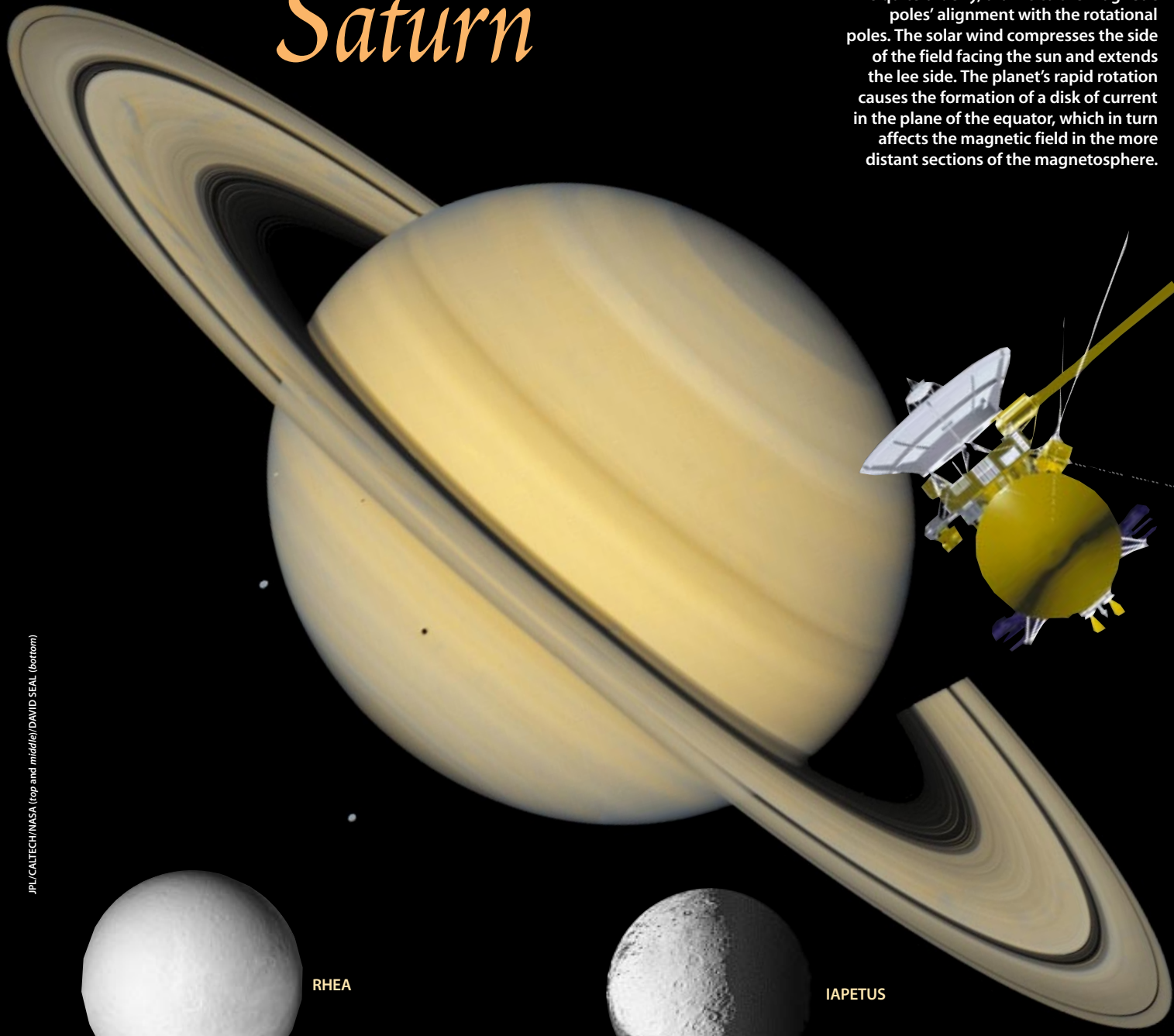


# Saturn

**MAGNETOSPHERE OF SATURN** is quite orderly, thanks to the magnetic poles' alignment with the rotational poles. The solar wind compresses the side of the field facing the sun and extends the lee side. The planet's rapid rotation causes the formation of a disk of current in the plane of the equator, which in turn affects the magnetic field in the more distant sections of the magnetosphere.



