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### **Titan’s Surface Temperatures from Cassini CIRS**

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The surface brightness temperature of Titan can be measured from Cassini through a spectral window at 19 microns where the atmosphere is low in opacity. The Composite Infrared Spectrometer<sup>1</sup> (CIRS) on Cassini observes this wavelength in its far-infrared channel. Because the Cassini tour has provided global coverage and a range of viewing geometries, CIRS has been able to go beyond the earlier flyby results of Voyager IRIS<sup>2,3</sup>. Near the equator, CIRS measures the zonally-averaged surface brightness temperature to be 93.7 K, very close to the temperature found at the surface by Huygens<sup>4</sup>. Latitude maps show that Titan’s surface temperatures drop off by about 2 K toward the south and by about 3 K toward the north. This temperature distribution is consistent with Titan’s late northern winter when the data were taken. As the seasons progress, CIRS is continuing to search for corresponding changes in the temperatures of the surface and lower atmosphere. CIRS is also extending global mapping to both latitude and longitude to look for correlations between surface temperatures and geological features.

<sup>1</sup>Flasar, F. M. *et al.*, *Space Science Reviews* 115, 169 (2004).

<sup>2</sup>Flasar, F. M., Samuelson, R. E., & Conrath, B. J., *Nature* 292, 693 (1981).

<sup>3</sup>Courtin, R., & Kim, S. J., *Planetary and Space Science* 50, 309 (2002).

<sup>4</sup>Fulchignoni, M. *et al.*, *Nature* 438, 785 (2005).