

Emission of inertial and Rossby waves by vortices on a polar beta-plane: laboratory experiments

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A new method of optical altimetry with color coding was designed for measuring the slopes of the free surface elevation field and calculation of geostrophic velocity field. The examples of laboratory flows on a rapidly rotating turntable will be demonstrated and discussed. The examples include the flow over a mountain, vortex streets behind a vertical cylinder and vortex dipoles. In all of these circumstances the emission of either inertial waves or Rossby waves (or both) was documented. The altimetry method provides a powerful tool for further laboratory investigations of vortical flows especially as related to emission of waves.