



Radar-dark Spots on Titan - Cassini TA and T3 Observations

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Ku-band Synthetic Aperture Radar (SAR) images of Titan's surface acquired during the TA encounter show a number of radar-dark spots. These spots are typically 10km wide, and are sometimes crescentic in shape. The backscatter of these areas is of the order of 0.1 at incidence angles of 20 to 30 degrees. Asphalt is one terrestrial surface type (among many others) which has these backscatter properties.

The observations during the TA encounter show several of these spots, although none large enough to fill the real aperture of the radiometer beam. However, radiometer 'pixels' which contain the dark spots seem to have a higher brightness temperature, perhaps indicating high- emissivity (low dielectric constant).

Further observations will be obtained on flyby T3 in February 2005. These observations may indicate further examples of these spots, recovering more information on their properties and geological context. One hypothesis we will discuss is that these are flat bodies of hydrocarbon materials, perhaps lakes.