

Announcement of the Short Course Subsurface Flow Modeling

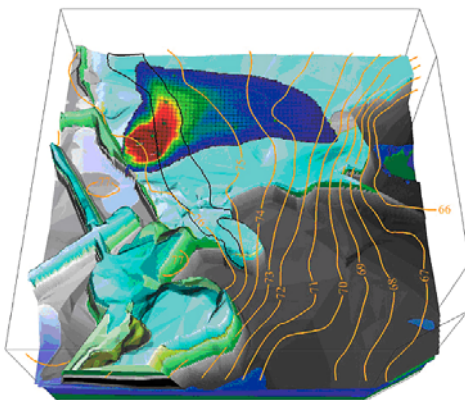
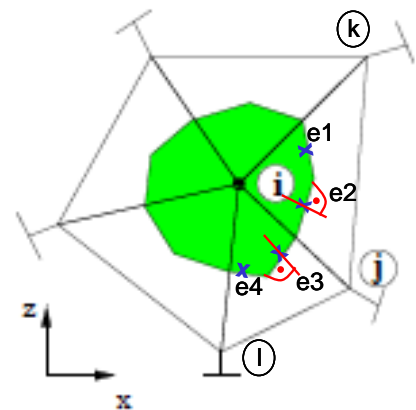
January 12 + 13 (morning), 19 + 20 (morning), 2011, TU Berlin

Room: Z.186 in TIB13B, Gustav-Meyer-Allee 25, 13355 Berlin



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 or the spreading of contaminants in subsurface systems. 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 the subsurface, mainly in *groundwater*. After a short introduction 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 *Technologietransferplattform Wasser*, TU Berlin in cooperation with the international Erasmus Mundus master course Hydro-Informatics and Water Management, BTU Cottbus. It will be given by Prof. Hinkelmann, Chair of Water Resources Management and Modeling of Hydrosystems, TU Berlin. The lectures and the course material are in English

Content:

- Introduction to modeling hydro- and environmental systems
- Advanced hydromechanics (flow, transport) of groundwater 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
- Practical advice
- Examples, demonstrations, computer exercises
- Optional: Introduction to multiphase flow in the subsurface

Target group:

The course is directed to master and doctoral students in hydro- and environmental sciences as well as to professionals who want to get an introduction and overview about modeling groundwater systems.

Schedule:

January 12, 2011: 9.30 – 12.45, 13.45 – 17

January 13, 2011: 9.30 – 12.45

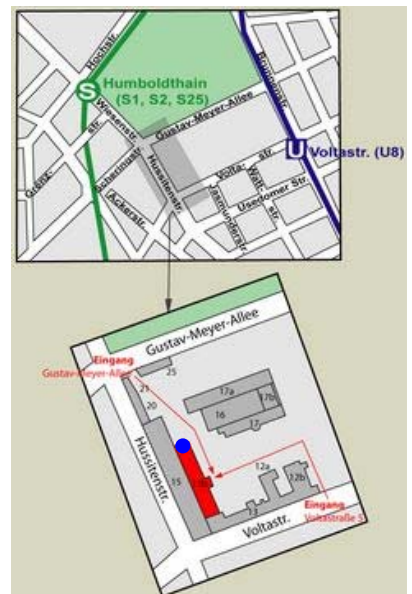
January 19, 2011: 9.30 – 12.45, 13.45 – 17

January 20, 2011: 9.30 – 12.45

Optional: February 2, 2011: 9.30 – 12.45

Location:

Room: Z.186 in TIB13B, Gustav-Meyer-Allee 25, 13355 Berlin

**Academic recognition:**

After successful completion of an examination, the participants will receive a certificate equivalent to 2 SHW (semester hours per week) or 3 ECTS (European Credit Transfer System).

Course fee:

The course fee is 100 € including lecture notes and refreshments. On request, a reduction is possible for students.

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

Contact:

- Jingming Hou, M.Sc., Tel. +49 30 314-72427

jingming.hou@wahyd.tu-berlin.de, www.wahyd.tu-berlin.de

- Prof. Reinhard Hinkelmann, Tel. +49 30 - 314-72307

reinhard.hinkelmann@wahyd.tu-berlin.de, www.wahyd.tu-berlin.de