

## ***GEOCEAN Symposium and Summer School***

***August 27-28, 2012 - A symposium in tribute to Jean Francheteau***

**Monday August 27, 2012**

### **Session 1 In memory of our colleague and friend Jean Francheteau**

9h00 Jean-Yves Royer, Pascal Olivard, Jean-François Stephan  
*Welcome address*

9h30 Xavier Le Pichon (Collège de France)

10h00 Jason W Morgan (Princeton Univ.)  
*Francheteau and plate reconstructions*

10h30 Coffee Break

11h00 Pierre Choukroune (Univ. Aix-Marseille)

11h30 Paul Tapponnier (Earth Observatory of Singapore)  
*Rifting of the Red Sea*

12h00 Emile Okal (Northwestern Univ.)  
*Mid-oceanic earthquakes and T-waves*

12h30 Lunch Break

### **Session 2 Plate tectonics: kinematics, thermo-mechanical evolution of oceanic plates**

14h00 Robert Ballard (URI Center for Ocean Exploration)

14h30 Richard Hey (Univ. Hawaii)  
*The Impact of Jean Francheteau's Microplate Tectonics Research for Iceland*

15h00 Jason Phipps Morgan (Univ. Cornell)  
*A dynamic theory for the morphology of Overlapping Spreading Centers*

15h30 Richard Gordon (Rice Univ.)  
*Current global plate motions: Shrinking plates & transform faults*

16h00 Coffee Break

16h30 Claude Jaupart (IPG Paris)  
*Heat-flux ...*

17h00 Michel Diament (IPG Paris)  
*Strength of the oceanic lithosphere*

17h30 Louis Géli (Ifremer)  
*Earthquake precursors and supercritical fluids at oceanic fracture zones*

17h45 End of Session

*Transportation to Oceanopolis*

19h00 Dinner at Oceanopolis

**Tuesday August 28, 2012**

**Session 3 Processes at seafloor spreading centers**

- 9h00 Thierry Juteau (Univ. Brest)  
*Ophiolites and oceanic crust : the permanent dialog*
- 9h30 Catherine Mével (IPG Paris)  
*The ocean drilling program*
- 10h00 Mathilde Cannat (IPG Paris)  
*Axial-valley bounding faults and the exhumation of mantle-derived rocks at slow spreading ridges*
- 10h30 Coffee Break
- 11h00 Michael Perfit (University of Florida, Gainesville)
- 11h30 Francis Albarède (ENS Lyon)
- Laurent Montesi (WHOI)  
*Melt extraction at mid-ocean ridges: three simple steps explain along-strike crustal thickness variations*
- 12h30 Lunch Break
- 14h00 Lars Rupke (Helmholtz Center for Ocean Research, Kiel)  
*Crustal accretion and hydrothermal convection patterns at fast-spreading ridges*
- Margaret Tivey (WHOI)  
*Use of thermocouple arrays for study of microbial colonization in very young (days to weeks old) vent deposits*
- Yossi Mart (Univ. Haifa)  
*The life cycle of back-arc basins: an experimental approach*
- 16h00 Coffee Break

**Posters**

- Morgane Le Saout (PhD, IUEM)  
*Lava flows morphologies at the intersection of the East-Pacific Rise with the Mathematician hot-spot, 16°N.*
- Rosa Maria (PhD, Instituto de Geofísica, UNAM Mexico)  
*Large scale hydrothermal flow in a sedimented spreading center in the northern gulf of California, Mexico*
- Bleuen Gueguen (PhD, IUEM)  
*Ni isotope in ferromanganese crusts and deep-sea-clays: hydrogenetic and authigenic precipitation of Mn-oxides*
- Pauline Henri (PhD, IPG Paris)  
*Basalt alteration by endemic microorganisms of hydrothermal vents*
- Aessio Sanfilippo (Pdoc, Università di Pavia)  
*Building of the deepest gabbroic crust at a fossil slow spreading centre (Pineto gabbroic sequence, Alpine Jurassic ophiolites)*
- Lily Mueller (PhD, Univ. Oxford)  
*Seamount morphology and structure of the Southwest Indian Ridge (40°E - 60°E)*

**August 29-31, 2012 - Labex Mer Summer School**  
**Geodynamic processes and biochemical interactions**  
**at seafloor spreading ridges**

