

Michelle Almakari, PhD

<https://michelle-almakari.github.io/michelle-almakari/>

michelle.almakari@ens.fr

+33 (0) 6 42 70 62 10

ResearchGate: Michelle-Almakari

LinkedIn: michelle-almakari

Twitter: @michelle_seismo

Github: michelle-almakari

Research Topics

Seismic Cycle - Numerical Modeling - Seismology - Geophysics - Induced Seismicity - Inverse Methods

Current Position

Jan. 2021 / Post-Doctoral Researcher CNRS

Present *Department of Geology, Ecole Normale Supérieure – PSL, Paris, France*

- Numerical modeling of the seismic cycle in 3D complex fault networks (Persismo ERC)
- Collaborators: Harsha Bhat

Research Experience

Oct. 2016 / Ph.D. Researcher - Geosciences Center, MINES ParisTech, Paris

- Dec. 2019**
- Hydro-Mechanical Rate & State Fault Reactivation: Slip, Seismicity and Permeability Enhancement
 - Collaborators: Pierre Dublanchet, Hervé Chauris, François Passelègue, Frédéric Pellet.

Feb. 2016 / Graduate Research Intern - ISTERre Laboratory, Grenoble - MSSMAT, Paris

- June 2016**
- Non-linear Response of Soft Soils: Numerical Modeling and Statistical Analysis with Comparison to Instrumental Data (KIKNET data).
 - Collaborators: Pierre-Yves Bard, Bertrand Guillier, Fernando Lopez-Caballero, Christelle Salameh, Julie Régnier.

Mars 2015 / Graduate Research Intern - ISTERre Laboratory, Grenoble - Faculty of Engineering, Lebanese Univ.

- June 2015**
- Evaluation of soil's non-linear behavior and estimation of the effects due to spectral coincidence between soil and structure.
 - Collaborators: Pierre-Yves Bard, Bertrand Guillier, Dalia Abdel Massih, Christelle Salameh

Education

Dec. 2019 **PhD in Geophysics - MINES ParisTech, PSL Research University, Paris, France**

- Thesis Subject: Hydro-Mechanical Rate & State Fault Reactivation: Slip, Seismicity and Permeability Enhancement

June 2016 **M.S. in Earth Sciences, major Solid Earth (Geophysics)**

Université Joseph Fourier / Université Grenoble Alpes, Grenoble, France

July 2015 **Civil Engineer Degree, major Geotechnics**

Lebanese University, Faculty of Engineering, Beirut, Lebanon

Peer-Reviewed Publications

Google Scholar ID: Michelle Almakari — **ORCID:** 0000-0002-4041-8028

- (4) F. Passelègue, **M. Almakari**, P. Dublanchet, F. Darras, J. Fortin, M. Violay (2020). Initial effective stress controls the nature of earthquakes. *Nature Communications*, 11:5132. <https://doi.org/10.1038/s41467-020-18937-0>
- (3) **M. Almakari**, H. Chauris, F. Passelègue, P. Dublanchet, A. Gesret (2020). Fault's Hydraulic Diffusivity Enhancement During Injection Induced Fault Reactivation: Application of Pore Pressure Diffusion Inversions to Laboratory Injection Experiments. *Geophysical Journal International*. <https://doi.org/10.1093/gji/ggaa446>
- (2) **M. Almakari**, P. Dublanchet, H. Chauris, F. Pellet (2019). Effect of the Injection Scenario on the Rate and Magnitude Content of Injection-Induced Seismicity: Case of a Heterogeneous Fault. *Journal of Geophysical Research: Solid Earth*, 124, 8426-8448. <https://doi.org/10.1029/2019JB017898>
- (1) C. Salameh, P.Y. Bard, B. Guillier, J. Harb, C. Cornou, J. Gerard, **M. Almakari** (2017). Using ambient vibration measurements at an urban scale: from numerical proof to a case study In Beirut (Lebanon). *Earth Planets Space*.

Scientific Communications

Invited Seminars

- (4) Storengy, Bois Colombes, January 2020
- (3) Géoazur, Nice Sophia Antipolis, France, November 2019
- (2) Ecole et Observatoire des Sciences de la Terre (EOST), Strasbourg, France, November 2019
- (1) Ecole Normale Supérieure (ENS), Paris, France, November 2019

Oral Presentations

- (1) **M. Almakari**, P. Dublanchet, H. Chauris. Injection-induced seismicity controlled by the pore pressure rate. *EGU General Assembly, April 2018, Vienna*.

Poster Presentations

- (5) **M. Almakari**, P. Dublanchet, H. Chauris. Induced Fault Reactivation: Effect of the Fluid Injection Parameters. *Workshop: Forecasting Unstable Frictional Slip and Failure of Geomaterials, November 2019, Ecole Polytechnique, Saclay, France*.
- (4) **M. Almakari**, F. Passelègue, P. Dublanchet. Shear induced fluid flow and permeability enhancement during fluid injection lab experiments. *Schatzalp 3rd workshop on Induced Seismicity, March 2019, Davos, Switzerland (Fellowship Grant)*.
- (3) **M. Almakari**, P. Dublanchet, H. Chauris. Dependence of Injection-Induced seismicity on the Injection Scenario. *AGU Fall Meeting, December 2019, Washington DC*.
- (2) **M. Almakari**, P. Dublanchet, H. Chauris. Injection induced seismicity in a rate and state asperity model. *Workshop on Earthquakes: Nucleation, triggering, rupture and relationship with aseismic processes, October 2017, Cargèse*
- (1) **M. Almakari**, J. Régnier, C. Salameh, H. Cadet, B. Derras, P.Y. Bard, F. Lopez-Caballero. Modulation of weak motion site transfer functions by non-linear behavior: A statistical comparison of 1D numerical simulation

with KIKNET Data. 5th IASPEI/IAEE International Symposium: Effects of Surface Geology on Seismic Motion. August 2016.

Grants

Fellowship grant *Schatzalp 3rd workshop on Induced Seismicity, March 2019, Davos, Switzerland*

Teaching Experience

Advanced Geo-mechanics course *Master 2 Geophysics, IPGP, Paris, France / Fall 2018 – Fall 2020*
Teaching Assistant (Lessons on: (1) Poro-elasticity and Thermo-elasticity – (2) Introduction to Soil Mechanics – (3) Fluid Induced Fault Reactivation)

Geophysical field trip *3rd year engineering at MINES ParisTech / Spring 2017 – Spring 2019*
Field trip monitor

Mentoring/Students

PhD Students

March 2021- Present **Jinhui Cheng**
Energy Budget of the seismic cycle in 3D complex fault network configurations (Main advisors: Harsha Bhat, ENS & Brice Lecampion, EPFL)

Skills

Numerical Modeling – Data Processing – Signal Processing

Coding Languages Python – Fortran – C++ – MPI – Matlab – Mathematica – VB.net

Operational Systems MacOS – Windows – Linux

Languages French/English (Fluent) – Arabic (Native Speaker)

Associative Activities

Member of the counsel of the doctoral school GRNE – October 2016 – September 2019

Students representative + Organization of the JDD (PhD Students internal seminar)

Discussion of the new PhD subjects + Auditions of candidates

Class Delegate and member of the students committee – October 2010 – July 2015

Association of the Girl Scouts, Lebanon – 2010 – 2014

Group Chief

References

Dr. Pierre Dublanquet

Chargé de Recherche, MINES ParisTech
pierre.dublanquet@mines-paristech.fr

Prof. Hervé Chauris

Professor, MINES ParisTech
herve.chauris@mines-paristech.fr