

Reflections on Titan : A Review of Planning, Execution and Analysis of the Cassini RADAR Investigation of Saturn's Largest Moon

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The scientific investigation of Titan by the Cassini RADAR instrument is reviewed, from its inception circa 1990 through launch and observation planning during cruise, to the Titan encounters ending in 2017, and subsequent data analysis. Particular attention is paid to possible lessons for or expectations from future missions with a similar architecture (i.e. multiple flybys of a target with non-constant geometry and irregular intervals of weeks or months between new observations). The pace of scientific discovery, as reflected in publications, is documented, and the progressive introduction of new analysis techniques and the relationship of the growing body of RADAR data to other observations, missions and laboratory work are discussed. The new techniques included: high-altitude single-beam 'HiSAR' imaging, monopulse topography 'SARtopo' from beam overlaps, and depth-sounding bathymetry)

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