

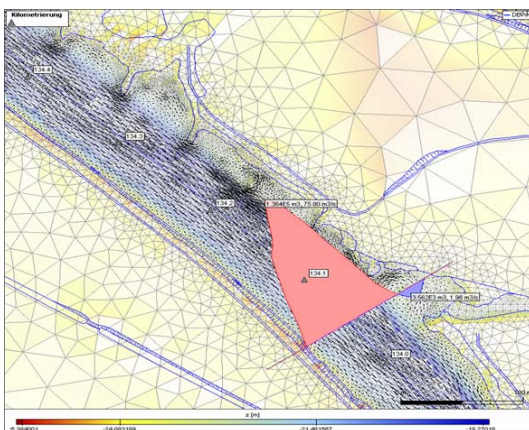
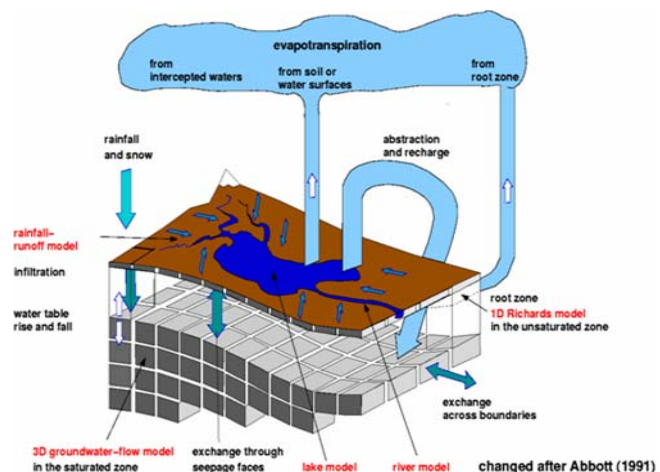
## Announcement of the Short Course Modeling Hydro- and Environmental Systems

September 13 – 17, 2010, Technical University of Oruro, Bolivia



In recent years *numerical simulation methods* have strongly gained importance in hydro- and environmental sciences. They are used as *prediction tools* for purposes dealing, for example, with groundwater management, detailed flood propagation or the spreading of contaminants in surface or subsurface waters. The lecture presents an introduction into modern modeling methods and qualifies for a later employment in the modeling field.

The lecture deals with modeling flow and transport processes in *groundwater* and in *surface waters*. After short introductions to the hydromechanics, model concepts and modeling techniques are explained with an emphasis on *discretization methods* based on Finite-Difference, Finite-Element and Finite-Volume Methods. Aspects of data processing are addressed and different *modeling systems* are introduced focussing on application ranges as well as on limitations. Basic knowledge in fluid mechanics and mathematics is desirable, however not mandatory.



The Short Course is carried out in the framework of the joint doctoral programme of Technische Universität Berlin and Universidad Technica de Oruro Rectorado.

The lectures will be given in English which will be on the fly translated into Spanish by a native speaker. The course material is mainly in English.

**Content:**

- Introduction to modeling hydro- and environmental systems
- Advanced hydromechanics (flow, transport) of groundwater and surface water systems
- Modeling methods and approaches, model concepts
- Finite-Difference, Finite-Element and Finite-Volume methods: discretization and stabilization methods; special methods
- Exploration techniques, pre- and postprocessing
- Practicle advice
- Examples, demonstrations, computer exercises
- Optional: Introduction to hydrological modeling techniques

**Target group:**

The course is directed to doctoral students in hydro- and environmental sciences. It is also suitable graduate students or professionals who want to get an introduction and overview about modelling hydro- and environmental systems.

**Schedule:**

3h lectures will be given in the morning starting at 9 a.m. and in the afternoon starting at 1.30 p.m. After successful completion, the participants will receive a certificate equivalent to 2 SHW (semester hours per week) or 3 ECTS (European Credit Transfer System).

**Course fee:**

There is no course fee!

For planning purposes, please register to the course by email to Mr. Martinez.

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