ESPCI
Laboratoire PMMH
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ESPCI PARIS
EDUCATION SCIENCE INNOVATION

Séminaire café - PMMH

Bureau d'Études, Batiment L, 2 ème étage

Mercredi 30 novembre 2016, 13h30

Benoît Semin

Agrégé-préparateur, ENS Paris

Quasi-biennial oscillation : a model experiment

The quasi-biennial oscillation is the periodic reversal of the wind in the lower equatorial stratosphere. The period of the oscillation is 28 months on average, and is not linked to the year duration. This wind is known to be generated by atmospheric waves, in particular internal gravity waves.

We have set up an experiment which reproduces this phenomenon.
Linearly stratified salty water is located between two plexiglas cylinders. Internal gravity waves are generated in the fluid using 16 membranes at the top of the fluid. These membranes oscillate sinusoidally in the vertical direction. In a first set of experiments, we have chosen a phase difference of $\pi/2$ between two membranes, so that a travelling wave is forced. In that case, an Eulerian mean flow is always generated. We have measured and modelled this mean flow, and its feedback on the wave.

In a second set of experiments, two successive membranes are oscillating in opposition of phase : the wave is stationary in the azimuthal direction. When the amplitude of the forcing is large enough, a mean flow is generated, and oscillates with a period which is much larger than the wave period. This oscillation of the mean flow is similar to the one observed in the atmosphere.

Prochain séminaire : jeudi 15 décembre 2016 **à 13h30**,
Présentation rapide des sujets de thèse des doctorants en 2 ème année.

Programme des séminaires café : https://www.pmmh.espci.fr/?-Seminaire-Cafe-Interne-
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