THERMAL AND ENERGY BALANCE MEASUREMENTS OF SATURN'S C RING

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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 in the early 1980's. We have analyzed IRIS observations of the lit and unlit C ring to derive ring brightness temperatures and optical depths. Low phase observations of the outer C ring produce similar optical depths and slightly higher temperatures than high phase observations. A noticeable radial temperature variation is also present in the unlit radial profile of the C ring. Saturn's contribution alone cannot account for the magnitude of the observed temperature variation in this case, even though its contribution is not negligible in the C ring. A radial variation in the Bond albedo appears necessary. The inner C ring is both darker and warmer than the outer C ring.

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