

Thibaut BARREYRE

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RESEARCH INTERESTS

Marine geology and geophysics and fluid dynamics.
Hydrothermalism, Deep-sea Instrumentation and Exploration.
Signal Analysis, Statistic, Stochastic and Spectral Methods.

EDUCATION

- 2010-2013 **Ph.D. in Marine Geophysics** (advisor : Javier Escartín)
Institut de Physique du Globe de Paris (IPGP), Paris, France
- 2009-2010 **M.S., Geophysics** obtained with high honors (*summa cum laude*).
*Institut de Physique du Globe de Paris (IPGP) –
Ecole Normale Supérieure (ENS), Paris, France*
- 2007-2008 **B.S., Physics** obtained with honors, 2008.
Ecole Normale Supérieure (ENS), Paris, France

RESEARCH EXPERIENCE

- 01/14 – Now **Postdoctoral Scholar** at the Woods Hole Oceanographic Institution (WHOI),
Woods Hole, MA., USA.
Dir. : Robert Reves-Sohn et Dan Fornari.
- 9/10 – 10/13 **PhD program** at the Institut de Physique du Globe (Géosciences Marines, IPGP),
Paris, France.
Supervised by Javier Escartín.
Dynamics and heat fluxes of hydrothermal fields.
Fluid dynamics experiments at the FAST, Orsay, France.
Supervised by Anne Davaille and Eric Mittelstaedt.
Analogical modeling of a hydrothermal crack.
- 2/10 – 6/10 **Internship** at the Institut de Physique du Globe (Géosciences Marines, IPGP),
Paris, France.
Supervised by Javier Escartín.
*Hydrothermal activity at slow-spreading ridges: Spatial structure and temporal
variability at the Lucky Strike field (MAR).*
- 2/09 - 8/09 **Internship** at the Woods Hole Oceanographic Institution (WHOI),
Woods Hole, MA., USA.
Supervised by Robert Reves-Sohn and Samuel Adam Soule.
*Explosive volcanism in the deep ocean: investigating the dispersal of volcanoclastic
material through laboratory measurements and numerical models.*
- 6/08 - 7/08 **Internship** at the Laboratoire d'Océanographie et du Climat :
Expérimentation et Approches Numériques (LOCEAN), Paris, France.
Supervised by Christine Provost and Alice Renault
Study of the Antarctic Circumpolar Current (ACC) in the Drake Passage.
- 6/07 - 7/07 **Internship** at the Laboratoire d'Etude du Rayonnement et de la Matière en Astrophysique
(LERMA) at the Observatoire de Paris, CNRS, Paris, France.
Supervised by Eric Defer and Catherine Prigent.
Analysis of earth satellite observations and development of processing tools.

FIELD EXPERIENCE AND RESEARCH CRUISE

- 08/13 “MoMARSAT13”, Instrument recovery and deployment for long-term observations at the Lucky Strike MoMAR site, on NO *Atalante, Victor*, 21-Aug-15 Sep 2013, Horta.
- 07/12 “MoMARSAT12”, Instrument recovery and deployment for long-term observations at the Lucky Strike MoMAR site, on NO *Atalante, Victor*, 12-Jul-31 Jul 2012, Ponta Delgada.
- 07/11 “MoMARSAT11”, Instrument recovery and deployment for long-term observations at the Lucky Strike MoMAR site, on NO *PourQuoi Pas?, Victor*, 28-Jun-21 Jul 2011, Horta.
- 10/10 “MoMARSAT10”, Instrument recovery and deployment for long-term observations at the Lucky Strike MoMAR site, on NO *PourQuoi Pas?, Victor*, 1-Oct-16 Oct 2010, Horta.
- 9/09 “Bathyluck’09”, Instrument recovery and deployment for long-term observations at the Lucky Strike MoMAR site, on NO *PourQuoi Pas?, Nautille & Victor*, 31-Aug-29 Sep 2009, Horta.
- 9/07 – 5/10 Various field courses including cartography, tectonics and petrology in the French and Italian Alps (ENS), active tectonics in Greece (IPGP) and geodynamics in Barbados (WHOI).

