

Seulgi Moon

Assistant professor

University of California, Los Angeles
Dept. of Earth, Planetary, and Space Sciences
595 Charles Young Dr. East, Geology 4659
Los Angeles, CA 90095

Tel: +1 (310) 206-5760

Email: sgmoon@ucla.edu

Web: <http://faculty.epss.ucla.edu/~sgmoon/>

DEGREES

2007 –2013 **Stanford University**
CA, USA
Ph.D. Geological and Environmental Sciences.
Advisor: George Hilley & Page Chamberlain

2005 –2007 **Seoul National University**
Seoul, Korea
M.S. Earth System Science.
Advisor: Youngsook Huh

2001–2005 **Seoul National University**
Seoul, Korea
B.S., Earth System Science, *summa cum laude*.

EMPLOYMENT

2015 – **University of California, Los Angeles**
CA, USA
Assistant Professor, Dept. of Earth, Planetary, and Space Sciences

2013 – 2015 **Massachusetts Institute of Technology**
MA, USA
Postdoctoral Associate, Dept. of Earth, Atmospheric, Planetary and Sciences

AWARDS AND HONORS

Alexander von Humboldt Research Fellowship recipient, 2013
Gabilan Stanford Graduate Fellowship, Stanford University, 2008-2011
High Academic Achievement Award, Seoul National University, 2003-2004

PUBLICATIONS

Citation metrics available from Google Scholar (<https://goo.gl/RRLCtA>)

* UCLA student/postdoc author

Articles

1. S. Moon, Y. Huh, J. Qin, and N. van Pho, "Chemical weathering in the Hong (Red) River basin: Rates of silicate weathering and their controlling factors," *Geochimica et Cosmochimica Acta* 71, (2007), pp. 1411-1430.
2. J. B. Borges, Y. Huh, S. Moon, and H. Noh, "Provenance and weathering control on river bed sediments of the eastern Tibetan Plateau and the Russian Far East," *Chemical Geology* 254, (2008), pp. 52-72.

3. J. Yoon, Y. Huh, I. Lee, S. Moon, H. Noh, and J. Qin, "Weathering Processes in the Min Jiang: Major Elements, $^{87}\text{Sr}/^{86}\text{Sr}$, $\delta^{34}\text{S}_{\text{SO}_4}$, and $\delta^{18}\text{O}_{\text{SO}_4}$," *Aquatic Geochemistry* 14, (2008), pp. 147-170.
4. S. Moon, Y. Huh, and A. Zaitsev, "Hydrochemistry of the Amur River: Weathering in a Northern Temperate Basin," *Aquatic Geochemistry* 15, (2009), pp. 497-527.
5. G. E. Hilley, C. P. Chamberlain, S. Moon, S. Porder, and S. D. Willett, "Competition between erosion and reaction kinetics in controlling silicate-weathering rates," *Earth and Planetary Science Letters* 293, (2010), pp. 191-199.
6. S. Moon, C. Page Chamberlain, K. Blisniuk, N. Levine, D. H. Rood, and G. E. Hilley, "Climatic control of denudation in the deglaciated landscape of the Washington Cascades," *Nature Geoscience* 4, (2011), pp. 469-473.
7. S. Moon, C. P. Chamberlain, and G. E. Hilley, "New estimates of silicate weathering rates and their uncertainties in global rivers," *Geochimica et Cosmochimica Acta* 134, (2014), pp. 257-274.
8. S. Moon, E. Shelef, and G. E. Hilley, "Recent topographic evolution and erosion of the deglaciated Washington Cascades inferred from a stochastic landscape evolution model," *Journal of Geophysical Research: Earth Surface* 120, (2015), pp. 856-876.
9. J. St. Clair[#], S. Moon[#], W. S. Holbrook, J. T. Perron, C. S. Riebe, S. J. Martel, et al., "Geophysical imaging reveals topographic stress control of bedrock weathering," *Science* 350, (2015), pp. 534-538. ([#]equal contribution)
10. B. W. Goodfellow, G. E. Hilley, S. M. Webb, L. Sklar, S. Moon, and C. A. Olson, "The chemical, mechanical, and hydrological evolution of weathering granitoid," *Journal of Geophysical Research: Earth Surface* 121, (2016), pp. 1410–1435.
11. D. E. Ibarra, J. K. Caves, S. Moon, D. L. Thomas, J. Hartmann, C. P. Chamberlain, et al., "Differential weathering of basaltic and granitic catchments from concentration–discharge relationships," *Geochimica et Cosmochimica Acta*, 190, (2016), pp. 265-293.
12. S. Moon, J. T. Perron, S. Martel, W. S. Holbrook, J. St. Clair, "A model of three-dimensional topographic stresses with implications for bedrock fractures, surface processes and landscape evolution," *Journal of Geophysical Research: Earth Surface*, 122, (2017)
13. Ibarra, D.E., **Moon, S.**, Caves, J.K., Chamberlain, C.P., Maher, K., 2017. "Concentration–discharge patterns of weathering products from global rivers". *Acta Geochimica* 36, 405-409.
14. Faulk, S.P.*, Mitchell, J.L., **Moon, S.**, Lora, J.M., 2017. "Regional patterns of extreme precipitation on Titan consistent with observed alluvial fan distribution". *Nature Geoscience* 10, 827.

