Some instability results for equatorial geophysical water waves

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Abstract

In the following talk we present results concerning the stability of geophysical water waves in the equatorial region. Hydrodynamical stability is an important aspect of fluid mechanics from both the mathematical and physical perspectives. However, from the mathematical viewpoint, establishing the hydrodynamical stability or instability of a flow is incredibly difficult due to the inherent intractability of the full governing equations. Nevertheless, it transpires that for certain solutions, which possess an explicit Lagrangian formulation the short-wavelength instability analysis approach is remarkably elegant. In this talk I present some results, which are joint work with F. Genoud and H. Hsu.