



Liquid-filled Canyons on Titan

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During a close flyby, Cassini's RADAR altimeter observed a system of channels pertaining to the Vid Flumina system that drain into Titan's Ligeia Mare. While SAR images have been used to identify fluvial valleys in networks that extend for hundreds of kilometers, they can't directly prove the presence and/or physical extent of liquid channels filling them. Analysis of altimeter echoes shows that the channels are located in deep (~500 m) canyons and have strongly specular surface reflections that indicate they are currently liquid-filled. Liquid elevations in Vid Flumina and its lower tributaries are at the same level of Ligeia Mare to within the altimeter's vertical accuracy of ~15m, which is a function of both the RADAR instrument as well as the precision of Cassini's reconstructed ephemeris. Specular reflections are also observed in higher order tributaries that occur hundred meters above the level of Ligeia Mare, consistent with drainage feeding into the main channel system.