Papers in review/revision

1. S. Moon, D. J. Merritts, N. P. Snyder, P. Bierman, A. Sanquini, J. Fosdick, and G. E. Hilley, "Denudation of coastal drainages in the Mendocino Triple Junction region (MTJ), northern California," (in revision)

2. B. A. Flinchum, W. S. Holbrook, D. Rempe, S. Moon, C. S. Riebe, B. Carr, J. L. Hayes, J. St. Clair, and M. P. Peters, "Critical zone structure under a granite ridge inferred from drilling and three-dimensional seismic refraction data" (in review)
3. Z. Brecheisen, D. Richter, S. Moon, and P. N. Halpin, "Quantitative analysis of hillshed geomorphology and critical zone function" (in review)
4. N. Brown*, S. Moon, and E. J. Rhodes, "Using feldspar TL thermochronology to resolve recent fluvial erosion into the Yucaipa Ridge tectonic block, Southern California" (in review)

Theses

1. Moon, S. (2007), Chemical weathering in the Hong (Red) and Amur River basins, MS thesis, Seoul National University
2. Moon, S. (2013), Classical views in geomorphology imaged and reconciled using cosmogenic isotopes, topographic analysis, and numerical modeling. PhD thesis, Stanford University

Selected conference abstracts (since 2015)

1. **Moon, S.**, Perron, J. T., Martel, S., Holbrook, W.S., St. Clair, J., and Singha, K., (2015) Three-dimensional topographic stress controls on bedrock fractures and landscape evolution, AGU Fall Meet., EP52D-01 (*invited*)
2. **Moon, S.**, Merritts, D., Snyder, N., Sanquini, A., Fosdick, J., Hilley G.E., (2015) Denudation and topographic response of the coastal drainages near the Mendocino Triple Junction Region (MTJ), Northern California, AGU Fall Meeting, EP33D-02 (*invited*)
3. Faulk S*, **Moon S.**, Mitchell J., Lora J., (2016) Quantifying precipitation variability on titan using a GCM and implications for observed geomorphology, Annual meeting of Division for Planetary Sciences of the American Astronomical Society
4. Emmons* B., **Moon S.**, Brown N., Blisniuk K., Rhodes E., (2016) Applying newly developed luminescence dating to alluvial fans in the Anza Borrego Desert, southern California, SCEC Fall Meeting
5. Lin* J., **Moon S.**, Meng L., Davis P., (2016) Topographic Influence on Near-Surface Seismic Velocity in southern California, SCEC Fall Meeting
6. Chang* E., Peltzer G., **Moon S.**, (2016) Fault scarp degradation analysis at Dragon's Back using high resolution topography data, SCEC Fall Meeting
7. **Moon, S.**, Chamberlain C.P., and Hilley, G.E., (2016) Uncertainty assessment in quantification of silicate weathering rates in global rivers, Goldschmidt Conference (*keynote*)
8. **Moon, S.**, Perron, J. T., Martel, S., Holbrook, W.S., St. Clair, J., and Singha, K., (2016) Interplay between tectonics and topography: Topographic stress controls on bedrock fractures and surface processes, AGU Fall Meeting, EP14B-01 (*invited*)
9. Lin* J., **Moon S.**, Meng L., Davis P., (2016) Topographic Influence on Near-Surface Seismic Velocity in southern California, AGU Fall Meeting, S33B-2835.

