

## Special Core Analysis

Course format: lectures, hands on exercises

Trainer: Jos Maas PhD, Consultant

Jos has 30+ years of international reservoir engineering experience in the oil and gas industry and internationally recognized specialist in EOR, tight gas development and CO<sub>2</sub> sequestration. Moved from a hands-on operational, reservoir engineer into senior research positions to become Shell's leading expert SCAL and EOR techniques. Since 2001, he focused on Sustainable Development, CO<sub>2</sub> sequestration and geothermal energy. Jos has close links with academic research facilities in the Netherlands and abroad. He is invited guest lecturer at IFP (Paris) and Director of the Soc. of Core Analysts.

Jos is the 2011 Recipient of the Darcy Award for outstanding contributions to the advancement of core analysis technology. The Darcy award is the Society of Core Analysts' highest honour and the only award for technical achievement.

### Course content

This course spans over five days and covers:

- Day 1** General introduction
- Business value of SCAL, remaining versus residual oil saturation
  - Need for interpretation - by - simulation
  - Impact of wettability
  - Overview of measurement methods
  - Steady - State method
    - basics
    - analytical interpretation
    - interpretation - by - simulation (exercises with DuMux)
- Day 2** Core plug preparation  
Unsteady - State (Welge) method
- Basics
  - Analytical interpretation
  - Interpretation - by - simulation (exercises with DuMux)
- Day 3** Centrifuge method (single - and multi - speed operation)
- Basics
  - Analytical interpretation

- Interpretation - by - simulation (exercises with DuMux)  
SCAL quality assessment

**Day 4** Porous Plate method

- Basics
  - Analytical interpretation
  - Interpretation - by - simulation (exercises with DuMux)
- SCAL for gas flooding, WAG  
Strengths and weaknesses of each SCAL technique

**Day 5** SCAL for EOR, SCAL for low salinity flooding, microbial EOR, CO<sub>2</sub>, thermal, chemical and SCAL for fractured reservoirs. Master design SCAL measurement program

**Learning objectives**

This 5 day SCAL course is available explaining the various measurement techniques, their advantages and disadvantages, and detailed data interpretation. This course is unique in its kind: it has a strong emphasis on state - of - the - art data interpretation with the aid of a license - free simulator 'Dumux' and has an abundance of practical exercises. No simulation experience is required for an effective use of Dumux.

At the end of the course, the participant should be able to design a SCAL measurement program, and subsequently check and re - interpret Pc and Krel data without too many problems.

**Duration & location**

This 5 days course can be offered either at the client's premises or at PanTerra.

**Documentation**

The course contains numerous exercises. Participants will receive a certificate upon successful completion.