



Educational Research Projects: A dense and effective teaching method in the geosciences

M. Seeger, M. Casper and J. B. Ries

Department of Physical Geography, University of Trier, Germany (seeger@uni-trier.de / Fax: +49-651-2013976)

The Bologna-process started in 1999 within the European Community was devoted to harmonise the academic education in Europe. This has led to great changes in the structures of the university studies not only in Germany. The ancient system will be changed to generate Bachelor and Master degrees, and the studies are organised in Modules, where different kinds of teaching methods are combined for fitting one goal.

This kind of reorganisation of the teaching gave the opportunity to combine different aspects of scientific work ranging from field work to model building and from organisation of field campaigns to team oriented interdisciplinary approaches. We present here the Educational Research Projects, which comprise 12-15 ECTS during 2 academic semesters. It is directed to students with methodological skills in field work and data treatment.

The module is composed by the parts mentioned below, where the greatest part of the workload is situated within the second semester of the module:

1. Seminar: Theoretical background, evaluation of possible field methods, project planning.
2. Practical Work: Field data acquisition, depending on the area and subject during singular days or as block of about 14 days.
3. Practical Work: Laboratory
4. Practical Work: data management and analysis (methods + application)

5. Practical Work: GIS-based mapping (application)
6. Practical Work: numerical simulation (model construction, application and validation)
7. Seminar: Discussion of results and elaboration of a detailed inform.

The concept, realisation and results of a module carried out during between April 2007 and March 2008 at two catchments in Luxembourg will be presented. The main topic was “Runoff generation and erosion in mid-mountain ranges” and includes, besides the acquisition of skills in organisation of field and lab work and data management, mapping techniques for geomorphology, land-use and soils as well as their GIS based data treatment within an open source system (GRASS GIS). There is also an important proportion of experimental methods applied in the field (rainfall experiments, infiltration and runoff measurements) as well as lab methods for soil physical and sedimentary analysis.

Further on, the data is used for building and running simple models and with this learning different model philosophies and model building techniques.

The results are presented to the students community and summarised in a written inform.