10. Faulk S*, **Moon S.**, Mitchell J., Lora J., (2016) Quantifying Precipitation Variability and Relative Erosion Rates on Titan Using a GCM and Implications for Observed Geomorphology, AGU Fall Meeting, P33F-07.
11. Lin* J., **Moon S.**, Young A., Meng L., Davis P., (2017) Linking Subsurface and Surface Processes: Insights on Vs30 , SCEC Fall Meeting.
12. Brown* N., **S. Moon**, and E. J. Rhodes, (2017) Using luminescence signals from bedrock feldspars to quantify rapid cooling in the San Bernardino Mountains, Southern California, Geological Society of America *Abstracts with Programs*. Vol. 49, No. 6
13. **Moon S.**, Goodfellow B., Perron, J. T., Martel S. J. et al., (2017) Interaction of strong compressive stresses with topography: implications for bedrock fractures in Forsmark, Sweden, Geological Society of America *Abstracts with Programs*. Vol. 49, No. 6 (*invited*)
14. **Moon S.**, Perron, J. T., and Martel S. J., (2017) Topographic stress and catastrophic collapse of volcanic islands, Geological Society of America *Abstracts with Programs*. Vol. 49, No. 6 (*invited*)
15. Ibarra, D.E., **Moon, S.**, Winnick M., Wymore M., Caves-Rugenstein, J.K., Chamberlain, C.P., McDowell W., and Maher, K., (2017), Partitioning concentration-discharge patterns of weathering products from monolithologic catchments to global rivers, AGU Fall Meeting, EP54D-08 (*invited*)
16. Goehring B., Blisniuk K., **Moon S.**, (2017), Investigating the usefulness of cosmogenic in situ ¹⁴C for the dating of alluvial fan surfaces, AGU Fall Meeting, EP32CD-06
17. **Moon S.**, Perron, J. T., and Martel S. J., (2017) Topographic stress and catastrophic collapse of volcanic islands, AGU Fall Meeting, EP52B-08
18. McKinney* E., **Moon S.**, (2017) Rainfall-induced slope failures near Los Angeles detected by time series of high-resolution satellite imagery, AGU Fall Meeting, EP51B-1637
19. Lin* J., **Moon S.**, Young A., Meng L., Martin A. J., Davis P., (2017) Linking subsurface and surface processes: Implications for seismic hazards in southern California, AGU Fall Meeting, EP51B-1715
20. Kirkpatrick* H., **Moon S.**, Harrison M., Yin A. (2017) Quantifying ¹⁰Be-derived erosion rates from the Min Shan in the eastern margin of the Tibetan Plateau, AGU Fall Meeting, T44B-03
21. Faulk S*, Lora J., Mitchell J., **Moon S.**, (2017) The influence of runoff and surface hydrology on Titan's weather and climate, AGU Fall Meeting, P12D-06.
22. Abbat* J. A., Angelopoulos V., Masongsong E., Yang J., Medina H., **Moon S.**, Davis P., (2017) Magnetic profiling of the San Andreas Fault using a dual magnetometer UAV aerial survey system. AGU Fall Meeting, NS31A-0004.

INVITED TALKS

2017 Pomona College

Stanford University

University of California, Santa Barbara

Swedish Nuclear Fuel and Waste Management Company, Sweden

GSA Fall meeting (2 *invited*)

2016 University of Wyoming
 China Academy of Sciences Institute of Geology and Geophysics
 University of California, San Diego
 University of Oregon, Eugene
 University of Washington, Seattle
 Goldschmidt Conference (*keynote*)
 AGU Fall meeting, Earth & Planetary Surface Processes focus group (*invited*)
 2015 University of Pittsburgh
 University of California at Los Angeles
 ETH Zurich, Swiss
 Seoul National University, Korea
 Yonsei University, Korea
 University of Utah
 University of Southern California
 California Institute of Technology
 AGU Fall meeting, Earth & Planetary Surface Processes focus group (*2 invited*)
 2014 University of California at Berkeley
 University of Massachusetts at Amherst
 University of Michigan at Ann Arbor
 2013 Seoul National University, Korea
 Korea Basic Science Institute, Korea

UCLA SERVICES

Participation

2nd Annual Faculty Workshop on Best Practices in Teaching, 9/27/2015
 NSF Day (NSF funded one-day workshop for proposal writing), 01/22/2016
 Insight into Philanthropy workshop, 03/29/2016
 Preparing for Academic Personnel Review Luncheon, 5/17/2016

