

Paul Cupillard

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CURRICULUM VITAE

Personal Data

Date of birth	March 12, 1981
Place of birth	Besançon, France
Nationality	French

Appointments

2012 - present	Associate professor, GeoRessources laboratory, University of Lorraine, France
2011 - 2012	Postdoctoral scholar, Institut de Physique du Globe de Paris, France
2008 - 2010	Postdoctoral scholar, UC Berkeley Seismological Laboratory, California, USA

Education

2005 - 2008	PhD, Institut de Physique du Globe de Paris, France <i>Spectral element simulation of Green's functions obtained by correlation of ambient seismic noise</i> Advisors : Jean-Paul Montagner and Yann Capdeville
2001 - 2004	MSc in Geophysics, Louis Pasteur University, Strasbourg, France

Skills

Research	<ul style="list-style-type: none">— Numerical simulation of seismic wave propagation— Homogenization of elastic properties for the wave equation— Theory of seismic noise correlations, interferometry and time-reversal— Full waveform inversion— Seismic signal processing
Teaching	<ul style="list-style-type: none">— Applied Geophysics (postgraduate level)— Finite Element Methods (postgraduate level)— Geomodelling (postgraduate level)— Inverse problem and optimization (postgraduate level)
Languages	<ul style="list-style-type: none">— French : mother tongue— English : fluent— German : basics

- 2018** Irakarama, M., P. Cupillard, G. Caumon, P. Sava and J. Edwards
Appraising structural interpretations using seismic data : theoretical elements
Geophysics, accepted
- Anquez, P., J. Pellerin, M. Irakarama, P. Cupillard, B. Lévy and G. Caumon
Automatic correction and simplification of geological maps and cross sections for numerical simulations
C. R. Geoscience, accepted
- Fichtner, A., D.-P. van Herwaarden, M. Afanasiev, S. Simuté, L. Krischer, Y. Cubuk-Sabuncu, T. Taymaz, L. Colli, E. Saygin, A. Villasenor, J. Trampert, P. Cupillard, H.-P. Bunge and H. Igel
The Collaborative Seismic Earth Model : Generation 1
Geophys. Res. Lett., vol. 45(9), p. 4007-4016, 10.1029/2018GL077338
- Mazuyer, A., P. Cupillard, R. Giot, M. Conin, Y. Leroy and P. Thore
Stress estimation in reservoirs using an integrated inverse method
Comp. Geosci., vol. 114, p. 30-40, 10.1016/j.cageo.2018.01.004
- Cupillard, P. and Y. Capdeville
Non-periodic homogenization of 3D elastic media for the seismic wave equation
Geophys. J. Int., vol. 213(2), p. 983-1001, 10.1093/gji/ggy032
- 2017** Cupillard, P. and Y. Capdeville
Performance and convergence of the non-periodic homogenization for the 3D elastic wave equation
79th EAGE Conference & Exhibition Extended Abstracts, 10.3997/2214-4609.201700524
- 2016** Zunino, A., A. Khan, P. Cupillard and K. Mosegaard
Constitution and Structure of Earth's Mantle : Insights from Mineral Physics and Seismology
Integrated Imaging of the Earth : Theory and Applications, AGU Monograph Series, p. 219-243, 10.1002/9781118929063
- 2015** Cupillard, P., Y. Capdeville and A. Botella
Homogenization of 3D geological models for seismic wave propagation
SEG Technical Program Expanded Abstracts 2015, p. 3656-3660, 10.1190/segam2015-5907841.1
- Saade, M., J.-P. Montagner, P. Roux, P. Cupillard, S. Durand and F. Brenguier
Influence of seismic anisotropy on the cross-correlation tensor : numerical investigations
Geophys. J. Int., vol. 201(2), p. 595-604, 10.1093/gji/ggu470
- Capdeville, Y., M. Zhao and P. Cupillard
Fast Fourier homogenization for elastic wave propagation in complex media
Wave Motion, vol. 54, p. 170-186, 10.1016/j.wavemoti.2014.12.006
- 2014** Yuan, H., S. French, P. Cupillard and B. Romanowicz
Lithospheric expression of geological units in central and eastern North America from full waveform tomography
Earth Planet. Sci. Lett., vol. 402, p. 176-186, 10.1016/j.epsl.2013.11.057
- Masson, Y., P. Cupillard, Y. Capdeville and B. Romanowicz
On the numerical implementation of time-reversal mirrors
Geophys. J. Int., vol. 196(3), p. 1580-1599, 10.1093/gji/ggt459

