



SEMINAIRE CNRM / GAME

N°2012_26

jeudi 18 octobre 2012 à 11h

MOUNTAIN WAVES AND ROTORS IN A DOUBLE MOUNTAIN SYSTEM

par **Ivana STIPERSKI**

University of Innsbruck

en salle Joël Noilhan

Résumé :

Mountain waves form when stably stratified airflow crosses a mountain barrier. Under the influence of surface roughness, in a highly-nonlinear and non-hydrostatic flow regime, boundary layer can separate from the surface under the mountain wave crests and mountain-wave induced rotors can develop. Rotors, turbulent horizontal eddies forming in the lee of orography, represent a high drag state which is usually not represented correctly in the current numerical models. Due to their severely turbulent nature rotors pose a significant risk to aviation but are also important for air-pollution due to fluid recirculation and mixing. Boundary-layer separation and rotors are therefore particularly important in valleys. Results of a limited number of previous studies suggest that, apart from surface roughness, terrain slope and the flow regime, boundary layer separation might be facilitated by the existence of downstream orography.

In this talk the results of high-resolution numerical simulations performed by NRL COAMPS model are presented. The influence of secondary orography on boundary layer separation and rotors under different flow regimes is illustrated. It is shown that certain types of gravity wave response are particularly sensitive to secondary orography, even when the secondary ridge is significantly lower than the primary one.

Pour tout renseignement, contacter Y. Poirier (05 61 07 96 55) ou J.L. Sportouch (05 61 07 93 63)

Centre National de Recherches Météorologiques
42, Avenue G. Coriolis - 31057 Toulouse Cedex