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Morphotectonic and cryovolcanic structures on Titan and Enceladus with resemblance to terrestrial morphologies

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Saturn's satellites Titan and Enceladus are few of the most interesting planetary bodies in the Planetary Geology domain. Both satellites have been and are still explored by the Cassini-Huygens joint ESA/NASA mission, which indicated that they can be geologically active and may support tectonic processes. Titan possesses a dynamic, multivariable and Earth-like geology modified by fluvial, aeolian, tectonic and most probably cryovolcanic processes as seen from Synthetic Aperture Radar (SAR) and Visual and Infrared Mapping Spectrometer (VIMS) data. Morphotectonic edifices such as ridges, mountains, faults and canyons [1; 2] as well as cryovolcanic structures like calderas, domes, flows and radial faults [3] are surficial evidence of the aforementioned dynamic activities. Enceladus displays similar patterns although acting much more dynamically, by forming cryovolcanic geyser-like plumes that emanate from the southern polar region in addition to the existence of diverse terrains with extensive morphotectonic surficial expressions [4; 2]. Herewith, we present the major morphotectonic and cryovolcanic structures seen on both satellites along with terrestrial analogues in order to reinforce our current understanding of their formation, structure and development.

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