

# GEOCEAN

Geodynamic processes and biochemical interactions at seafloor spreading ridges  
Symposium Jean Francheteau & Summer School  
Brest - August 27-31, 2012

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)  
*From Paleomagnetism to Plate tectonics, the contribution of Jean Francheteau to the discovery of finite Plate tectonics*
- 10h00 W. Jason Morgan (Princeton Univ.)  
*Jean Francheteau and reconstructing plate motions*
- 10h30 Coffee Break
- 11h00 Pierre Choukroune (Univ. Aix-Marseille)  
*De quand datent les océans ? - How old are the oceans ?*
- 11h30 Claude Rangin
- 12h00 Robert Ballard (URI Center for Ocean Exploration)  
*Early years of Plate Tectonics with Jean Francheteau*
- 12h30 Lunch Break

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

- 14h00 Richard Hey (Univ. Hawaii)  
*The Impact of Jean Francheteau's microplate tectonics research for Iceland*
- 14h30 Jason Phipps Morgan (Univ. Cornell)  
*A dynamic theory for the morphology of Overlapping Spreading Centers*
- 15h00 Richard Gordon (Rice Univ.)  
*Current global plate motions: Shrinking plates & transform faults*
- 15h30 Claude Jaupart (IPG Paris)  
*Heat-flux ...*
- 16h00 Coffee Break
- 16h30 Michel Diament (IPG Paris)  
*Intraplate volcanism in the South Pacific, what have we learned from satellites ?*
- 17h00 Emile Okal (Northwestern Univ.)  
*T waves: guardians of hidden ocean processes*
- 17h30 Louis Géli (Ifremer)  
*Earthquake precursors and supercritical fluids at oceanic fracture zones*
- 17h50 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)  
*Drilling the oceanic lithosphere*
- 10h00 Mathilde Cannat (IPG Paris)  
*Axial-valley bounding faults and the exhumation of mantle-derived rocks at slow spreading ridges*
- 10h30 Coffee Break
- 11h00 Alessio Sanfilippo (Pdoc, Univ. di Pavia)  
*Building of the deepest gabbroic crust at a fossil slow spreading centre (Pineto gabbroic sequence, Alpine Jurassic ophiolites)*
- 11h20 Lily Muller (PhD, Univ. Oxford)  
*Seamount morphology and structure of the Southwest Indian Ridge (40°E - 60°E)*
- 11h40 Michael Perfit (University of Florida, Gainesville)
- 12h10 Francis Albarède (ENS Lyon)
- 12h40 Lunch Break
- 14h20 Lars Ruepke (Helmholtz Center for Ocean Research, Kiel)  
*Crustal accretion and hydrothermal convection patterns at fast-spreading ridges*
- 14h40 Margaret Tivey (WHOI)  
*Use of thermocouple arrays for study of microbial colonization in very young (days to weeks old) vent deposits*
- 15h10 Yossi Mart (Univ. Haifa)  
*The life cycle of back-arc basins: an experimental approach*
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- 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 Prol-Ledesma (PhD, Instituto de Geofisica, 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*
- Alessio Sanfilippo (Pdoc, Università di Pavia)  
*The effects of melt-mantle reactions on the composition of the lower oceanic crust:*

*Preliminary program – 05, July 2012*

*Insights from Pineto gabbroic sequence (Alpine ophiolites) and Godzilla Megamullion (Parece Vela Basin)*

Lily Muller (PhD, Univ. Oxford)

*Seamount morphology and structure of the Southwest Indian Ridge (40°E - 60°E)*

Preliminary program – 05, July 2012

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

**Wednesday August 29, 2012 (IUEM)**

8h30 Olivier Rouxel & Jean-Yves Royer (IUEM ; Amphi B)

*Welcome at IUEM and logistics*

9h00 Debbie Milton (NOC)

*InterRidge*

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

9h30 Michael Perfit (Univ. Florida, Gainesville)

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

10h30 Coffee Break

11h00 Benoit Ildefonse (Geosciences, Montpellier)

*Formation and evolution of the oceanic lithosphere*

12h00 Wolfgang Bach (University of Bremen)

*Alteration of the Oceanic Lithosphere and Implications for Seafloor Processes*

13h00 Lunch Break

14h00 TRAINING SESSION A (2 groups) PC rooms; IUEM

A1: Geodynamic modeling: Anne Deschamps (IUEM)

A2: Logging techniques: Louise Anderson, University of Leicester

16h00 TRAINING SESSION B (2 groups) IUEM; LDO conference room (include coffee break)

B1: Petrological description / Macro description: W. Bach / B. Ildefonse

B2: Petrological description / Microscope: G. Chazot, IUEM

18h00 End of day

**Thursday August 30, 2012 (Ifremer)**

8h30 *Welcome at Ifremer and program of the day (Salon de l'Océan)*

**Session 2 Fluid-rock interactions and geochemistry of seafloor hydrothermal systems**

8h40 Yves Fouquet (Ifremer)

*Seafloor hydrothermal systems and mineral resources at the seafloor*

9h30 Margaret Tivey (WHOI)

*Geochemical modeling of vent environments*

10h30 Coffee Break

11h00 TRAINING SESSION C (2 groups)

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

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

C2 : Geochemical techniques : C. Hémond (IUEM) & E. Ponzevera (Ifremer)

13h00 Lunch Break, at IFREMER Restaurant

14h00 Brian Glazer (Univ. Hawaii)

14h45 Brandy Toner (U. Minnesota)

15h30 Coffee Break

16h00 TRAINING SESSION D (2 groups)

D1: Spectroscopy: Brandy Toner (U Minnesota)

D2: In-situ measurements: Brian Glazer (Univ. Hawaii)

18h00 End of day

## Friday August 31, 2012 (IUEM)

### Session 3 Geobiological Interactions in extreme environments

- 8h30 Stefan Lalonde (IUEM)  
*Introduction to geobiology*
- 9h30 Katrina Edwards (Univ. Southern California)  
*Habitat characterization: rocks and bugs*
- 10h30 Coffee Break
- 11h00 Anne Godfroy (IFREMER)
- 11h45 Pierre-Marie Sarradin (IFREMER)

12h30 Lunch Break

### Session 4 Concluding session

- 14h00 Roundtable: Restitution on each theme (3) following specific questions:  
- *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 ?*  
*Discussion leaders: O. Rouxel and S. Lalonde*

15h30 Coffee Break

- 16h00 Lucie Roa (Cellule Europe UBO)  
*Research opportunities for students and postdocs in Europe*

16h30 Final address and end of GEOCEAN Summer School