

Aaron Bufe, PhD (he/him)

Department of Earth and Environmental Sciences
Ludwig-Maximilians-Universität (LMU) München
Luisenstraße 37
80333 Munich
Germany

Email: a.bufe@lmu.de
[Website](http://www.aaronbufe.com): www.aaronbufe.com
[ORCID](https://orcid.org/0000-0002-8551-7265): 0000-0002-8551-7265
[Google Scholar](https://scholar.google.com/citations?user=...): Aaron Bufe
[Twitter](https://twitter.com/aaron_bufe): @aaron_bufe

PROFESSIONAL APPOINTMENTS

From 04.2023: **Professor (Tenure Track)**. Ludwig-Maximilians-Universität, Munich
10.2021 – 03.2023: **Postdoctoral Scholar**. German Research Centre for Geosciences, Potsdam
10.2019 – 09.2021: **Marie Skłodowska-Curie Postdoctoral Fellow**. German Research Centre for Geosciences, Potsdam
04.2017 – 10.2019: **Postdoctoral Scholar**. German Research Centre for Geosciences, Potsdam

EDUCATION

09.2011 – 03.2017: **PhD, Earth Science**: University of California, Santa Barbara
10.2007 – 06.2011: **BA & MSci Natural Sciences**: University of Cambridge, Cambridge
07.2006: **French Baccalauréat & German Abitur**: Lycée International, St Germain

AWARDS, RESEARCH GRANTS, FELLOWSHIPS

2021: German Research Centre for Geosciences: Expedition Fund. (Co-PI; €10,000)
2020: German Working Group for Geomorphology: Lecture award
2019: **European Union: Marie Skłodowska-Curie Individual Fellowship**. (PI; €162,806)
2015: **Earthscope: Geochronology Award**. (PI; \$7,000)
2015: University of California, Santa Barbara: Alumni Graduate Award for Research Excellence
2014: Geological Society of America: Graduate Student Research Grant. (PI; \$1,500)
2014: UC, Santa Barbara, Earth Research Institute: Summer Fellowship. (PI; \$1,500)
2013: UC, Santa Barbara: Graduate Opportunity Award. (PI; \$4,000)
2013: Lloyd and & Mary Edwards: Field Studies Fellowship
2012: **German Academic Exchange Service (DAAD): Scholarship**. (PI; €36,749)
2011: University of California, Santa Barbara: Regents Special Fellowship
2010: King's College, Cambridge: Scholarship for academic achievements
2009: King's College, Cambridge: Scholarship for academic achievements
2009: British Petrol: Scholarship for best undergraduate geologic mapping project

TEACHING

Since 2023: **Professor**: Earth Surface Dynamics, Structural Geology, Maps and Profiles, Sedimentary Profiles, Introductory fieldtrips
2018 – 2022: **Guest Lecturer**: Sedimentology; Earth System Science; Sedimentary Systems: From source to sink; Earth Surface Dynamics and Sedimentary Systems; A Systems Approach to Earth Sciences; Allgemeine physische Geographie.
2015: **Lecturer**: Geological Application of GIS.
2012 – 2015: **Teaching Assistant**: Structural Geology, Geological Application of GIS, Geological Catastrophes.

MENTORING

2024 – present: **M.Sc. Thesis**: Kaja Schultz. LMU Munich, Germany. [Primary advisor](#)
2022 – 2024: **M.Sc. Thesis**: Monika Pfau. University of Potsdam, Germany. [Primary advisor](#)
2020 – 2024: **M.Sc. Thesis**: Alexander Gessner. Free University of Berlin, Germany. [Primary advisor](#)
2018 – 2019: **M.Sc. Thesis**: Theresa Binder. University of Innsbruck, Austria. [Primary advisor](#)
2018: **Internship**: Adrian Greiner. GFZ, Potsdam, Germany. [Primary advisor](#)

INVITED TALKS

-
- 2024: ETH Zurich, TU Munich, German Sedimentology Lunch, Tongji University
 2023: University of Kiel, University of California, Santa Barbara
 2022: **Goldschmidt**, University of Oxford, University of Salzburg, Colorado State University, University of Potsdam, Ludwig Maximilian University of Munich
 2021: Munich GeoCenter, University of Cambridge, University of Oxford, German Working Group for Geomorphology
 2020: Victoria University of Wellington
 2019: **European Geoscience Union**
 2018: Free University of Berlin; University of Salzburg; Petrographic and Geochemical Research Centre (CRPG); Swiss Federal Institute of Technology (ETH)
 2016: University of California, Los Angeles; California Institute of Technology (Caltech); University of Potsdam; German Research Centre for Geosciences