Committees

EPSS faculty committee on web site, 07/2016 - present
 EPSS faculty committee on departmental clean lab facility, 07/2016 – present
 EPSS faculty committee on faculty search, 11/2016 – present
 EPSS faculty committee on merit review, 07/2017 – present
 Division of Physical Sciences ad-hoc reviewer for graduate student fellowship, 09/2017

Academics

EPSS Undergraduate and graduate advisor, 2015 – present
 PhD committees: Sean Faulk, Nathan Brown, Chris McGuire, Ky Hughson, Michael Lawson, Raquel Nuno

Outreach

EPSS communication event “Total Solar Eclipse Trip 2017”, 05/2015 – 08/2017

TEACHING

EPSS 61: Geologic Maps (Fall 16, enrollments 39; Fall 17, enrollments 28)
 EPSS 298: Special Topics in EPSS: Historic Papers in Geomorphology (Fall 16, enrollments 6)
 EPSS 165: Tectonic Geomorphology (Spring 16, enrollments 9; Spring 17, enrollments 12)
 EPSS 199: Direct Research (Spring 16, enrollments 3)

STUDENT SUPERVISED

Undergraduate students

Brittney Emmons	2015-2017
Shawn Lu	2017-
Marina Argueta	2017-
Jessica Lin	2015
Emil Chang	2015

Graduate students

Sean Faulk	2015-	(co-adviser: Jonathan Mitchell)
Jessica Lin	2016-	
Heather Kirkpatrick	2016-	(co-adviser: Mark Harrison)
Kevin Shao	2017-	

Postdoc researcher

Nathan Brown	2017-
Gen Li	2018-

EXTERNAL SERVICE

Journal reviewer of Journal of Geophysical Research: Earth Surface, Geology, Earth and Planetary Science Letters, Geochimica et Cosmochimica Acta, Nature Geoscience
 Proposal reviewer of Army Research Office, NSF Geomorphology and Land-use Dynamics program, Swiss-NSF
 Members of American Geophysical Union, Geological Society of America, European Association of Geochemistry, Southern California Earthquake Center

FUNDING*Current*

NASA-Cassini Data Analysis: Understanding the Controlling Factors of Titan's Climate, Weather and Methane Hydrology in Space and Time (\$ 388,666; 06/2016 – 07/2019), Co-PI Moon with J. Mitchell as PI.

NSF-Tectonics: Collaborative Research: Structural Constraints on Microcontinent Formation, Gulf of California (\$ 329,083; 09/2017 – 08/2020), PI Moon with Joann Stock at Caltech as Lead-PI.

USC SCEC 2017: Characterizing seismic site conditions in southern California based on topographically induced stress and bedrock fractures (\$ 24,000; 05/2017 – 04/2018), PI Moon with L. Meng as Co-PI.

UCLA Faculty Research Grant/Trans-disciplinary Seed Grant: Examination of topographic stress controls on seismic site conditions and earthquake-induced hazards (\$7760; 07/2017-06/2018)

USC SCEC 2017: Understanding strain accumulation and transfer between the SSAF, San Gorgonio Pass and the ECSZ Part I. Re-evaluating fault geometry, fault activity and slip rate on the Mission Creek-Mill faults from the Coachella Valley through the San Gorgonio Pass (\$50,000; \$6,000 for UCLA; 05/17-04/18)

Past

USC SCEC 2016: Characterizing seismic site conditions in southern California based on topographically induced stress and bedrock fractures (\$ 30,000; 02/2016 – 01/2017), PI Moon with L. Meng as Co-PI.

UCLA Office of Instructional Development Instructional Improvement Project, EPSS Geomagnetic Drone Enhanced Survey Instrument (GEODESI) (\$6,000; 07/2016-06/2017) with PI Angelopoulos

UCLA Faculty Research Grant/Trans-disciplinary Seed Grant: The impact of future climate change on

landslide hazards in the Washington Cascades, USA (\$5979; 07/2016-06/2017)

UCLA Office of Instructional Development mini grant for EPS 165 (\$580; 07/2015-06/2016)

UCLA Council on Research Travel grant (\$1,350; 07/2015-06/2016).

National Center for Airborne Laser Mapping (NCALM) Seed Grant (2011)

Geological Society of America, Graduate Student Research Grant (\$2963; 2011)

Stanford University, McGee Research Grant (\$3800; 2011)