



## THE MOONS OF SATURN: Preliminary Maps – 1

# Rhea

Map of Rhea, whose diameter of  $1,530 \pm 20$  kilometers makes it Saturn's second largest satellite (the largest, Titan, is more than three times as big, earth's moon more than twice), was prepared from photos taken by the Voyager 1 spacecraft. Drawn at 1:10,000,000 scale by Jay L. Inge of the U.S. Geological Survey's Branch of Astrogeologic studies, it is reproduced here at 1:12,500,000 (1 centimeter = 125 km at the equator). The  $0^\circ$  meridian of longitude always faces Saturn, with Rhea's leading hemisphere in its orbital motion at left. The placement of surface features shown is estimated to be accurate to within  $\pm 70$  km over 66 percent of the mapped area. The photos used in preparing the map range in resolution from about 40 to 1.3 km per line pair.

In addition to the densely packed craters that scar Rhea's surface, the map shows what appear to be several long, straight fissures, typically oriented at  $45^\circ$  to the parallels of latitude. (One example is about  $15^\circ\text{N}$  by  $110^\circ$ .) Some researchers have suggested that thus-angled fracturing could be part of a global stress pattern, as proposed (though the photographic evidence is less graphic) for Mercury and earth's moon. Diffuse bright streaks (such as at about  $15^\circ\text{S}$  by  $320^\circ$ ) have also been tentatively linked with internal activity, though the energy source for such activity is less than obvious for a satellite whose low density ( $1.3 \pm 0.1$  g/cc) suggests it to consist mostly of water ice. Cratering distributions have also been cited as evidence for internally caused resurfacing. — **Jonathan Eberhart**

