



*Horizon 2020 - Marie Skłodowska-Curie Actions
Innovative Training Network (ITN)
Complex **RhE**ologies in **E**arth dynamics and industrial **P**rocesses*

CREEP SHORT COURSE 1
Introduction to numerical geodynamic modelling
Sète, France - 01-05.02.2016

Summary description:

This course will follow a hands-on approach to teach students to program a geodynamical modelling code using Matlab. Students will be led step-by-step through the necessary theory and programming aspects, implementing the steps as they go along. After 5 days they will have developed their own thermo-mechanical code to model coupled Stokes flow and advection-diffusion in two-dimensional geometry. Interspersed with the hands-on exercises they will be given lectures outlining applications of such modelling techniques to various geodynamic problems, as well as discussing other solution methods and more advanced numerical techniques.

1st Feb. 2016: Introduction. Solving Poisson's equation in 1D and 2D.

2nd Feb. 2016: Solving Stokes and continuity equations on a staggered grid.

3rd Feb. 2016: Solving the advection equation in 1D and 2D.

4th Feb. 2016: Solving the temperature equation in 2D. Integration of all solvers into a thermomechanical code.

5th Feb. 2016: Finalising thermomechanical code. Closing remarks.