



Horizon 2020 - Marie Skłodowska-Curie Actions  
Innovative Training Network (ITN)  
Complex Rheologies in Earth dynamics and industrial Processes

## **CREEP 1<sup>st</sup> Workshop** **Le Lazaret, Sète (F), 27-31 January 2016**

### **Program**

#### **27 January:**

14h-18h: Registration

18h: Scientific speed-dating: 3min exchanges, all participants!

19h30: Ice-breaker

#### **28 January: Mantle Dynamics and Plate Tectonics**

9h-9h30: Opening – general presentation of the ITN CREEP – A. Tommasi, Geosciences Montpellier

Session 1: Rheology of the (lithospheric and convecting) mantle: State of the art & open questions...

9h30-10h15: The numerical modeler point of view - Paul Tackley, ETH

10h15-10h45: Coffee Break

10h45-11h30: The "rock-squeezer" point of view - Sylvie Demouchy, Geosciences Montpellier

11h30-12h15: Modeling the mantle and plate tectonics: Insights from laboratory experiments -  
Anne Davaille, FAST

12h15-12h45: Discussion (which may also take place at the end of each presentation)

13h: Lunch

[14h-15h45h: For CREEP ESRs: Meeting with the CREEP coordination team - Presentation and discussion on the rights and obligations associated with an ESR position in CREEP + election of ESR representative in the SB](#)

For the others: free time for discussions, small-group (main supervisors and secondments) meetings focusing on the Individual Research Projects, or even relax at the beach...

15h45 : Coffee break

16h-17h30 : Session 2: Probing mantle deformation with seismology

16h-16h45 : Deformation and anisotropy - David Mainprice, Geosciences Montpellier

16h45-17h30 : The actual seismological observations - Tine Thomas, Univ. Münster

17h30-19h30: Poster section 1 starting by short (3minutes-1slide) presentations by ESRs of projects:

ESR1- Experimental constraints on the rheology of the lithospheric mantle – M. Thieme

ESR7- Convective instabilities in colloidal dispersions – G. Gerardi

ESR8- From viscous plumes to dikes and fractures: influence of the rheology on the lithospheric response to planetary mantle upwellings – D. Brand

ESR9- Plate tectonics: strain localization due to anisotropy in the lithospheric mantle – V. Singh

ESR15- Large-scale mantle dynamics: Influence of evolving microstructures – J. Schierjott

ESR11- Anisotropy and structure of the D" region – A. Pisconti

20h: Dinner



## 29 January: Faults rheology and dynamics

9h-9h45: Faults structure, mechanics, and rheology – Nicolas Brantut, UCL

9h45-10h30: High shear velocity deformation experiments: what have we learnt from them? Nicola Di Paola & Stefan Nielsen, Univ. Durham

10h30-11h: Coffee Break

11h-11h45 : (Micro)seismicity and faulting - Hanneke Paulssen, Univ. Utrecht

11h45-12h : Short (3minutes-1slide) presentations by ESRs of their projects:

ESR2- Fault rheology and microseismicity – W. Zhou

ESR4- Fault Rheology during Seismic slip – G. Pozzi

ESR10- Creep of granular materials – M. Messar

ESR6- Unraveling the subduction earthquake cycle through analogue modelling and the analysis of natural data – E. Van Rijnsingen

ESR16- Rheological controls of seismicity along lithospheric plate boundaries – S. Preuss

13h: Lunch

15h-18h30 : Poster Session 2 starting at 15h by short (3-minute-1-slide) presentations:

ESR3- Quantifying the role of coupled solution transfer and frictional/brittle processes in controlling the rheology, transport and containment properties of rocksalt – P. Giacomel

ESR13- Development of seismic anisotropy in deforming salt bodies – P. Prasse

ESR14- Seismic methods to estimate the strength of cracks and fractures – ESR to be recruited

ESR12- Modelling crack propagation and fluid injection (hydrofracturing) applied to geothermics – B. Montesinos

ESR5- Rheology of Glass – L. Ding

Raphael Abreu: Coupling geodynamic with thermodynamic modelling for reconstructions of magmatic systems

Zahra Amirzada: Laboratory and Numerical simulations of the nucleation of (seismic) slip'

Maxime Bernaudin: Strain localization in the ductile crust triggered by microfracturing and high pore-fluid pressure

Silvia Brizzi: Convergent margins and seismicity: analysis of the controlling factors able to generate mega-earthquakes along the subduction thrust fault

Maxime Clément: Fluid migration in the deep Earth: The orthopyroxen inversion as a tool to study fluid expulsion

Julian Gasc: Low Temperature Deformation of Nano-Forsterite Aggregates

Wenlong Liu: CPO developments of serpentinite at HPHT; implication for seismic anisotropy

Antoine Rozel: Semi analytical model for the effective grain size profile in the mantle of the Earth

Lisa Rummel: Coupling geodynamic with thermodynamic modelling for reconstructions of magmatic systems

Arnaud Salvador: On the influence of initial CO<sub>2</sub> content in early planetary surface conditions and evolution

David Schlaphorst: Seismological Insights into the Building of the Lesser Antilles Arc

Aurore Sibrant: Emplacement of regularly spaced volcanic centers in the East African Rift: Melt production or melt extraction?



Coffee served after the short-presentations, at 16h15, at the posters

18h30-20h: Free time for discussions, small-group (main supervisors and secondments) meetings focusing on the Individual Research Projects

20h: Dinner – Typical Sète meal

### **30 January: "Applied" rheology and back to geodynamics: subduction zones**

9h-9h45: Using seismology to unravel the rheology of rocks in the "energy-production" industry - James Wookey, Univ. Bristol

9h45-10h15: Geothermics: Why and how model hydrofracturing? Boris Kaus, Univ. Mainz

10h15-10h45: Coffee Break

10h45-11h30: Why study rocksalt deformation? S. Hangx, Univ. Utrecht

11h30-12h: Rheology of industrial glasses: how and why should we study it? K. Kunisch, Schott

12h15: Lunch

14h-16h45: Free time for ESRs and external students to start preparing the restitution of the presentations and discussions

15h30-16h45: Supervisory Board meeting

16h45-17h: Coffee break

17h-18h30: Linking long- and short-term deformation in subduction zones: state of the art and open questions

17h-17h45: Observations and lab models - F. Corbi, Roma TRE

17h45-18h30: The numerical modeler viewpoint – T. Gerya, ETH

20h: Dinner

21h-until ... ESRs and external students should finish preparing the restitution of the presentations and discussions

### **31 January:**

9h-10h30: Restitution of the presentations and discussions by the ESRs & external PhDs (3 groups, each in charge of 1 day)

10h30-11h: Coffee Break

11h-12h: Closing discussion : What follows?

12h15: Lunch