Alexandra (Allie) A. Hutchison

Allie.hutchison (at) gmail.com
Antibes, FR | Zurich, CH

Education:

09/2013-09/2018 **PhD., Geophysics**
University of California, Riverside
Focus: Seismology
Advisor: Dr. Abhijit Ghosh
Dissertation Committee: James Dieterich, Abhijit Ghosh, David Oglesby

09/2012-09/2013 **M. Res., Natural Hazards, Merit Honours**
University of Bristol
Focus: Volcanology
Advisor: Dr. Katharine Cashman, Dr. Alison Rust, Dr. Caroline Williams

01/2006-05/2010 **B.A., Geosciences**
Hamilton College
Advisor: Dr. David Bailey, Dr. Todd Rayne

Work Experience:

10/2018-Present **Postdoctoral Researcher**
Géoazur, CNRS, Valbonne, France
ETH-Zurich, Swiss Seismological Service (SED), Switzerland
IFSTTAR, Marne-le-Vallée, France
Develop an earthquake early warning module based on empirical relationships between peak ground motion, slip, and fault maturity.

09/2013-12/2018 **Researcher/Research Fellow**
University of California, Riverside
Develop quantitative methods to systematically detect and characterize transitional slip behaviors that can be observed seismically

09/2014-12/2016 **Teaching Assistant**
University of California, Riverside
Attend weekly lectures by primary instructor
Teach three one hour lectures to students, grade exams and problem sets, and hold office hours

06/2015-09/2015 **Instructor –Introduction to Geographic Information Systems**
Create and develop course content, teach students material, create hold office hours

01/2010-05/2010 **Research Assistant**
Cornell University, New York
Apply InSAR after the El Mayor Cucupah Earthquake

06/2009-09/2009 **Summer Science Research Fellow**
Hamilton College, NY
Date and characterize Kimberlitic dyke instrusions

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Peer Reviewed Publications

Published

Hutchison A. A., Inter-episodic tremor and slip event episodes of quasi-spatiotemporally discrete tremor and very low frequency earthquakes in Cascadia suggestive of connective underlying, heterogeneous process. *Geophysical Research Letters*. *(In press)*

Li J. M. D., Böse M., Wyss M., Wald D., **Hutchison A.A.,** Clinton J. F., Wu Z., Jiang C., Zhou S., (2019) Estimating Rupture Dimensions of Three Major Earthquakes in Sichuan, China, for Early Warning and Rapid Loss Estimates. *Bulletin of the Seismological Society of America*. *(In press*)

Hutchison, A. A., & Ghosh, A. (2019). Repeating VLFEs During ETS Events in Cascadia Track Slow Slip and Continue Throughout Inter-ETS Period. *Journal of Geophysical Research: Solid Earth*, *124*(1), 554-565.

Hutchison, A. A., & Ghosh, A. (2017). Ambient Tectonic Tremor in the San Jacinto Fault, near the Anza Gap, Detected by Multiple Mini Seismic Arrays. *Bulletin of the Seismological Society of America*, 107(5), 1985-1993.

Hutchison, A. A., & Ghosh, A. (2016). Very low frequency earthquakes spatiotemporally asynchronous with strong tremor during the 2014 episodic tremor and slip event in Cascadia. *Geophysical Research Letters*, 43(13), 6876-6882.

Hutchison, A. A., Cashman, K. V., Williams, C. A., & Rust, A. C. (2016). The 1717 eruption of Volcán de Fuego, Guatemala: Cascading hazards and societal response. *Quaternary International*, 394, 69-78.

Under Revision/review

Hutchison A.A., Grigoli F., Ghosh, A. (2020). Regional and teleseismic triggered tremor, microseismic events, and foreshocks preceding the 2016 Mw 5.2 Borrego earthquake suggestive of dynamically triggered creep as a delayed triggering mechanism. (*Journal of Geophysical Research: Solid Earth*)

Hutchison A.A., Ghosh A. (2020). Comment on 'Sources of long-range anthropogenic noise in southern California and implications for tectonic tremor detection' by Inbal *et al*., 2018: More evidence in support of tremor in the Anza Gap. (*Bulletin of the Seismological Society of America)*

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Hutchison A.A., Böse M., Manighetti I. (*Under review, Geophysical Research Letters*) Fault maturity as a key to earthquake rupture prediction

In prep. **Hutchison A.A.**, Böse M., Massin F., Li J. M. D., Clinton J., Manighetti I. (*in prep*.) Real-time Bayesian final rupture length predictions from back-projection of dynamic displacement amplitudes for earthquake early warning

Awards & Fellowships

2018 Roland Blanchard Fellowship: *Department of Earth Sciences, University of California, Riverside*

2017 Dissertation Year Fellowship Award: *University of California, Riverside*

2015 Student Presentation Award: *Seismological Society of America* Annual Meeting, Pasadena, CA: 21-23 Apr., 2015.

2013-2014 Dean's Distinguished Fellowship: *University of California, Riverside*

2009 Summer Science Research Grant, *Hamilton College*

Invited Talks

***Institut* de *Physique du Globe* de *Paris* – January, 2019** Investigating Transitional Slip Behavior through Observational Seismology

***ETH Zurich* – April, 2018** Two (or more) shades of gray: case studies of slow earthquakes and transitional behavior on the slip spectrum

