



Large-scale structure of Saturn's E ring and its sources

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Abstract

Saturn's diffuse E ring is the largest ring of the solar system and extends from about $3.1 R_S$ (Saturn radius $R_S = 60\,330$ km) to at least $8 R_S$ encompassing the icy moons Mimas, Enceladus, Tethys, Dione, and Rhea. After Cassini's insertion into her Saturnian orbit in July 2004, the spacecraft performed a number of equatorial as well as steep traversals through the E ring inside the orbit of the icy moon Dione.

Here, we report about dust impact data we obtained during almost equatorial passages through the E ring in early 2010. We acquired for the first time radial density profiles of the entire inner E ring. The densest point of the ring could be determined with high accuracy. We also report about measurements during the close Cassini flybys at the ring moons Enceladus and Rhea. These data provides new insights into the particle production by embedded ring moons.