Modelling deep geothermal reservoirs with FEFLOW
First Geo-RIN Conference, Benasque (Spain), 05 June 2025

This in person instructor-lead, hands-on course provides you with comprehensive training in geothermal modelling using FEFLOW. The training program focuses on the modelling of deep geothermal reservoirs.

The course covers the necessary information and examples to model geothermal systems (e.g. doublets), investigate the feasibility of a geothermal system and understand the impact on the reservoir. The course offers the right balance between the mathematical background and modelling workflows for high-temperature systems.

FEFLOW is widely recognised as a comprehensive software package for subsurface flow and transport simulation. FEFLOW's unique meshing capabilities (structured and unstructured) allow for the highest degree of flexibility to account in detail for the most simple to complex geometrical configurations. The software is used by leading research institutes, universities, consulting firms and government organisations all over the world.

FEFLOW's scope of application ranges from simple local-scale to complex large-scale modelling. Application areas include geothermal energy, water management, mine water, saltwater intrusion, and variably saturated media.

COURSE TOPICS

- Introduction to FEFLOW and its graphical user interface
- FEFLOW's interface with geological software
- Creating 2D and 3D mesh geometries (structured and layered meshes)
- Creating 3D unstructured meshes for complex reservoir structures
- Modelling deep geothermal reservoirs
- Understanding Equation Of State (EOS)
- Advective– and convective-dominant transport
- Best practice on modelling fractures and discrete features
- Implementation of geothermal doublets
- Feasibility analysis of the geothermal system
- Results evaluation, visualisation and animation

LOGISTICS
Location:
Palacio de los Condes de la Ribagorza
Benasque, Spain

Date and Time: 05 June 15:00 -19:00

REGISTRATION
The course is offered free-of-charge. The requirement is to be fully registered in the conference. Registration is via the conference website and is on a first-come-first-served basis.

WHAT'S INCLUDED
- Full access to FEFLOW software during course
- Training material (digital version)
- Training Certificate upon completion of course

IT REQUIREMENTS
- Participants require to bring their own laptops for the training sessions.

LANGUAGE
- Lectures and training material are in English.
- Instructor is bilingual (Spanish and English). Participants can elaborate questions in Spanish, if wished.

CONTACT AND INFORMATION
In case you have any question, regarding the course content:

Dr. Carlos Rivera Villarreyes

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THE ACADEMY by DHI

WHAT IS FEFLOW?

Cover a broad variety of processes on the surface and in the subsurface

FEFLOW is the only tool you need for integrated modelling of all relevant flow, mass transport and heat transport processes. FEFLOW is the standard industry tool for solving hydrogeological challenges associated to mining application, geotechnical engineering, water resources management, nuclear waste decommissioning, brine-water management, seawater intrusion, shallow/deep geothermal among others.

USEFUL LINKS

- Highlights of FEFLOW here
- "Getting started with groundwater modelling using FEFLOW" - Self-paced course
- "Getting started with geothermal modelling: Open-Loop systems" - Self-paced course.
- "Advanced modelling of complex geologies" - Self-paced course.

REGISTRATION

Registration is on a first-come-first-served basis. Registration is via the conference website. Only conference participants are entitled to register to the training course.

DHI reserves the right to reschedule the course up to one week prior to commencement.

COURSE TESTIMONIAL

'Just come back from a FEFLOW course held at DHI Germany. Many interesting groundwater flow and mass transport modelling topics were presented (unsaturated flow, density-dependent flow, fracture flow, etc.) and discussed extensively. Many thanks to Dr Carlos A. Rivera Villarreyes and DHI, Carlos delivered a high-quality course and welcome participants warmly'.

Matteo Francesconi, Hydrogeologist | Groundwater modeller, AECOM, Italy

INSTRUCTOR

DR. CARLOS A. RIVERA VILLARREYES

Dr. Carlos Rivera Villarreyes, works as Global Product Specialist and Business Owner for FEFLOW at the DHI Group. Dr. Rivera has a profound knowledge on subsurface modelling covering multiple applications from geothermal, water resources, mining, reactive transport, among others. He has carried several modelling projects and trained professionals around the globe.

Civil Engineering, University of Piura, Peru.

MSc, Water Resources Management, Ben-Gurion University, Israel.

PhD, Hydrology, University of Potsdam, Germany

THE ACADEMY BY DHI

THE ACADEMY offers a palette of courses and capacity building packages designed to fit your needs and challenges. We offer standard and/or tailored training - face-2-face as well as online.

MIKE Powered by DHI courses focus on practical skills, hands-on exercises and teaching you how to get the most out of your software. These courses also enable you to understand the power of the MIKE tools for building decision support systems.

Thematic courses allow you to apply concepts, applications and decision support principles to the entire business process within current areas: aquaculture and agriculture, energy, climate change, flooding, coast and marine, surface and groundwater, urban water, industry, environment and ecosystems, product safety and environmental risk, etc.

Our trainers are experienced professionals, many of whom are recognised international experts in their fields. The use of highly skilled trainers guarantees the quality of THE ACADEMY courses.

Learn more about THE ACADEMY on www.theacademybydhi.com

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