

Saturn C Ring Thermal Measurements from Voyager 1 IRIS Data

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Infrared measurements of Saturn's rings were obtained by the Voyager infrared interferometer spectrometer (IRIS) during the Voyager 1 and 2 flybys. Analysis of numerous ring observations at a variety of geometries is under way. Voyager IRIS thermal measurements can provide infrared opacities, brightness temperatures and particle properties for Saturn's rings over a range of geometries, including high and low phase angles, lit and unlit sides of the rings, across shadow boundaries and over a variety of emission angles.

We report on a preliminary analysis of Saturn C ring data. For observations at slightly different ring tilts we derive a temperature and normal optical depth for the unlit side of the C ring. The derived brightness temperature is $86^{\circ} \pm 1.0^{\circ}$ K, and the optical depth is 0.08 ± 0.01 , comparable to previous IRIS results. The normal optical depth for the C ring is in agreement with Voyager and ground-based values at shorter wavelengths. Both temperature and optical depth are constant with wavenumber across the IRIS spectrum. The absence of an increase in optical depth with wavenumber indicates that this portion of the C ring is not dominated by particles with radii of ~ 1 micron.

There appears to be a temperature asymmetry between the east and west ansae of the unlit C ring. A temperature difference also exists between the inner and outer portions of the unlit C ring. These and other C ring results will be presented.

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