



## **Tidal Flows and Dissipation in Titan's Largest Sea Kraken Mare**

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Kraken Mare is the largest sea on Titan, and has been mapped in detail by recent Cassini observations. Kraken has a particular interesting narrow channel ('throat') between its two main basins. Due to the orbital eccentricity of Titan, the tidal potential due to Saturn's gravitation varies over the orbital period. The resulting diurnal tides in Kraken Mare are studied by means of numerical simulations, using an assumed bathymetry of the sea. The governing partial differential equations on the sphere are solved using SLIM (Second-generation Louvain-la-Neuve Ice-Ocean Model). SLIM is a hydrodynamical model based on the finite element method. As all general circulation models, it uses primitive variables as prognostic quantities. The tidal dissipation in the sea is evaluated, with particular attention to the strong currents in the throat.