PEER REVIEWED ARTICLES2024

- [21] Erlanger, E., **Bufe, A.**, Paris, G., D'Angeli, I., Pisani, L., Kemeny, P.C., Stammeier, J., Haghypour, N., Hovius, N. (2024). *Geodynamics modulate deep CO₂ degassing and control of the central Apennines carbon budget*. **Nature Geoscience**, 17(5), 465-471
- [20] Xu, S., Li S-L., **Bufe, A.**, Zhong, J., Wen, H., Chen, S., Li, L. (2024). *Escalating carbon concentrations and fluxes in warming montane rivers draining the Qinghai-Tibet Plateau*. **Environmental Science & Technology**, 58(16), 7032-7044.
- [19] Turowski, J.M., **Bufe, A.**, Tofelde, S. (2024). *A process-based model for fluvial valley width*. **Earth Surface Dynamics**, 12(2), 493-514
- [18] **Bufe, A.**, Rugenstein, J.K.C., Hovius, N. (2024). *CO₂ drawdown from weathering maximized at moderate erosion rates*. **Science**, 383(6687), 1075-1080
- [17] Xu, S., **Bufe, A.**, Li S.L., Erlanger, E.D., Ran, L., Zhong, J., Yang, C.J., Zhang, L., Ma, T., Sachse, D. (2024). *Erosional modulation of the balance between alkalinity and acid generations from rock weathering*. **Geochimica et Cosmochimica Acta**, 368, 126-146

2023

- [16] Roda-Boluda, D.C., Schildgen, T.F., Wittmann, H., Tofelde, S., **Bufe, A.**, Prancevic, J., Hovius, N. (in press). *Elevation-dependent periglacial and paraglacial processes modulate tectonically-controlled erosion of the Western Southern Alps, New Zealand*. **Journal of Geophysical Research: Earth Surface**, 128(11), e2023JF007271

2022

- [15] Tofelde, S., **Bufe, A.**, Turowski, J.M. (2022). *Hillslope sediment supply limits alluvial valley width*. **AGU Advances**, 3, e2021AV000641
- [14] **Bufe, A.**, Cook, K.L., Galy, A., Wittmann, H., Hovius, N. (2022). *The effect of lithology on the relationship between denudation rate and chemical weathering pathways – evidence from the eastern Tibetan Plateau*. **Earth Surface Dynamics**, 10(3), 513-530
- [13] Tuzlak, K., Pederson, J.L., **Bufe, A.**, Rittenour, T.M. (2022). *Patterns of incision and deformation on the southern flank of the Yellowstone hotspot from terraces and topography*. **Geological Society of America Bulletin**, 134(5-6), 1319-1333

2021

- [12] 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(8), e2021JF006064.
- [11] **Bufe, A.**, Hovius, N., Emberson, R., Rugenstein, J.K.C., Galy, A., Hassenruck-Gudipati, H., Chang, J-M. (2021). *Co-variation of silicate, carbonate and sulfide weathering drives CO₂ release with erosion*. **Nature Geoscience**, 14(4), 211-216

2020

- [10] Savi, S., Tofelde, S., Wickert A.W., **Bufe, A.**, Schildgen, T.F., Strecker, M.R. (2020). *Interactions between channels and tributary alluvial fans: channel adjustments and sediment-signal propagation*. **Earth Surface Dynamics**, 8(2), 303-322

2019

- [9] Hoffmann, J., **Bufe, A.**, Caers J. (2019). *Morphodynamic Analysis and Statistical Synthesis of Geomorphic Data: Application to a Flume Experiment*. **Journal of Geophysical Research: Earth Surface**, 124(11), 2561-2578
- [8] **Bufe, A.**, Turowski, J.M., Burbank, D.W., Paola, C., Wickert, A.D., Tofelde, S. (2019). *Controls on the lateral migration rate of braided channel systems in coarse non-cohesive sediment*. **Earth Surface Processes and Landforms**, 44(14), 2823-2836
- [7] Tofelde, S., Savi, S., Wickert A.W., **Bufe, A.**, Schildgen, T.F. (2019) *Alluvial channel response to environmental perturbations: Fill-terrace formation and sediment-signal disruption*. **Earth Surface Dynamics**, 7(2), 609-631

2017

- [6] **Bufe, A.**, Burbank, D.W., Liu, L., Bookhagen, B., Chen, J., Qin, J., Li, T., Thompson Jobe, J.A., Yang, H. (2017). *Variations of Lateral Bedrock Erosion Rates Control Planation of Uplifting Folds in the Foreland of the Tian Shan, NW China*. **Journal of Geophysical Research: Earth Surface**, 122(12), 2431-2467
- [5] Thompson Jobe, J.A., Li, T., Chen, J., Burbank, D.W., **Bufe, A.** (2017). *Quaternary Tectonic Evolution of the Pamir-Tian Shan Collision Convergence Zone, Northwest China*. **Tectonics**, 36(12), 1944-9194
- [4] **Bufe, A.**, Bekaert, D., Hussain, E., Bookhagen, B., Burbank, D.W., Thompson, J.A., Chen, J., Li, T., Langtao, L., Gan, W. (2017). *Temporal changes in rock uplift rates of folds in the foreland of the Tian Shan and the Pamir from geodetic and geologic data*. **Geophysical Research Letters**, 44(21), 10977-10987

2016

- [3] **Bufe, A.**, Paola, C., Burbank, D.W. (2016). *Fluvial bevelling of topography controlled by lateral channel mobility and uplift rate*. **Nature Geoscience**, 9(9), 706-710
- [2] Topal, S., Keller, E., **Bufe, A.**, Koçyiğit, A. (2016). *Tectonic geomorphology of a large normal fault: Akşehir fault, SW Turkey*. **Geomorphology**, 259, 55-69

2014

- [1] **Bufe, N. A.**, Holness, M. B., Humphreys, M.C.S. (2014). *Contact Metamorphism of Precambrian Gneiss by the Skaergaard Intrusion*. **Journal of Petrology**, 55, 1595-1617