



ERICA ERLANGER

POSTDOCTORAL RESEARCHER GFZ POTSDAM



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EDUCATION

- Doctor of Science** Sept. 2015 - Mar. 2020
ETH Zurich
Major - Geology
Thesis: *Erosion and Weathering of the Northern Apennines with implications for the tectonics and kinematics of the orogen* (Advisor - Prof. Dr. Sean Willett)
- Master of Science (MS) Geological Sciences** Sept. 2008 - Dec. 2010
Purdue University
Major - Geology
Thesis: *Rock Uplift, Erosion, and Tectonic Uplift of South Africa Determined with Cosmogenic ²⁶Al and ¹⁰Be* (Advisor - Prof. Darryl Granger)
- Bachelor of Science (BS) Geology summa cum laude** Sept. 2004 - Jun. 2008
Union College, New York
Majors - Geology and French
Thesis (Geology): *Reconstruction of Sitka, Alaska Temperatures (AD 1569-1991) Based on Eight Gulf of Alaska Tree-Ring Chronologies* (Advisor - Dr. Jaclyn Cockburn)
Thesis (French): *L'évolution du désastre: l'histoire riche des risques naturels aux Antilles Françaises et les dégâts culturels et économiques qui menacent la Martinique.* (Advisor - Prof. Michelle Chilcoat)

EMPLOYMENT AND INTERNSHIPS

- GFZ Potsdam** Feb. 2020 - Present
Geomorphology Section 4.6 (Prof. Dr. Niels Hovius)
SNF Early Postdoctoral Fellow
- Underground Imaging Technologies (UIT) Caterpillar Affiliate** May 2012 - Aug. 2015
Geologist II, New York, USA
- Center for Advanced Infrastructure and Transportation (CAIT)** Jan. 2011 - May 2012
Rutgers, the State University of New Jersey
Laboratory Researcher III, New Jersey, USA
- Transportation Infrastructure Systems (TIS)** Jan. 2011 - May 2012
Consultant, New Jersey, USA
- Netherlands Institute for Applied Scientific Research (TNO)** Jun. 2008 - Aug. 2008
Intern, Utrecht, The Netherlands
- Keck Geology Consortium** Jun. 2007 - Aug. 2007
Intern, Alaska/Ohio, USA
- Union College: The Writing Center** Sept. 2007 - Jun. 2008
Science and French Specialty Writing Tutor, New York, USA
- U.S. Dept. of Energy/Global Change Energy Program (GCEP)** Jun. 2006 - Aug. 2006
Intern, Lawrence Livermore National Laboratory, California, USA

GRANTS

Europlanet 2024-Research Infrastructure Constraining CO ₂ uptake and release through chemical weathering pathways in a young orogen	Apr. 2021
Swiss National Science Foundation (SNSF) Early Postdoctoral Mobility grant for 18 months Carbon Sink or Carbon Emitter?: Determining the carbon budget of a young orogen and constraining the impact of anthropogenic sulfuric acid on the carbon cycle	Feb. 2020 - July 2021

SUPERVISION

GFZ Potsdam: Section 4.6 Co-Advisor: Intern (Sabrina Hennig) A rotary flume study of fluorine release from geological materials in fluvial transport	July 2020 - Mar. 2021
ETH Zürich Co-Advisor -Earth Sciences Bachelor Student Thesis (Jodok Zwahlen) <i>How do Flysch-like sediment transform under pressure? Correlating rock hardness in the Flysch-like units of the Northern Apennines</i>	Dec. 2018 - Apr. 2019

TEACHING

ETH Zürich Integrated Earth course assistant Tectonic Geomorphology field course and lab practical assistant Sedimentary Microscopy assistant Maniva Field course assistant	Sept. - Dec. 2018 Apr. - Jun. 2017 - 2019 Sept. - Nov. 2016 - 2017 Jun. 2016 - 2017
Rutgers University: Civil Engineering Department Soil Mechanics lecturer	Sept. 2011-2012
Purdue University: Earth, and Atmospheric Sciences Department Physical Geology lab practical assistant	Aug. 2008 - Dec. 2010

