



## **GCM analysis of the 2D zonal wind profile from Cassini's Jupiter fly-by**

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In the present work we will investigate the stability of Jupiter's mid-latitude zonal jets by use of OPUS(Oxford Planetary Unified Model System). Using an extended form of the Hydrodynamic Primitive Equations, OPUS is capable of including 30 vertical levels from 10mb to 10000mb.

We will initiate the model with temperature and thermally-balanced wind profiles recently obtained from data recorded by the Cassini Composite InfraRed Spectrometer (CIRS) during the Jupiter fly-by in 2000. The profiles extend down to an atmospheric depth of 500mb and thus significantly reduce the vertical domain in which theoretical assumptions have to be made. Results from these simulations will be compared to previous studies using mainly theoretical data, which were able to reproduce the formation of mid-latitude vortices, and to observational data.

In the scope of a larger project, the dynamical cases established in this work will be used as base cases during a planned extension of OPUS to include moist convection and simple representations of ammonia/ammonium hydrosulfide clouds.