- 2013** Fichtner, A., J. Trampert, P. Cupillard, E. Saygin, T. Taymaz, Y. Capdeville and A. Villasenor
Multi-scale full waveform inversion
Geophys. J. Int., vol. 194(1), p. 534-556, 10.1093/gji/ggt118
 Fichtner, A., E. Saygin, T. Taymaz, P. Cupillard, Y. Capdeville and J. Trampert
The deep structure of the North Anatolian Fault Zone
Earth Planet. Sci. Lett., vol. 373, p. 109-117, 10.1016/j.epsl.2013.04.027
- 2012** Cupillard, P., E. Delavaud, G. Burgos, G. Festa, J.-P. Vilotte, Y. Capdeville and J.-P. Montagner
RegSEM : a versatile code based on the spectral element method to compute seismic wave propagation at the regional scale
Geophys. J. Int., vol. 188(3), p. 1203-1220, 10.1111/j.1365-246X.2011.05311.x
- 2011** Stehly, L., P. Cupillard and B. Romanowicz
Towards improving ambient noise tomography using simultaneously curvelet denoising filters and SEM simulations of seismic ambient noise
C. R. Geoscience, vol. 343(8), p. 591-599, 10.1016/j.crte.2011.03.005
 Cupillard, P., L. Stehly and B. Romanowicz
The one-bit noise correlation : a theory based on the concepts of coherent and incoherent noise
Geophys. J. Int., vol. 184(3), p. 1397-1414, 10.1111/j.1365-246X.2010.04923.x
- 2010** Cupillard, P. and Y. Capdeville
On the amplitude of surface waves obtained by noise correlation and the capability to recover the attenuation : a numerical approach
Geophys. J. Int., vol. 181(3), p. 1687-1700, 10.1111/j.1365-246X.2010.04586.x
- 2009** Ritsema, J., P. Cupillard, B. Tauzin, W. Xu, L. Stixrude and C. Lithgow-Bertelloni
Joint mineral physics and seismic wave traveltime analysis of upper mantle temperature
Geology, vol. 37(4), p. 363-366, 10.1130/G25428A.1

International conferences (as a speaker)

- 2017** 2nd RING Meeting, Nancy, France, September 19-22
Talk : *On the use of upscaled models in Spectral Element wave simulations*
 79th EAGE Conference & Exhibition, Paris, France, June 11-16
Talk : *Performance and convergence of the non-periodic homogenization for the 3D elastic wave equation*
- 2016** 1st RING Meeting, Nancy, France, September 18-21
Talk : *Seismic upscaling and downscaling through the homogenization method*
- 2015** SEG Annual Meeting, New Orleans, USA, October 18-23
Talk : *Homogenization of 3D geological models for seismic wave propagation*
- 2014** AGU Fall Meeting, San Francisco, USA, December 15-19
Talk : *Numerical homogenization for seismic wave propagation in 3D geological media*
 34th Gocad Meeting, Nancy, France, September 16-19
Talk : *Efficient implementation of the 3D homogenization for the seismic wave equation*

- 2013** 33th Gocad Meeting, Nancy, France, September 17-20
Talk : *Upscaling 3D complex geological media for the elastic wave equation*
SIAM Conference on Mathematical and Computational Issues in the Geosciences, Padua, Italy, June 17-20
Talk : *Upscaling 3D complex geological media for the elastic wave equation*
- 2012** QUEST 3rd Workshop, Tatranska-Lomnica, Slovakia, May 20-26
Talk : *Heterogeneities and Anisotropy in the Earth*
EGU General Assembly, Vienna, Austria, April 22-27
Poster : *Upscaling small heterogeneities for seismic wave propagation in 3D complex media*
Subsurface Uncertainty & Inverse Problem(s) Workshop, Nancy, France, April 4-5
Talk : *Upscaling small heterogeneities for the seismic wave equation : theory, examples and implications for the inverse problem*
- 2011** AGU Fall Meeting, San Francisco, USA, December 5-9
Poster : *Implementation of the homogenization technique for wave propagation in 3D elastic media*
QUEST 2nd Workshop, Hveragerdi, Iceland, July 12-19
Poster : *Upscaling complex elastic media for wave propagation*
- 2010** AGU Fall Meeting, San Francisco, USA, December 13-17
Poster : *RegSEM, a versatile spectral element code : application to continental scale problems*
- 2009** AGU Fall Meeting, San Francisco, USA, December 14-18
Talk : *Spectral element simulation of waveforms obtained by correlation of ambient seismic noise*
CIDER '09 Community Workshop, Marconi Center, USA, May 17-20
Poster : *Recovering the attenuation of surface waves from noise correlation : synthetic tests in a spherically symmetric Earth*
- 2008** AGU Fall Meeting, San Francisco, USA, December 15-19
Poster : *Recovering the attenuation of surface waves from noise correlation : synthetic tests in a spherically symmetric Earth*
- 2006** AGU Fall Meeting, San Francisco, USA, December 11-15
Poster : *Spectral element simulation of Green's functions obtained by correlation of ambient seismic noise*
- 2005** SPICE 2nd Workshop, Smolenice, Slovakia, September 4-10
Poster : *Tomography based on the spectral element method : the stacked sources method*