



Cassini RADAR observations of lakes and seas in the Northern Polar region of Titan: Bathymetry and Composition

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Recent observations by the Cassini spacecraft has revealed its RADAR to be an invaluable tool for investigating Titan's seas and lakes. The T91 (May 2013) observation of Ligeia Mare, Titan's second largest sea, has demonstrated the capabilities of the RADAR, in its altimeter mode, to measure depth, composition and seafloor topography. The 104 (August 2014) observation provided similar data over the largest sea, Kraken Mare, and the T108 (January 2015) flyby acquired an altimetry pass over Punga Mare. The T49 (December 2007) altimetry pass over Ontario Lacus, the largest southern liquid body, has also been processed to retrieve subsurface echoes. Cassini's final flyby of Titan, T126 (April 2017), is the next and unique opportunity to observe an area in the Northern Polar region of Titan, where several small - medium size (5 – 30 km) lakes are present and have been previously imaged by Cassini. In our presentation, we will report the integrated results of these investigations and discuss them in the overall context of Titan's hydrologic cycle.