



Announcement of the Short Course  
**Numerical simulation of flow and transport processes in the subsurface**

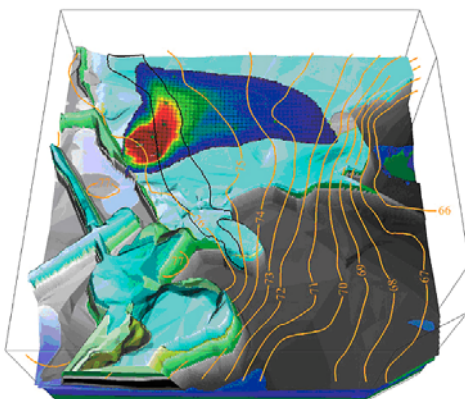
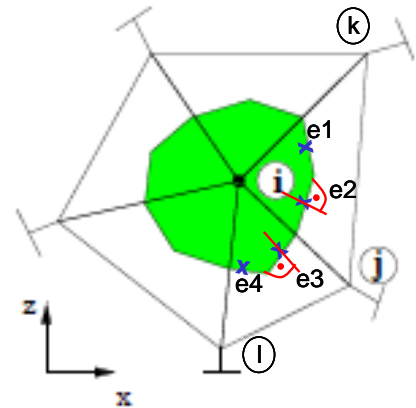
May 21-24 (Roma Tre University), 2012

Room: Aula RA, Via Corrado Segre 4-6, 00146 Roma



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 a cooperation of TU Berlin and Roma Tre University. 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
- Introduction to multiphase flow in the subsurface

**Target group:**

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

**Schedule:**

May 21, 2012: 15.45 – 19:00

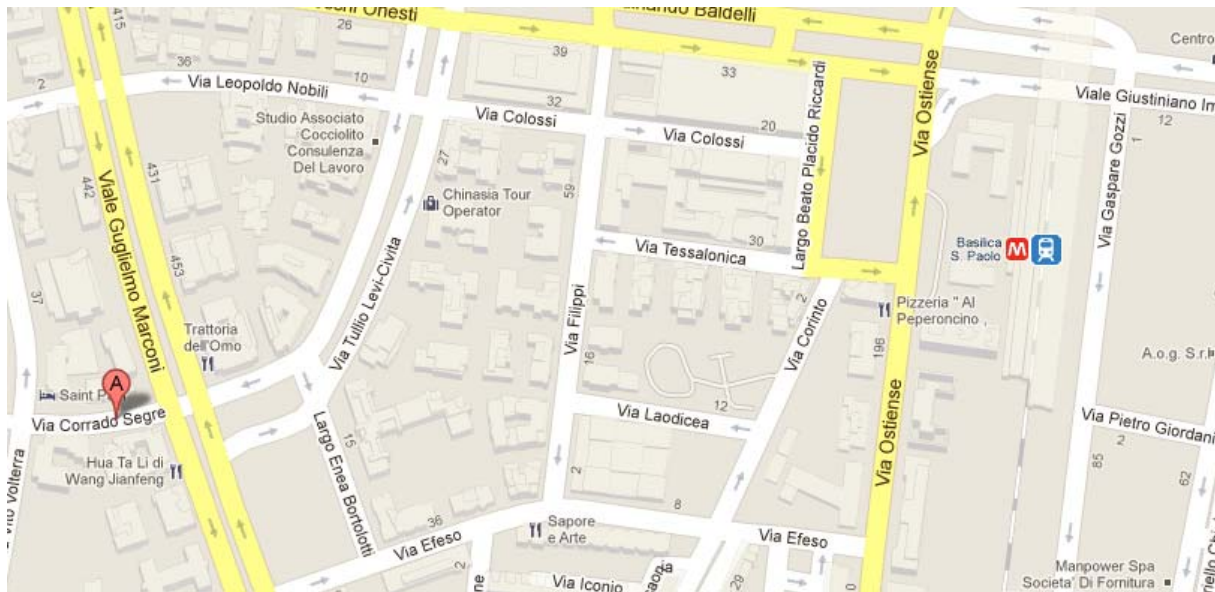
May 22, 2012: 15.45 – 19:00

May 23, 2012: 15.45 – 19:00

May 24, 2012: 15.45 – 19:00

**Location:**

Room: Aula RA, Via Corrado Segre 4-6, 00146 Roma



**For planning purposes, please register to the course by email to Prof. Michele La Rocca .**

**Contact:**

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