



Geomorphological mapping of the southwestern margin of Xanadu, Titan: Insights on tectonics

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Evidence for tectonic activity on Titan is exemplified by the presence of eroded mountain ranges (Radebaugh et al., 2007; Mitri et al., 2010), although it is unclear whether their origin is endogenic (Moore and Pappalardo, 2011). Due to low SAR resolution and paucity of elevation data, tectonic indicators on Titan are often best identified by indirect approaches such as the analysis of fluvial networks' azimuths (Burr et al., 2009; 2013). The wide distribution of fluvial features observed in western Xanadu makes it an ideal area for this type of analysis. Xanadu is Titan's largest surface feature, possesses the highest albedo and has an average elevation ranging between -200 to 200 meters. Radebaugh et al. (2011) proposed that Xanadu has had a complex tectonic history involving both compressional and extensional events, resulting in a horst and graben structure. We are currently producing a geomorphological map of Xanadu's southwestern margin, using SAR, altimetry and SARTopo datasets. In the preliminary results we identified a mature fluvial network that possibly drained from northeastern SAR-bright highland units to southwestern SAR-dark plain units, providing constraints on Xanadu region's tectonic regime.