



## Geofizički odsjek

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Zagreb, 1.6.2011.

## O B A V I J E S T

Dana **9.6.2011. (četvrtak!)** u **14<sup>15</sup>** održat će se u okviru seminara i kolokvija na Geofizičkom odsjeku PMF-a sljedeće izlaganje:

**Prof. dr. sc. Branko Grisogono<sup>1</sup> i Simon Axelsen<sup>2</sup>**

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### **An analytic and LES study of the pure katabatic low-level jet**

**ABSTRACT:** The evolution of the stably-stratified atmospheric boundary layers (SABL) is still understood inadequately, especially for airflows over inclined (mountainous) areas. A special class of the SABL flows consists of katabatic winds, which sub-class makes the glacier wind. Overall, katabatic flows are still treated with insufficient level of knowledge and accuracy in majority of models used today.

One basic aspect of simple (pure) katabatic flows is addressed in this study: the dependency of the katabatic low-level jet on the value of the constant slope angle. The maximum of pure katabatic wind over moderate slopes, the inclination angle varying between 3 to 6 deg, is studied using large-eddy simulation (LES) and compared to the classical Prandtl model. The numerical results show that both the maximum katabatic wind speed and its height, i.e., the overall low-level jet (LLJ), decrease with increasing slope angle, while in the analytic solution only the wind maximum elevation is affected by the slope angle. For the range of slope inclinations given, a linear fit between the magnitude and the height of the LLJ is obtained. The results are corroborated qualitatively with the PASTEX field campaign (Pasterze glacier, Austria, 1994).

The pure katabatic steady-state flow is approached earlier for the larger angles than for the smaller angles of inclination. The larger-angle flow accelerates for the relatively shorter period of time and thus accumulates less momentum that is spread through relatively thinner layers; i.e., for the relatively small range of inclination angles studied here, the more inclined katabatic flow exhibits relatively weaker low-level jet than its less inclined (more gradually evolving) counterpart.

Pozivaju se studenti, apsolventi i svi zainteresirani da prisustvuju predavanju, koje će se održati u predavaoni br. 2 Geofizičkog odsjeka PMF-a, Horvatovac 95, Zagreb. Studentima 2. godine diplomskog sveučilišnog studija fizika – geofizika, kao i studentima doktorskog studija fizike, smjer: geofizika (meteo-podsmjer) je prisustvovanje ovom predavanju obavezno.