



Cassini CIRS and Voyager IRIS observations of thermal behavior in Saturn's C ring

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After almost four years in orbit around Saturn, the Cassini Composite Infrared Spectrometer (CIRS) has acquired a comprehensive set of thermal measurements of Saturn's C ring for a number of different viewing geometries. Temperatures were retrieved for the lit and unlit C ring over a variety of ring geometries that include solar phase angle, spacecraft elevation, solar elevation and local hour angle. Infrared measurements of Saturn's rings were also obtained by the infrared interferometer spectrometer (IRIS) during the Voyager flybys in the early 1980's. IRIS ring observations were at a very different season from the Cassini observations obtained thus far.

The thermal characteristics of the C ring vary with changing viewing geometry. To first order, the largest temperature changes are driven by variations in phase angle while differences in temperature with changing spacecraft elevation are a secondary effect. These results are consistent with a population of slowly rotating C ring particles. The changes in C ring temperature with decreasing solar elevation are more muted than similar changes on the lit sides of the A and B rings. Geometrical filling factor variations in the C ring are mainly driven by changes in spacecraft elevation. Analysis of the combined Cassini CIRS and Voyager IRIS data sets will be presented.

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