**Wednesday August 29, 2012**

**Session 1 Geodynamics and petro-geochemical processes at seafloor spreading ridges**

- 8h30 Olivier Rouxel & Jean-Yves Royer  
*Welcome and logistics*
- 9h00 Debbie Milton (NOC)  
*InterRidge*
- 9h30 Catherine Mével (IPG Paris)  
*International Ocean Drilling Program*

10h00 Coffee Break

- 10h30 Michael Perfit (Univ. Florida, Gainesville)  
*Crustal accretion and petro-geochemical processes at seafloor spreading ridges*
- 11h30 Benoit Ildefonse (Geosciences, Montpellier)  
*Formation and evolution of the oceanic lithosphere*

12h30 Lunch Break

**Session 2 Ridge flank processes in volcanic oceanic crust**

- 14h00 Wolfgang Bach (University of Bremen)  
*Alteration of the Oceanic Lithosphere and Implications for Seafloor Processes*
- 15h00 TRAINING SESSION A (1 group)  
*Geodynamic modeling, logging and geophysical techniques*  
Geophysical techniques: Marcia Maia, IUEM  
Logging techniques: Louise Anderson, University of Leicester
- 16h00 TRAINING SESSION B (2 groups)  
*Core/rock description and logging (with coffee break)*
- B1 Petrological description / drill core Macro description: W. Bach / B. Ildefonse
- B2 Petrological description / thin sections: G. Chazot, IUEM

18h00 End of day

## Thursday August 30, 2012

### Session 3 Fluid-rock interactions and geochemistry of seafloor hydrothermal systems

8h30 Welcome at Ifremer and program of the day

8h45 Yves Fouquet (Ifremer)

*Seafloor hydrothermal systems and mineral resources at the seafloor*

9h30 Margaret Tivey (WHOI)

*Geochemical modeling of vent environments*

10h15 Coffee Break

10h45 TRAINING SESSION C (4 groups)

*Crustal accretion and petro-geochemical processes at seafloor spreading ridges*

C1 Sulfide/mineral deposits at seafloor: Yves Fouquet (Ifremer)

C2 Geomicrobiology and mineral biosignatures: Brandy Toner (U Minnesota) & Brian Glazer (Univ. Hawaii)

C3 Geochemical (isotope) techniques + lab tour IUEM/Ifremer: C. Hémond (IUEM) & O. Rouxel (Ifremer)

C4 Geodynamic modeling at IUEM: Anne Deschamps (IUEM)

13h00 Lunch Break (at Ifremer)

### Session 4 *In situ* observation of physical, geochemical and biological processes at the seafloor

14h00 Brian Glazer (Univ. Hawaii)

14h45 Pierre-Marie Sarradin (Ifremer)

15h30 Coffee Break

16h00 TRAINING SESSION C (4 groups) - continued

*Crustal accretion and petro-geochemical processes at seafloor spreading ridges*

C1 Sulfide/mineral deposits at seafloor: Yves Fouquet (Ifremer)

C2 Geomicrobiology and mineral biosignatures: Brandy Toner (U Minnesota) & Brian Glazer (Univ. Hawaii)

C3 Geochemical (isotope) techniques + lab tour IUEM/Ifremer: C. Hémond (IUEM) & O. Rouxel (Ifremer)

C4 Geodynamic modeling at IUEM: Anne Deschamps (IUEM)

18h00 End of day

## Friday August 31, 2012

### Session 5 Geobiological interactions, ecosystems and microbial diversity

- 8h30 Anne Godfroy (Ifremer)  
*Life in extreme (hot) environments*
- 9h30 Katrina Edwards (Univ. Southern California)  
*Deep (cold) biosphere*
- 10h30 Coffee Break
- 11h00 Stefan Lalonde (IUEM)  
*Introduction to geobiology*
- 11h45 Brandy Toner (Univ. Minnesota, St Paul)

12h30 Lunch Break

### Session 6 Concluding session (all speakers)

Restitution on each theme (5) by sponsored students (following specific questions):

- 14h00 - *What are your overall "big-picture" scientific questions in this theme ?*  
- *What are the most significant future research directions in this theme ?*  
- *What technological/methodological advances will most improve our understanding in this theme ?*

15h00 Coffee Break

**Short presentation + roundtable/discussion**

- 15h30 - International/national programs and research opportunities related to seafloor spreading ridges  
- European initiatives and opportunities for young researchers

**Closing statement**

16h30 End of GEOCEAN Summer School