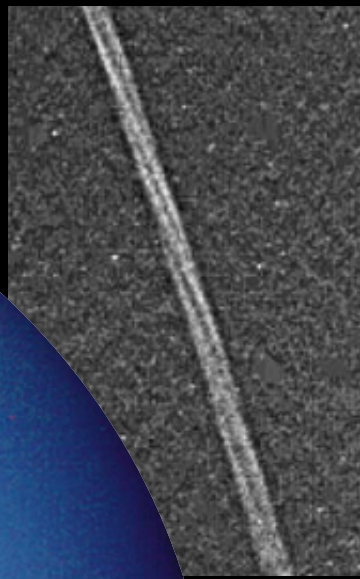
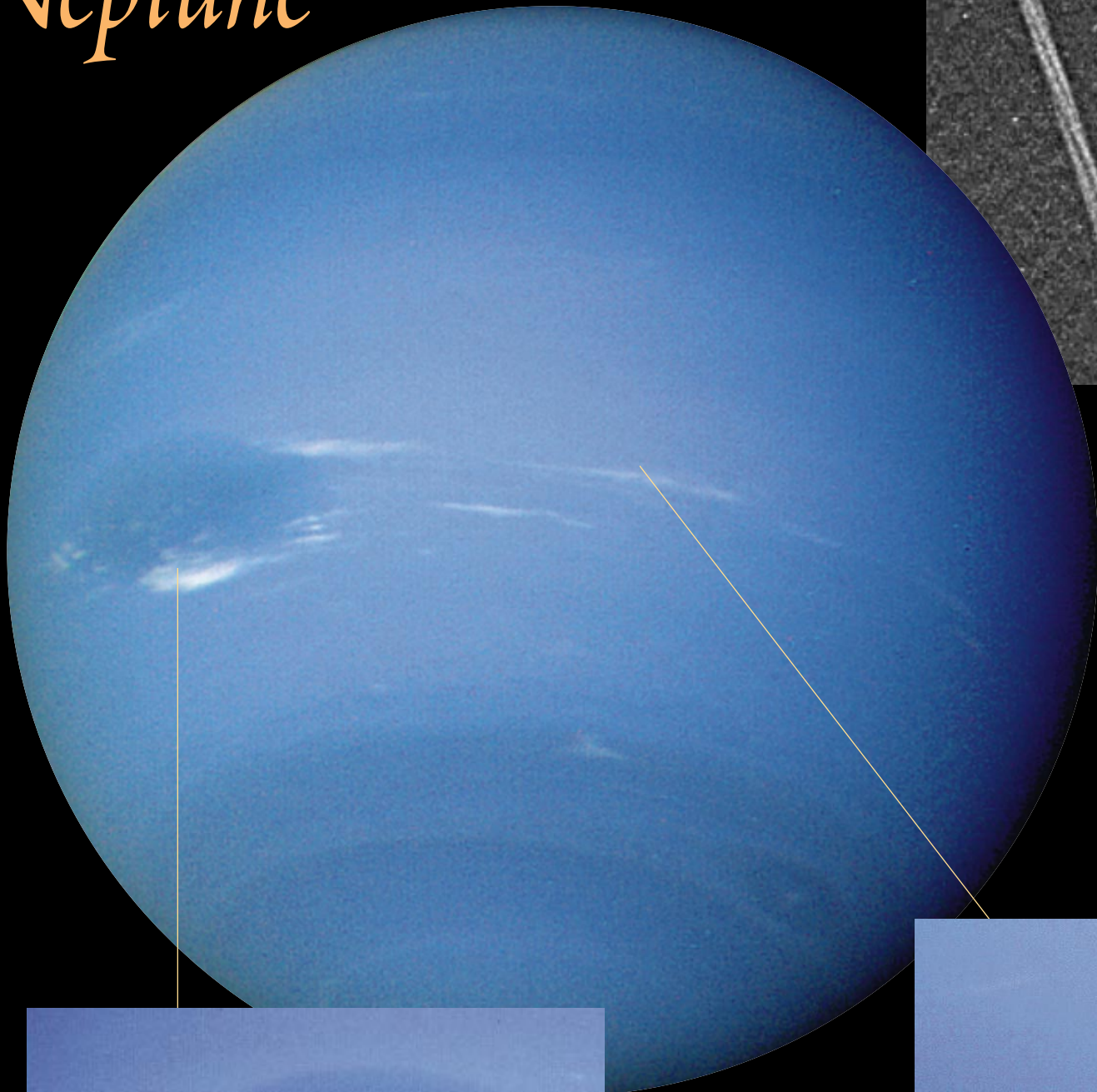