CONFERENCE ORGANIZATION AND CONVENING

Steepest Descent Meeting Planning Committee	2020 - present
vEGU 2021 Session Co-Organizer GM 4.15: Erosion, Weathering, and Sediment Transport in Mountain Landscapes	Apr. 2021
EGU 2020 Session Co-Organizer GM 4.2: Erosion, weathering and sedimentation in mountain landscapes and caves	May 2020

HONORS AND AWARDS

Swiss Geomorphological Society Young Geomorphologists Travel Grant	Nov. 2017
Underground Imaging Technologies CEO Letter of Commendation	Nov. 2013
Purdue University Earth, Atmospheric, and Planetary Sciences Department Teaching Honor Roll Michael C. Gardner Memorial Award Linda Horn Memorial Award	2009 - 2010 Apr. 2009 Apr. 2009
Union College <i>Summa Cum Laude</i> Graduation Honors President's Commission on Status of Women Senior Scholarly Activity Award Edward S.C. Smith Geology Prize The Phi Beta Kappa Society Departmental Honors -Geology and French Dean's List	Jun. 2008 Jun. 2008 Jun. 2008 May 2008 Jun. 2008 2004-2008

PERSONAL SKILLS

Software: Matlab, ArcGIS, Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Microsoft Office Suite, RADAN (GPR Software), GPR Slice (GPR Software), Surfer, Banana (Financial Software)

Languages: English - native (C2), French - fluent (C2), German- conversational (B2), Spanish - basic (A2)

FIELDWORK EXPERIENCE

Central Apennine Mountains, Italy July - Aug. 2020
Collected water and sediment samples for SNF Early Postdoc.Mobility project.

New Zealand Southern Alps Feb. 2020
Collected soil and water samples for Marie Sklodowska-Curie project of Dr. Aaron Bufe "Wetslide", with goal constraining the impacts of landslide erosion on chemical weathering and carbon fluxes

Northern Apennine Mountains, Italy 2016-2019
Collected sediment and water samples from major drainage networks between Genoa and Florence, Italy for doctoral project

West-Central Argentina Feb. 2010
Investigated and mapped fault outcrops to interpret subsurface structures in the Eastern Sierras Pampeanas mountain ranges, with the goal of better understanding the regional tectonics of the Andean orogenic system

South Africa Jun. 2009
Collected quartz-rich clasts along Sundays River and dated in situ cosmogenic nuclides with Accelerator Mass Spectrometry (AMS) to quantify uplift in southern Africa over past ~ 4 MY for Master's research project.

Keck Geology Consortium, Glacier Bay, Alaska Jun. 2007
Collected cores from mountain hemlocks to statistically correlate with Sitka, Alaska climate records and reconstruct temperatures records from the 1500's to the present.

LEADERSHIP AND ACTIVITIES

ETH Zurich - Earth Sciences Department
2018 Doctoral Excursion to Colombia - Committee Leader Nov. 2017 - Dec. 2018
ETH HELP!Desk - Conflict mediator between students and advisors Sept. 2017 - Sept. 2019
Geological Institute - Mittelbau Representative Dec. 2016 - Jun. 2019
2017 Doctoral Retreat - Committee Member Nov. 2016 - May 2017

Union College
Union College Community Orchestra - First Flute Sept. 2004 - Jun. 2008
Geology Club Co-President Sept. 2007 - Jun. 2008
Treasurer - Breazzano Activity House -\$30,000 Annual Budget Sept. 2005 - Jun. 2008

PUBLICATIONS

Peer-Reviewed

Erlanger, Erica; Fellin, Maria Giuditta; Willett, Sean, Exhumation and erosion of the Northern Apennines, Italy: an updated overview of and new insights from low-temperature thermochronometers. (2022) *Solid Earth*, 13, 347-365. doi: 10.5194/se-13-347-2022.

Erlanger, E. D., Rugenstein, J. K. C., Bufe, A., Picotti, V., & Willett, S. D. (2021). Controls on physical and chemical denudation in a mixed carbonate-siliciclastic orogen. *Journal of Geophysical Research: Earth Surface*, 126, e2021JF006064. <https://doi.org/10.1029/2021JF006064>.

