
Instabilities on a two layer shallow water model on the sphere

Breno Raphaldini*[†]¹, Andre Teruya², and Carlos Raupp³

¹Institute of Mathematics and Statistics [Sao Paulo] – Brazil

²Institute of Astronomy, Geophysics and Atmospheric Sciences – Brazil

³Instituto de Astronomia, Geofísica e Ciências Atmosféricas [São Paulo] – Brazil

Abstract

Rossby waves originating in the tachocline of the Sun have been recently proposed as a fundamental mechanism behind the magnetic activity of the Sun. Here, we study stratification effects on the dynamics of those waves using a two layer shallow water model. In particular, we investigate linear instabilities arising in the presence of radial and latitudinal shear.

Keywords: Normal modes, astrophysical flows

*Speaker

†Corresponding author: brenorfs@gmail.com