

Flow Past a Steep Mountain: Testing Hypotheses by Combining Numerical Simulations with Observations

PhD position at JGU Mainz (Germany)

We offer a PhD position at the Johannes Gutenberg University in Mainz in the group of Prof. V. Wirth. JGU Mainz is the largest University of Rhineland-Palatinate covering a wide spectrum of disciplines. The group of Prof. Wirth has expertise in Dynamical Meteorology and, in particular, in the flow past complex orography combining theoretical analysis, modeling, and observations. Mainz is a friendly and very liveable town in the western part of Germany.

The proposed project continues a series of investigations about the flow past a single mountain with a particular focus on the formation of so-called banner clouds. Previously we have carried through idealized simulations focusing on the time average behavior. The new project will go a step further by using realistic (rather than idealized) orography and by investigating the transient behavior of the flow. The main simulation tool will be the EULAG model run in Large Eddy Simulation (LES) mode. There is a running version of this model in our group and the student will be able to start the simulations right away. For analysis, the student will also develop sophisticated visualization tools in collaboration with colleagues from the Computer Sciences at our University. In addition, we are planning a measurement campaign at Mount Matterhorn in the Swiss Alps; the PhD student will participate in the campaign and have the opportunity to use the observed data for her/his work. The work will be supervised by Prof. V. Wirth, whom you can email if you have any questions (vwirth@uni-mainz.de).

As an ideal candidate, you should have a strong background in atmospheric dynamics and boundary layer or mountain meteorology, experience with running Large Eddy Simulations, as well as good analytical and communication skills. We expect you to hold a Master degree in meteorology, applied mathematics, or a related geoscience. Besides, experience with Linux/Unix and the programming languages Fortran and python would be important, as well as good knowledge of English and good scientific writing skills.

The position is remunerated according to TV-L E13 (65%) and is funded for a duration of three years. The position will be advertised until it is filled. Applicants are asked to specify their desired starting date and to give the contact details of two academic referees. JGU is an equal opportunity employer. Women are especially encouraged to apply. Applicants with disabilities will be preferentially considered if equally qualified. Applications containing the usual information in the form of one PDF file should be sent by email to vwirth@uni-mainz.de.