ARTICLES

- Barreyre, T., J. Escartín, R. Sohn, and M. Cannat, Permeability of the Lucky Strike deep-sea hydrothermal system: constraints from the poroelastic response to ocean tidal loading, *Earth and Planetary Science Letters*, submitted.
- Barreyre, T., J. Escartín, R. Sohn, M. Cannat, V. Ballu and W. Crawford, Temporal variability and tidal modulation of hydrothermal exit-fluid temperatures at the Lucky Strike deep-sea vent field, Mid-Atlantic Ridge, *JGR*, in press, 2013.
- Barreyre, T., J. Escartín, R. Garcia, M. Cannat, E. Mittelstaedt and R. Prados Structure, temporal evolution, and heat flux estimates from the Lucky Strike deep-sea hydrothermal field derived from seafloor image mosaics, *G-cubed* 13, 4Q04007, doi:10.1029/2011GC003990, 2012.
- Mittelstaedt, E., J. Escartín, N. Gracias, J.-A. Olive, T. Barreyre, A. Davaille, M. Cannat, and R. Garcia Quantifying diffuse and discrete venting at the Tour Eiffel vent site, Lucky Strike hydrothermal field, *G-cubed* 13, doi:10.1029/2011GC003991, 2012.
- Barreyre, T., S. Adam Soule, Robert A Reves-Sohn Dispersal of volcanoclastic material by buoyant water plumes in deep-ocean explosive basaltic eruptions, *JVGR* 205, doi:10.1016/j.jvolgeoes.2011.05.006, 2011.

ABSTRACTS, COMMUNICATIONS

2012

- Barreyre, T., J. Escartín, R. Sohn, M. Cannat and V. Ballu, Temperature variation records at diffuse and focused outflow in Lucky Strike hydrothermal field : toward a characterization of the outflow dynamic, *Talk*, AGU, San Francisco, CA, December 2012.
- Barreyre, T., J. Escartín, R. García, M. Cannat and E. Mittelstaedt, Structure and temporal variation in fluid outflow at the deep-sea Lucky Strike hydrothermal field (Mid-Atlantic Ridge) from seafloor imagery, DS3F ,Sitges, Spain, March 2012.

2011

- Barreyre, T., J. Escartín, R. García, M. Cannat, E. Mittelstaedt and R. Prados, Temporal monitoring and quantification of hydrothermal activity from photomosaics: the Lucky Strike hydrothermal field, *Invited Talk*, AGU, San Francisco, CA, December 2011.

2010

Barreyre, T., J. Escartín, M. Cannat, R. García, Distribution, structure and temporal variability of hydrothermal outflow at a slow-spreading hydrothermal field from seafloor image mosaics, Goldschmidt Conference, Knoxville, TN, June 2010.

Barreyre, T., J. Escartín, M. Cannat, R. García, MoMAR'08 & Bathyluck'09 Science Party, Distribution, structure and temporal variability of hydrothermal outflow at a slow-spreading hydrothermal field from seafloor image mosaics, Geophysical Research Abstracts, Vol. 12, EGU2010-A-8487, Vienna, May 2010.

Escartín, J., R. García, R. Prados, R. Campos, T. Barreyre & Bathyluck'09 Science Party, Image seafloor mosaics: Acquisition, processing, and role on deep-sea observatory planning and implementation, Geophysical Research Abstracts, Vol. 12, EGU2010-A-10544, Vienna, May 2010.

2009

Barreyre, T., S. Adam Soule, Robert A Reves-Sohn
Dispersal of volcanoclastic material by buoyant water plumes in deep-ocean explosive basaltic eruptions, AGU Fall Meet. Suppl., Abstract V51D-1743, San Francisco, CA, 2009.

HONORS AND AWARDS

2014 – 2016 WHOI postdoctoral scholarship (18 months).

2010 – 2013 Ministry of Research and Higher Education Fellowship (3 years).

TEACHING EXPERIENCE

2010 – 2013 **Teaching Assistant**

Applied Mathematics (Algebra and Analysis) and Matlab for bachelor's degree classes.
University Paris Diderot (Paris VII) and Institut de Physique du Globe de Paris (IPGP)

LANGUAGES

French Native language
English Fluent
Spanish Average level

COMPUTING & SKILLS

Familiar with MAC.OS, Microsoft and Linux operating systems

Programming and software: Matlab, Fortran 90, Shell, Illustrator, Photoshop ...

Instrumentation: Maintenance and management of IPGP temperature sensor facility

Laboratory: analogical modeling in fluid dynamics

INTERESTS

Travelling, Surfing, Diving, Climbing, Hiking and Theater.