

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 Gente and Jean-François Stéphan**
Welcome address
- 9h30** **Xavier Le Pichon (Collège de France, Aix-en-Provence)**
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 plate reconstructions
- 10h30 Coffee Break
- 11h00 **Pierre Choukroune (Univ. Aix-Marseille)**
When did Plate Tectonics start ?
- 11h30 **Richard Hey (Univ. Hawaii), Fernando Martinez, Asdis Benediktsdóttir & Armann Höskuldsson**
Jean Francheteau & Seafloor Spreading Reorganizations: Microplates, Propagators, Overlappers & Iceland
- 12h00 **Claude Rangin (CEREGE, Aix-en-Provence)**
"Déchirures": Continental Break-up & Tear-off
- 12h30 Lunch Break

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

- 14h00 **Robert Ballard (URI Center for Ocean Exploration) - video-conferencing**
Dr. Jean Francheteau's Contribution to the Study of the Earth
- 14h30** **Richard Gordon (Rice Univ.)**
Current global plate motions: Shrinking plates & transform faults
- 15h00 **Claude Jaupart (Institut de Physique du Globe de Paris)**
Thermal Structure and Stability of Thick Continental Lithosphere
- 15h30** **Michel Diament (Institut de Physique du Globe de Paris)**
Intraplate volcanism in the South Pacific, what have we learned from satellites ?
- 16h00 Coffee Break
- 16h30 **Emile Okal (Northwestern Univ.)**
T-waves: guardians of hidden ocean processes
- 17h00 **Louis Géli (Ifremer)**
Earthquake precursors and supercritical fluids at oceanic fracture zones
- 17h20** **Jason Phipps Morgan (Univ. Cornell)**
A dynamic theory for the morphology of Overlapping Spreading Centers
- 17h40 **Yossi Mart (Univ. Haifa)**
The life cycle of back-arc basins: an experimental approach
- 18h00 End of Session
- Transportation to Oceanopolis

Program

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 (Institut de Physique du Globe de Paris)

Drilling the oceanic lithosphere

10h00

Mathilde Cannat (Institut de Physique du Globe de Paris)

Axial-valley bounding faults and the exhumation of mantle-derived rocks at slow spreading ridges

10h30

Coffee Break

11h00

Alessio Sanfilippo (Univ. di Pavia) & Riccardo Tribuzio

Building of the deepest gabbroic crust at a fossil slow spreading centre (Pineto gabbroic sequence, Alpine Jurassic ophiolites)

11h30

Lily Muller (PhD, Univ. Oxford) & Anthony Watts

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

12h00

Michael Perfit (University of Florida, Gainesville)

Mid-Ocean Ridge Volcanism on the East Pacific Rise: Integrated Volcanologic, Geophysical and Geochemical Studies

12h30

Lunch Break

14h00

Lars Rüpke (Helmholtz Center for Ocean Research, Kiel), Sonja Theissen-Krah, Karthik Iyer & Jason Phipps Morgan

Crustal accretion and hydrothermal convection patterns at fast-spreading ridges

14h30

Anne Deschamps (Institute for Marine Studies, Brest), Morgane Le Saout, Adam Soule, Pascal Allemand, Brigitte Van Vliet Lanoe & Christophe Delacourt

Submarine and aerial inflated lava flows

15h00

Poster presentations

5 minutes / poster

16h00

Coffee Break & Poster session

Cécile Grigné (Institute for Marine Studies, Brest), Chantal Tisseau, Manuel Combes, Marc Parenthoën, Sébastien Le Yaouanq & Jacques Tisseau
Multi-agent modeling of Earth's dynamics

Hailong Bai (PhD, Univ. Maryland, College Park), Laurent Montesi & Laura Hebert
Origin of Crustal Thickness Anomalies at Oceanic Transform Faults

Briais Anne (Obs. Midi-Pyrénées, Toulouse), Olga Gomez & Raymond Lataste
Off-axis seamounts on the flanks of the Southeast Indian Ridge. Implications for mantle dynamics east of the Australia-Antarctic Discordance.

Morgane Le Saout (PhD, Univ. Brest), Anne Deschamps, Adam Soule, Pascal Allemand & Pascal Gente
Lava flows morphologies at the intersection of the East-Pacific Rise with the Mathematician hot-spot, 16° N.

Christine Andersen (PhD, Univ. Kiel), Lars Rüpke & Sven Petersen
Tectono-magmatic controls on hydrothermal activity at the Mid-Atlantic Ridge vent fields Logatchev and 5°S

Thibaut Barreyre (PhD, IPG Paris), Javier Escartin, Rafael Garcia & Mathilde Cannat
Structure and temporal variation in fluid outflow at the deep-sea Lucky Strike hydrothermal field (Mid-Atlantic Ridge) from seafloor imagery and temperature records

Rosa-Maria Prol-Ledesma (PhD, UNAM Mexico) & Marco Antonio Torres-Vera

Program

Large scale hydrothermal flow in a sedimented spreading center in the northern gulf of California, Mexico

Guy Evans (PhD, MIT/WHOI) & Margaret Tivey

Geochemical and Morphological Diversity of Vent Deposits from the Lau Back-arc Basin Arising from Variations in Igneous Rock Composition and Volcanic Arc Influence

Bleuenn Gueguen (PhD, Univ. Brest), Olivier Rouxel & Yves Fouquet

Ni isotope in ferromanganese crusts and deep-sea-clays: hydrogenetic and authigenic precipitation of Mn-oxides

Stéphane Rouméjon (PhD, IPG Paris) & Mathilde Cannat

Tectonic initiation of serpentinization: mesh-texture development, in exhumed peridotites, at slow and ultraslow-spreading ridges

Margaret Tivey (WHOI) & Anna-Louise Reysenbach

Use of thermocouple arrays for study of microbial colonization in very young (days to weeks old) vent deposits

Pauline Henri (PhD, IPG Paris), Céline Rommevaux-Jestin, Bénédicte Menez & Françoise Lesongeur

Basalt alteration by endemic microorganisms of hydrothermal vents

Maria-Cristina Ciobanu (Ifremer)

Microbial diversity of marine sediments from the Canterbury Basin, New Zealand (IODP Leg 317)

17h30

End of Symposium

Program

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, Brest)
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, Brest)

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, Brest) & E. Ponzevera (Ifremer)

13h00 Lunch Break, at IFREMER Restaurant

14h00 **Brian Glazer (Univ. Hawaii)**

Program

14h45 **Brandy Toner (U. Minnesota)**

15h30 Coffee Break

16h00 **TRAINING SESSION D (2 groups)**
D1: Spectroscopy: Brandy Toner (Univ. 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, Brest)**
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