Erlanger, Erica; Granger, Darryl; Gibbon, Ryan, (2012), Rock uplift rate in South Africa from isochron burial dating of fluvial and marine terraces: *Geology*, Vol. 40, No. 11, p 1019-1022.

Conference Proceedings

Erlanger, Erica, (2008), Reconstruction of Sitka, Alaska temperatures (1569-1991) based on eight Gulf of Alaska tree-ring chronologies; 21st Keck Research Symposium in Geology Short Contributions. <https://keckgeology.org/files/pdf/symvol/21st/alaska/erlanger.pdf>

PUBLICATIONS *continued*

Theses

Erlanger, Erica, (2020) Erosion and weathering of the Northern Apennines with implications for the tectonics and kinematics of the orogen. [Doctoral thesis]: Zürich, ETH Zürich. doi: 10.3929/ethz-b-000393261

Erlanger, Erica, (2010), Rock Uplift, erosion, and tectonic uplift of South Africa determined with cosmogenic Aluminum -26 and Beryllium-10. [Master's Thesis]: West Lafayette, Indiana, Purdue University.

Excursion Field Guides

Erlanger, Erica and Wang, Yanyan. The Influence of Tectonics on Fluvial Reorganization and Sedimentary Deposits in Colombia - Colombia, Doctoral Excursion Earth Sciences Department. in (eds. Erlanger, Erica and Ott, Richard) 35-38 (ETH Research Collection, 2018). doi: 10.3929/ethz-b-000327761

Erlanger, Erica. Erosion Rates and Landscape Evolution - Taiwan PhD Excursion, Earth Sciences Department ETH Zurich, 9-22 February 2017. in (eds. Troch, Juliana) 37-39 (ETH Research Collection, 2017). doi: 10.3929/ethz-b-000327601

CONFERENCE CONTRIBUTIONS

Erlanger, Erica; Fellin, Maria Giuditta; Willett, Sean (2021). Exhumation and Erosion of the Northern Apennines, Italy: new insights from low-temperature thermochronometers; Mid-European Geomorphology Meeting (Oral Presentation)

Erlanger, Erica; Rugenstein, Jeremy Caves; Bufe, Aaron; Picotti, Vincenzo; Willett, Sean (2021). Controls on Chemical Weathering and Physical Erosion in a Mixed Carbonate-Siliciclastic Orogen Goldschmidt Conference (Invited Oral Presentation)

Erlanger, Erica; Rugenstein, Jeremy Caves; Bufe, Aaron; Picotti, Vincenzo; Willett, Sean (2020). Partitioning the denudation flux between silicate and carbonate physical erosion and chemical weathering in the Northern Apennines; EGU General Assembly (Poster Presentation)

Erlanger, Erica; Wang, Yanyan; Gallen, Sean; Picotti, Vincenzo, Willett, Sean (2019). Unraveling the kinematics of the active Northern Apennines orogen by combining GPS geodesy, geomorphologic observations and 10Be measurements; EGU General Assembly. (Oral Presentation)

Erlanger, Erica; Willett, Sean; Picotti, Vincenzo, Gallen, Sean (2018). Challenges in interpreting orogen-scale dynamics from conflicting erosions rates and geomorphic analyses: an example from the Northern Apennines; EGU Fall Meeting. (Poster Presentation)

Erlanger, Erica; Willett, Sean; Picotti, Vincenzo, Gallen, Sean (2017). Contrasting Tectonic and Geomorphic Characteristics across the Northern Apennines; AGU Fall Meeting. (Poster Presentation)

Erlanger, Erica; Granger, Darryl; Gibbon, Ryan, (2010), Slow river incision and erosion strongly limit active uplift in southern Africa; AGU Fall Meeting. (Poster Presentation)

Erlanger, Erica; Granger Darryl; Gibbon, Ryan (2009). Uplift Rates of southern Africa from incision of the Sundays Rivers, South Africa; AGU Fall Meeting. (Poster Presentation)

Trutko, Alexander; Erlanger, Erica; Plourde, Adam; Wiles, Gregory; Lawson, Daniel. (2007). A New Dendroclimatic Network of Temperature-Sensitive, Tree-Ring Series From Glacier Bay National Park and Preserve, Alaska;