Neptune

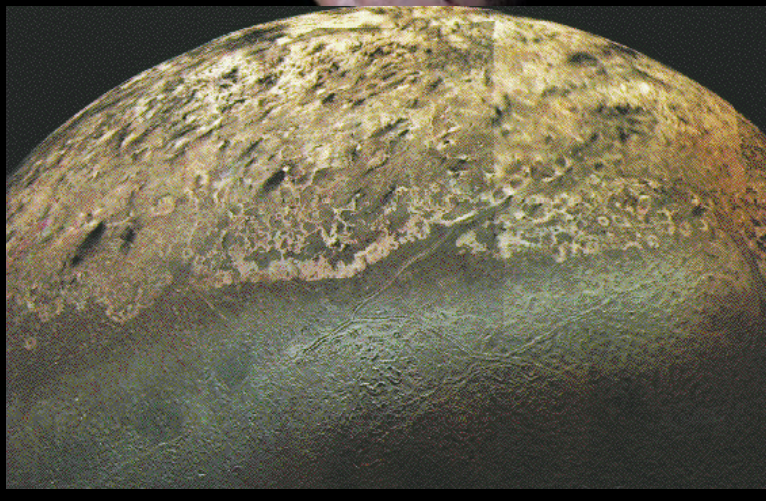
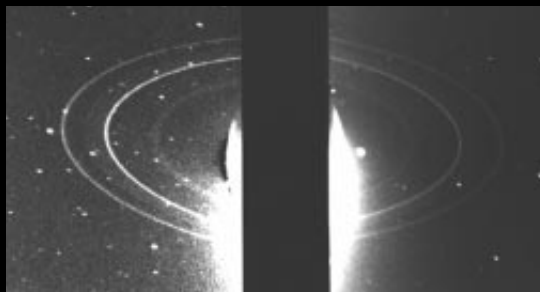


GREAT DARK SPOT AND CLOUD LAYERS are clearly visible in these Voyager images. The dark spot (*left*) is probably a vast storm system rotating counter-clockwise. Patterns in the white clouds accompanying the dark spot change greatly from one dark spot rotation to the next. Linear strips of clouds (*right*) stretch almost exactly along latitude lines.

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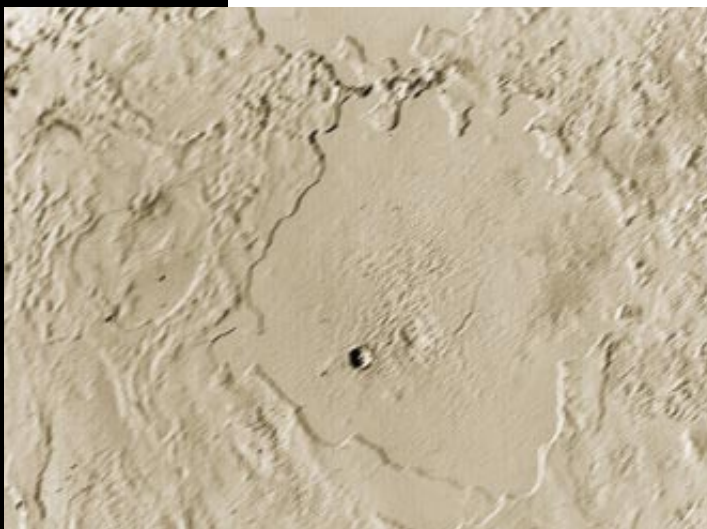
NEPTUNE'S FAINT RINGS

(right) are ordinarily overwhelmed by the brightness of the planet, but this split image blocks the overexposed Neptune. Two sharply defined rings are clearly visible in these Voyager images. A third, diffuse ring is closer to the planet. The braided appearance of part of the outer ring (left) may be from clumping in the original ring material when it first began orbiting. Voyager's own motion, smearing the image slightly, may also be contributing to the unusual scene.



CONTRARY TRITON

is the only large moon known to travel in the direction opposite to its planet's rotation. Adding to its oddity is its rotation, tilted from Neptune's by 157 degrees. Triton may well have been an independent body later captured by Neptune's gravity. Voyager observations greatly improved our understanding of this moon. It probably has a rocky interior surrounded by water ice. The pink hue (top) may be caused by evaporation of a surface layer of nitrogen ice. Dark streaks across the south polar cap (bottom) may be from eruptions of ice volcanoes, a kind of frigid geyser. The ejecta is probably liquid nitrogen, dust or methane. Icy plains look suspiciously like lakes (right), suggesting that regions of the surface were once fluid.



Astronomers searched for an eighth planet when Uranus's observed orbit disagreed with its calculated one, leading to suspicions of a large body exerting gravitational forces. In 1846 they confirmed the existence of Neptune, a planet so far from the sun that it will take another 13 years before it completes its first full orbit since discovery. The planet is the eighth from the sun in average distance, but it ends a two-decade tenure as the outermost planet in 1999, when Pluto again moves beyond it. The atmosphere of deep-blue Neptune is raked by winds moving at up to 700 meters (2,300 feet) per second, the fastest found on any planet. Denser than the other gas giants, Neptune probably has ice and molten rock in its interior, although rotational data imply that these heavy materials are spread out rather than concentrated in a tidy core.

Like Uranus, Neptune has a magnetic field off kilter with its rotational axis, the latter's being tilted by 47 percent. The source of the field seems to be well outward from the planet's center. Its rings may have formed long after the planet itself, and the outermost ring's odd assortment of particle sizes may be the result of a satellite breakup within the past few thousand years. Neptune's defiant moons include Nereid, with the most eccentric orbit of any planetary satellite, seven times as distant from the planet at its farthest compared with its closest approach; and Triton, whose orbit opposes Neptune's rotation and is tilted 157 degrees from the planet's equator.