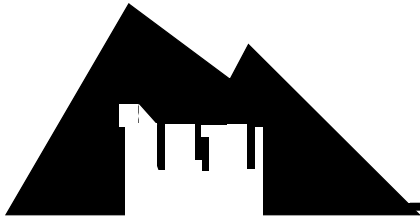


# ***RAL Seminar***



**NCAR**

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## **Clouds, Precipitation, and the Flow of Air Within and Past Mountainous Terrain**

by

**Matthias Steiner**

**NCAR/RAL**

*Wednesday, March 28, 2007*

*Foothills Lab Building 2, Auditorium Room 1022*

*1:30 p.m.*

Mountains exert a profound effect on the Earth's atmosphere and its motion. The effects of terrain on the flow of air are manifold and may be recognized by wave clouds aloft or experienced as a passenger in an aircraft encountering clear-air turbulence while crossing a mountainous region. Thermal effects, such as pronounced diurnal slope and valley circulations, or warm downslope windstorms are also common features associated with complex terrain. In addition, the orographic enhancement of precipitation on the windward side of a major topographic barrier may yield copious amounts of rainfall and result in damaging floods.

The focus of this seminar will be on the effects of moisture on the flow of air past mountainous terrain and the associated precipitation processes. Results will be discussed from the Mesoscale Alpine Program (MAP), a recent field experiment centered on the European Alps, and systematic idealized numerical simulations using the Weather Research and Forecasting (WRF) model to highlight the great sensitivity of the terrain-triggered flow response and resulting spatial rainfall accumulation to the terrain shape and the atmospheric stability and wind speed of an approaching air mass.