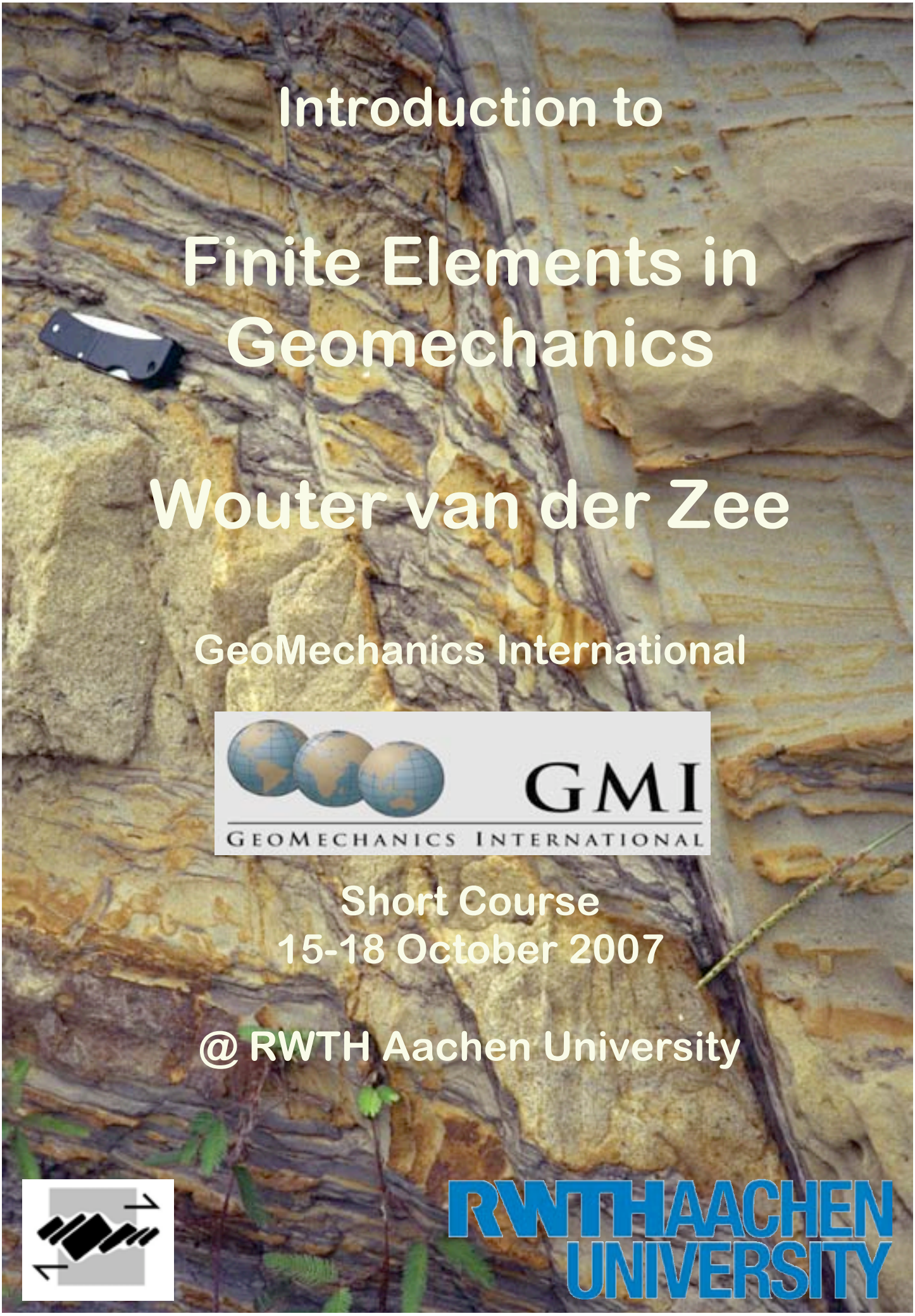


Introduction to

Finite Elements in Geomechanics

Wouter van der Zee

GeoMechanics International

GMI
GEOMECHANICS INTERNATIONAL

Short Course
15-18 October 2007

@ RWTH Aachen University

RWTH AACHEN UNIVERSITY

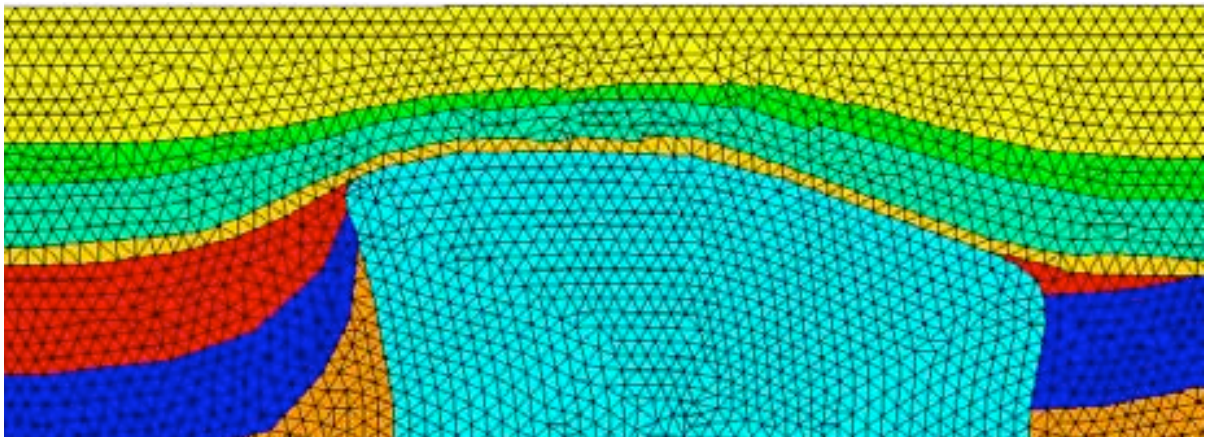
4 Day Short Course

Introduction to Finite Element and Geomechanics

by **Dr. Wouter van der Zee**, Geomechanics International Inc.

This short course concentrates on the use of the finite element technology in geomechanical analysis. The course will start with an introduction to geomechanics. A simple geomechanical model will be built using analytical methods. The different data sources for the model are discussed and the pros and cons of the method will be highlighted.
In the second part an introduction to the finite element method (FEM) will be given. The FE software used in the course is the commercial package Abaqus. Please note that this course will not focus on programming any finite element software but it will focus on the use of the FE technology. The students are introduced to the syntax and use of Abaqus with the focus on the Complete Abaqus Environment (Abaqus CAE).
After the student is familiarized with the usage of Abaqus a number of geomechanical problems will be solved. The course will offer several problems which the student can work on to learn how the FEM can be used to solve non-linear problems in geomechanical analysis.

Course Content:
Geomechanics: Overview of geomechanics, The tectonic stress field, Rock deformation, Pore pressure,
In situ stress determination, Building a simple geomechanical model
Finite Element Method: Overview of the finite element method, Abaqus and Abaqus CAE, Defining an Abaqus model, Basic input and output, Material definition
Selected topics related to the use of FE in Geomechanics : Vertical stress, Pore Pressure / fluid flow, Initial conditions, Case Studies: Overburden stress with varying topography, Stresses around a wellbore, Creep closure of a wellbore



Course Organization:

The course will take place at RWTH Aachen University, Germany, on 15-18 October 2007.

Students close to finishing their Diplom or MSc, or preparing for a PhD are invited to apply.

Participation is at no cost but students have to arrange their own travel and housing.

Please send applications to Bettina Dulle: ged@ged.rwth-aachen.de before 15.09.2007.

Contact on course content and technical issues:
j.urai@ged.rwth-aachen.de, wvanderzee@geomi.com