JPL/CALTECH/NASA (top and middle)/DAVID SEAL (bottom)



RHEA



IAPETUS

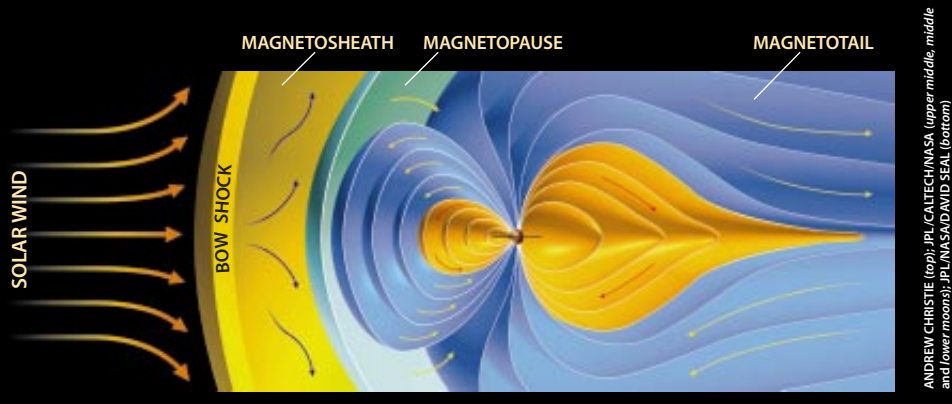


OVERLAPPING CRATERS



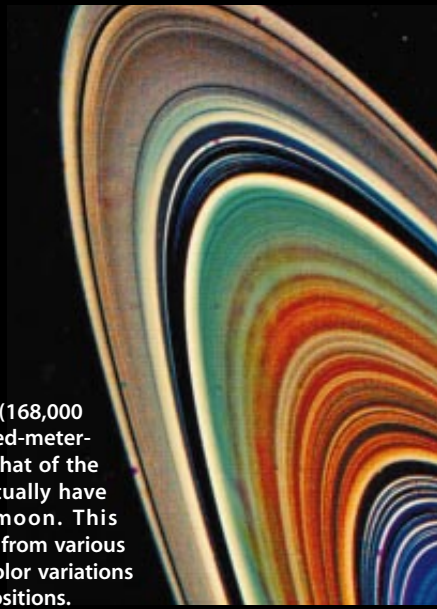
WAVY ICE FORMATIONS





ANDREW CHRISTIE (top); JPL/CALTECH/NASA (upper middle, middle and lower moons); JPL/NASA/DAVID SEAL (bottom)

**CASSINI SPACECRAFT**  
 left Earth in October 1997 for a Saturn rendezvous in late 2004. The ship is named for Jean-Dominique Cassini, who in 1675 discovered the gap in the rings, known as the Cassini division. Once it arrives at Saturn, Cassini will launch the Huygens probe, which will descend to the surface of the moon Titan. Huygens will chemically sample the thick atmosphere as it falls to the surface and may continue to operate for as long as an hour once it lands—or splashes down in liquid hydrocarbons. Titan's chemistry may be similar to that of early Earth.



**SATURN'S RINGS**  
 have a diameter of some 270,000 kilometers (168,000 miles). The total mass of the several-hundred-meter-thick rings, however, is only equivalent to that of the Saturnian moon Mimas. The rings may actually have formed from a shattered Mimas-size moon. This enhanced color photograph was assembled from various filtered views captured by Voyager 2. The color variations may represent differences in chemical compositions.



**SMALLER MOONS OF SATURN**  
*(in orbital order, outermost at left)* are dwarfed by Titan. Pan, Atlas, Telesto, Calypso and Helene are shown at a five-times-larger scale for visibility. Density measurements indicate that all of the moons are rich in ice, mostly water ice and possibly some ammonia. Many exhibit quirks and oddities: Hyperion has the solar system's only known chaotic orbit. Enceladus may have volcanoes. Rhea is extremely cratered, although brighter regions may be new ice formations. Iapetus exhibits wavy ice structures as well as mountains. Tethys is heavily cratered and features the Ithaca Chasma, a 100-kilometer-wide trench some four to five kilometers deep running almost pole to pole. Mimas is marked by the 10-kilometer-deep Herschel Crater, which has a diameter of 130 kilometers, fully one third that of the entire moon.