Presentations at Conferences, Workshops & Summer Schools

Oral Presentations

Hutchison, A. A., Böse, M., Massin, F., & Manighetti, I. Incorporating fault maturity-related earthquake slip characteristics into final rupture length determination for Earthquake Early Warning. AGU Fall Meeting, San Francisco, CA : Dec. 8-13, 2019

Hutchison A.A. & Ghosh A. Very Low Frequency Earthquakes (VLFEs) in Cascadia during Episodic Tremor and Slip (ETS) Events and Inter-ETS Periods. Seismological Society of America Annual Meeting, Denver, CO: Apr. 18-20., 2017

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Hutchison A.A. & Ghosh, A. Toward a complete catalog of Very Low Frequency Earthquakes (VLFEs) in Cascadia using a Match Filter Technique. AGU Fall Meeting, San Francisco, CA: 12-16 Dec. 2016

Hutchison, A.A., K.V. Cashman, A.C. Rust, C.A. Williams: Use of Archival Sources to Improve Water-Related Hazard Assessments at Volcán de Agua, Guatemala. AGU Fall Meeting, San Francisco, CA: 9-13 Dec. 2013

Posters

Hutchison A.A., Böse M., Li, J., & Clinton J. Real-time slip profiles from back-projection of dynamic displacement amplitudes derived from strong-motion waveforms: Demonstration for the M w 7.9 Wenchuan (China) earthquake. European Geophysical Union, Vienna, Austria: 9-12 Apr. 2019

Hutchison A.A. & A. Ghosh: Ambient tectonic tremor in the San Jacinto Fault, near the Anza Gap, detected by multiple mini seismic arrays. Annual SCEC Meeting, Palm Springs, CA: 10-13 Sept., 2017.

Hutchison A.A. & A. Ghosh: Tectonic tremor in the San Jacinto Fault, near the Anza Gap, detected by multiple mini seismic arrays. Annual SCEC Meeting, Palm Springs, CA: 10-14 Sept., 2016.

Hutchison A.A. & A. Ghosh: Toward a complete catalog of Very Low Frequency Earthquakes (VLFEs) in Cascadia using a Match Filter Technique. AGU Fall Meeting, San Francisco, CA: 13-18 Dec. 2015.

Hutchison, A.A. & A. Ghosh: An In-Depth Analysis of Tremor Signals near the Anza Gap: June, 2011. Annual SCEC Meeting, Palm Springs, CA: 13-16 Sept, 2015.

Hutchison, A.A. & A. Ghosh: Very low frequency earthquakes in Cascadia during episodic and tremor and slip events in 2011, 2013, and 2014. International Summer School on Earthquake Science: Lake Yamanakako, Japan: 4-6 Sept., 2015.

Hutchison, A.A. & A. Ghosh: Multi-Method Systematic Search for Tectonic Tremor in the San Jacinto Fault, California & Applications of Coulomb Stress Modeling. Numerical Modeling of Earthquake Motions: Waves & Ruptures, Smolenice, Slovakia: 5-9 July, 2015.

Hutchison, A.A. & A. Ghosh: Multi-Method Systematic Search for Non-Volcanic Tremor near the San Jacinto Fault. Seismological Society of America Annual Meeting, Pasadena, CA: 21-23 Apr., 2015.

Hutchison, A.A. & A. Ghosh: Systematic search for ambient and triggered non-volcanic tremor under the San Jacinto Fault. Annual 2014 SCEC-ERI Summer School in Earthquake Science, Oxnard, CA: 28 Oct-2 Sept., 2014.

Hutchison, A.A. & A. Ghosh: Systematic search for non-volcanic tremor under the San Jacinto Fault and southern San Andreas Fault. Annual SCEC Meeting, Palm Springs, CA: 6-8 Sept., 2014

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Hutchison, A. A.: Application of Markov Models to Forecast Volcanic Behavior. Knowledge Sharing and Collaboration in Volcanic Risk Mitigation at Galeras Volcano, Pasto, Colombia: July, 2009.

Ghosh A., Hutchison A.A.: Contrasting behavior of very low frequency earthquakes (VLFEs) in Cascadia. IASPEI Regional Assembly Latin - America and Carribbean.- LACSC, San José, Costa Rica, June 20-22, 2016.

Hawthorne, J.C., Ghosh, A., Hutchison, A.A.: Borehole strain observations of very low frequency earthquakes in Cascadia. AGU Fall Meeting, San Francisco, CA: 12-16 Dec. 2016

Teaching Experience

Instructor Introduction to Geographic Information Sciences
Department of Geosciences University of California, Riverside
Riverside, CA

Teaching Assistant Earthquake Country (introductory seismology), Introduction to Geographic Information Sciences, Headlines in Earth's History (introductory paleontology)

Department of Geosciences University of California, Riverside
Riverside, CA

Programming/Computing: *Advanced*: Matlab, Shell, ArcGIS, Microsoft Office, Adobe Suite; *Moderate:* Python, Perl, fortran; *Beginner:* C/C++

Languages: English (native), Spanish (fluent), French (moderate)

Memberships: American Geophysical Union, European Geophysical Union, Seismological Society of America

Reviewer for the Following Journal(s): Journal of Geophysical Research – Solid Earth, Bulletin of the Seismological Society of America