

Mélanie Drilleau

Dr. in Geophysics from Nantes University (France)

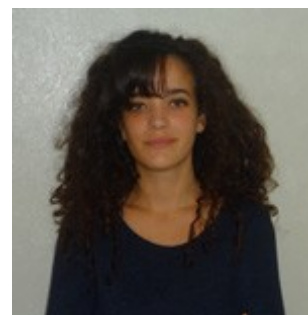
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Working Experience

- September-present **Research Engineer**
Research on non-linear inversions, surface waves, the physical properties of planetary mantles (seismic velocities, temperature, mineralogy)
- 2012-2013 **Teaching Assistant** (Computing, Geophysics, Astrophysics, Thermodynamics, Tectonophysics)
- 2009-2013 **Ph.D thesis in Geophysics**,
Laboratoire de Planétologie et de Géodynamique de Nantes (France),
Advisors: Antoine Mocquet, Éric Beucler and Olivier Verhoeven,
Subject: A Bayesian approach to infer the physical properties in the transition zone from surface waves
Development of an inversion method to directly interpret surface wave dispersion curves in terms of 1-D profiles of temperature and anisotropy
- Feb-Jun 2009 **Master 2 work experience**,
Laboratoire de Planétologie et de Géodynamique de Nantes (France),
Supervisors: Antoine Mocquet and Éric Beucler
Subject: Study of the seismological signature of the transition zone,
Research of the most suitable time and frequency domains to infer the physical properties of the Earth's transition zone
- May-Jul 2008 **Master 1 work experience**,
École Normale Supérieure de Paris (France),
Supervisors: Hélène Lyon-Caen and Sophie Lambotte
Subject: Detailed study of seismic swarms in the Gulf of Corinth,
Relocation of multiplets using a double-difference algorithm, tests of the algorithm performances, determination of the geometry of active faults

Academic

- 2009-2013 **Ph.D thesis in Geophysics**, *Université de Nantes (France)*
- 2007-2009 **M.Sc. in Geophysics**, *Université de Nantes (France)*
- 2004-2007 **B.Sc. in Physics and Chemistry of the Matter and the Earth**, *Université de La Rochelle (France)*

Informatics and Languages

- Softwares** ForTran, Shell, MatLab, Scilab, Seismic Analysis Code
- Parallel computing** Knowledge of MPI and OpenMP
- French** Native language
- English** Good skills in both speaking and writing
- Spanish** Spoken and written, basics

Conferences

- 2013 **M. Drilleau**, É. Beucler, A. Mocquet, O. Verhoeven, G. Moebs, G. Burgos, J.-P. Montagner and P. Vacher, "A Bayesian approach to infer the radial distribution of temperature and anisotropy from seismic data", *AGU Fall Meeting*, San Francisco, USA.
- 2013 M. Panning, A. Mocquet, É. Beucler, **M. Drilleau**, B. Banerdt and P. Lognonné, "Testing the ability of the INSIGHT-SEIS experiment to model Mars' deep interior", *AGU Fall Meeting*, San Francisco, USA.
- 2013 **M. Drilleau**, É. Beucler, A. Mocquet, O. Verhoeven, G. Moebs, G. Burgos, J.-P. Montagner and P. Vacher, "A Bayesian approach to infer radial models of temperature and anisotropy in the transition zone from surface wave data", *IAHS/IAPSO/IASPEI joint meeting*, Gothenburg, Sweden.
- 2012 **M. Drilleau**, É. Beucler, A. Mocquet, O. Verhoeven, G. Moebs, G. Burgos and J.-P. Montagner, "A Bayesian approach to infer temperature in the transition zone from surface wave data", *SEDI meeting*, Leeds, UK.
- 2012 M. Panning, A. Mocquet, É. Beucler, **M. Drilleau**, B. Banerdt and P. Lognonné, "Demonstrating single seismic station approaches to modeling Martian interior using Earth data", *AGU Fall Meeting*, San Francisco, USA.
- 2012 J.-P. Montagner, G. Burgos, **M. Drilleau**, É. Beucler, A. Mocquet, and J. Trampert, "Seismic anisotropy in the transition zone of the mantle", *EGU General Assembly Conference*, Vienna, Austria.
- 2011 **M. Drilleau**, É. Beucler, A. Mocquet, O. Verhoeven, G. Burgos, Y. Capdeville, and J.-P. Montagner, "One dimensional models of temperature and composition in the transition zone from a Bayesian inversion of surface waves," *AGU Fall Meeting*, San Francisco, USA.
- 2010 **M. Drilleau**, É. Beucler, A. Mocquet, and O. Verhoeven, "Bayesian approach to infer temperature and mineralogical composition of the transition zone from seismic waveforms," *EGU General Assembly Conference*, Vienna, Austria.
- 2010 É. Beucler, A. Mocquet, M. Macquet, and **M. Drilleau**, "RÉSoNANSS: A regional contribution to seismological observations in Western France," *ESC Meeting*, Montpellier, France.

Publications

- 2014 M. Panning, É. Beucler, **M. Drilleau**, A. Mocquet, B. Banerdt and P. Lognonné, "Demonstrating single seismic station approaches to modeling Martian interior using Earth data", submitted to *Icarus*.
- 2014 J.-P. Montagner, G. Burgos, **M. Drilleau**, É. Beucler, Y. Capdeville, A. Mocquet and A. Forte, "The mantle transition zone boundary layer as revealed through seismic anisotropy", submitted to *Science*.
- 2014 S. Lambotte, H. Lyon-Caen, P. Bernard, A. Dechamps, G. Patau, A. Neceressian, F. Pacchiani, S. Bourouis, **M. Drilleau** and P. Adamova, "Reassessment of the rifting process in the Western Corinth Rift from relocated seismicity", accepted with minor revisions in the *Geophysical Journal International*.
- 2014 G. Burgos, J.-P. Montagner, É. Beucler, Y. Capdeville, A. Mocquet and **M. Drilleau**, "Oceanic Lithosphere/Asthenosphere Boundary from surface wave dispersion data", in press in the *Journal of Geophysical Research*.
- 2013 **M. Drilleau**, É. Beucler, A. Mocquet, O. Verhoeven, G. Moebs, G. Burgos, J.-P. Montagner and P. Vacher, "A Bayesian approach to infer radial models of temperature and anisotropy in the transition zone from surface wave dispersion curves", *Geophysical Journal International*, 195, 1165-1183.
- 2013 **M. Drilleau**, "Une approche bayésienne pour estimer les propriétés sismiques dans la zone de transition à partir des ondes de surface" (in French), Ph. D Thesis, 279p.

References

Antoine Mocquet	Professor, Laboratoire de Planétologie et de Géodynamique de Nantes, antoine.mocquet@univ-nantes.fr
Éric Beucler	Associate Professor, Laboratoire de Planétologie et de Géodynamique de Nantes, eric.beucler@univ-nantes.fr
Éric Debayle	Directeur de recherche, CNRS, Laboratoire de Géologie de Lyon, Eric.Debayle@ens-lyon.fr
Jean-Paul Montagner	Professor, Université Paris 7- Institut de Physique du Globe de Paris, jpm@ipgp.fr

Other Activities and Hobbies

Sport	Tap Dance, Touch Rugby, Swimming
Other	International driving license B