Kélian Dascher-Cousineau

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Education

2017-	Ph.D. in Earth and Planetary Sciences	UC Santa Cruz
2015-2017	Master in Earth and Planetary Sciences	McGill University
2012-2015	Honors in Planetary Science	McGill University

Research Experience

2017 - PhD thesis: UC Santa Cruz
Earthquake Physics
Reporting to Professor Emily Brodsky, Thorne Lay, and Noah Finnegan: studies on the global variations in aftershock productivity and the remote detection of earthquake fault damage.

2015 - 2017 Master's thesis: McGill University
Rock Mechanics
Reporting to Professor James Kirkpatrick: a study of the maturation and wear processes of fault slip surfaces as they evolve with displacement (*published*).

2014 – 2015 Honor's research project: McGill University
Fault Architecture
Reporting to Professor Christie Rowe: a detailed survey and description of the Champlain Thrust fault core architecture in the context of fault zone permeability (*published*).

Summer 2014 Intern at GEO4 GmbH: Munich, Germany
Geophysics and Hydrogeology
A geotechnical and geophysical analysis related to environmental regulation, surveying, and engineering.

Summer 2013 Research project: McGill University
Seismology
Reporting to Professor Yajing Liu: a geospatial analysis of the West Quebec Seismic Zone.

Teaching Experience

2015 -	GIS, hydrogeology, structural geology, mineralogy, and field school teaching assistant
2012 -2015	Math, physics and geology tutor

Awards and Scholarships

2019	NASA FINESST	135 000$
2019	Casey Moore Fund	3 500 $
2019	NSERC Postgraduate Scholarship - Doctoral	42 000 $
2018	Jack Henderson Award (Best MSc Thesis of 2017)	270 $
2016	GSA Research Grant	1 800 $
2016	William Henry Howard Scholarship	2 000 $

Publications

2019	Dascher-Cousineau, K., Brodsky, E. E., & Lay, T. (2019). What causes variations in aftershock productivity? Journal of Geophysical Research: Solid Earth, *accepted*
2019	Liu, C., Lay, T., Brodsky, E. E., Dascher-Cousineau, K., & Xiong, X. (2019). Co-seismic rupture process of the large 2019 Ridgecrest earthquakes from joint inversion of geodetic and seismological observations. Geophysical Research Letters, 46.
2018	Dascher-Cousineau, K., Kirkpatrick, J. D., & Cooke, M. L. (2018). Smoothing of Fault Slip Surfaces by Scale-Invariant Wear. Journal of Geophysical Research: Solid Earth, 123(9), 7913-7930.
2018	Rowe, C. D., Ross, C., ... Dascher-Cousineau, K. et al., (2018). Geometric complexity of earthquake rupture surfaces preserved in pseudotachylyte networks. Journal of Geophysical Research: Solid Earth, 123(9), 7998-8015.
2016	Mundy, E. M., Dascher-Cousineau, K., Gleeson, T., Rowe, C. D., & Allen, D. M. (2016). Complexity of hydrogeologic regime around an ancient low-angle thrust fault revealed by multidisciplinary field study. Geofluids, 16(4), 673-687.

Presentations

2019	Dascher-Cousineau, K, Brodsky, E. E., Finnegan, N., Duvall, A. (2019). Large scale detection of fault damage. American Geophysical Union (AGU) Fall Meeting Abstracts (*talk*). Southern California Earthquake Center (SCEC) meeting (*poster*)
2018	Dascher-Cousineau, K., Brodsky, E. E., & Lay, T. (2018). Why do strike-slip earthquakes produce fewer aftershocks? American Geophysical Union (AGU) Fall Meeting Abstracts (*talk*). Southern California Earthquake Center (SCEC) meeting (*poster*)
2016-2017	Dascher-Cousineau, K., Kirkpatrick, J. D., & Cooke, M. L.. Evolution of fault slip surfaces with displacement. GAC-MAC (*talk*) Gordon Research Conference: Rock Deformation (*poster*), Canadian Tectonics Group (*poster*), McGill Earth and Planetary Science (EPS) Symposium (*poster*).

Practical Skills

Programming	MatLab, Python, GIS, basic HTML, Java, C, and C++
Fieldwork	Seismic surveying; boring for water and soil sampling; total station, GPS and LiDar surveying; geological mapping; wilderness first aid (CPR/AED(A+))
Instrumentation	White light profilometry, XRD, SEM, AFM, and optical microscopy
Foundations	ODE's, PDE's, vector calculus, advanced linear algebra, numerical analysis, statistics, regression, complex analysis signal processing, dynamic systems, mechanics, and machine learning