

Abstract Submitted  
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**The Fluid Dynamics of Saturn’s “String of Pearls”** CHRISTOPHER GEBHART, PHILIP MARCUS, UC Berkeley — A long-lived feature in Saturn’s northern hemisphere is a row of 20 - 30 discrete dark clouds at latitude  $33^\circ$  that extends approximately  $1/3$  of the way around the planet. It was named the “String of Pearls” (SoP). It was suggested by others that these clouds are associated with a row of cyclonic vortices. However, generally a row of vortices with the same sign is unstable, and the vortices merge. Using a version of Correlation Image Velocimetry (CIV) that we developed to extract velocities from satellite images of clouds (Advection Corrected CIV), we have created a velocity field map of the SoP. From that map, we believe that the SoP lies on a strong, wavy westward jet stream that is sandwiched between a row of anticyclones on its northern side and a row of cyclones on its southern side, i.e., between a Karman Vortex Sheet (KVS). We previously showed that a KVS that sandwiches a jet stream is stable using 2D, quasi-geostrophic simulations. Here, we present preliminary results on the stability and dynamics of a KVS using numerical simulations of the fully 3D, anelastic equations. We compare our simulations with the observations of the SoP.

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