



**Clifford S. Riebe** | Professor | +1 (307) 399-3110 | [criebe@uwyo.edu](mailto:criebe@uwyo.edu)  
 Department of Geology and Geophysics | University of Wyoming | Laramie, WY 82071  
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### Education

Ph.D. 2000, University of California, Berkeley, Geology and Geophysics  
 B.S.E. 1992, University of Michigan, Civil and Environmental Engineering, *Summa Cum Laude*

### Academic and Professional Appointments

2020–present Professor, Department of Geology & Geophysics, U. Wyoming  
 2014–2020 Associate Professor, Department of Geology & Geophysics, U. Wyoming  
 2012–2014 Associate Faculty Member, Department of Geosciences, Colorado State U.  
 2008–2014 Assistant Professor, Department of Geology & Geophysics, U. Wyoming  
 2005–2008 Consulting Geomorphologist, Stillwater Sciences, Berkeley, Calif.  
 2001–2004 Post-Doctoral Researcher, Department of Earth & Planetary Sciences, UC Berkeley  
 1996–2000 Graduate Student Researcher, Department of Geology & Geophysics, UC Berkeley  
 1995 Graduate Student Instructor, Department of Geology & Geophysics, UC Berkeley  
 1993 Project Engineer, Atlas Railroad Construction Company, Eighty Four, PA

### Peer-Reviewed Publications

\* denotes student supervised

#### Submitted, In Review, or In Revision:

Verdian, J. \*, Sklar, L. S., Riebe, C. S., & Moore, J. R. Sediment size on talus slopes correlates with fracture spacing on bedrock cliffs: Implications for predicting initial sediment size distributions on hillslopes (in revision, *Earth Surface Dynamics*).

#### In Print or In Press:

Times cited in **[bold]** from Google Scholar. Total times cited: **[3793]**

40. Riebe, C. S., Callahan, R. P. \*, Granke, S. B. -M. \*, Carr, B. J., Hayes, J. L., Schell, M. S. \*, Sklar, L. S. (in press) Anisovolumetric weathering in granitic saprolite controlled by climate and erosion rates. *Geology*.
39. Preece, J. R. \*, Shinker, J. J., Riebe, C. S., & Minckley, T. A. 2020. Precipitation response to El Niño Southern Oscillation over high and low elevations within headwater basins of the US central Rocky Mountains. *International Journal of Climatology*. <https://doi.org/10.1002/joc.6790> **[0]**
38. Callahan, R. P. \*, Riebe, C. S., Pasquet, S., Ferrier, K. L., Grana, D., Taylor, N. J., Flinchum, B. A., Hayes, J. L., Carr, B. J., Hartsough, P. C., O'Geen, A. T. & Holbrook, W. S. 2020. Subsurface weathering revealed by hillslope-integrated porosity distributions. *Geophysical Research Letters*. 47, 15: <https://doi.org/10.1029/2020GL088322> **[0]**
37. Leone, J. D., Holbrook, W. S., Riebe, C. S., Chorover, J., Ferré, T. P. A., & Callahan, R. P. \* 2020. Strong slope-aspect control of regolith thickness by bedrock foliation. *Earth Surface Processes and Landforms*. <https://doi.org/10.1002/esp.4947> **[0]**
36. Sklar, L. S., Riebe, C. S., Genetti, J., Leclere, S., & Lukens, C. E. \* 2020. Downvalley fining of hillslope sediment in an alpine catchment: Implications for downstream fining of sediment flux in mountain rivers. *Earth Surface Processes and Landforms*. 45: 1828–1845. <https://doi.org/10.1002/esp.4849> **[3]**
35. Lukens, C. E. \*, Riebe, C. S., Sklar, L. S., & Shuster, D. L. 2020. Sediment size and abrasion biases in detrital thermochronometry. *Earth and Planetary Science Letters*, 531: 115929. **[1]**
34. Aarons, S. M., Arvin, L. J., Aciego, S. M., Riebe, C. S., Johnson, K. R., Blakowski, M. A., Koornneef, J. M., Hart, S. C., Barnes, M. E., Dove, N., Botthoff, J. K., Maltz, M., & Aronson, E. L., 2019. Competing droughts affect dust delivery to Sierra Nevada. *Aeolian Research*, 41, 100545. **[6]**

33. Hayes, J. L.\*, Riebe, C. S., Holbrook, W. S., Flinchum, B., & Hartsough, P. C., Porosity production in saprolite: Where volumetric strain dominates over chemical mass loss. *Science Advances*, 5, paper eaao0834 [11]
32. Holbrook, W. S., Marcon, V., Bacon, A., Brantley, S., Carr, B. J., Flinchum, B. A., Richter, D., & Riebe, C. S., 2019. Links between physical and chemical weathering inferred from a 65-m-deep borehole through Earth's critical zone. *Scientific Reports*, 9(1), paper 4495. [17]
31. Callahan, R. P.\*, Ferrier, K. L., Dixon, J., Dosseto, A., Hahm, W. J.\*, Jessup, B. S.\*, Hunsaker, C. T., Johnson, D. L., Sklar, L. S., & Riebe, C. S., 2019. Arrested development: Erosional equilibrium in the southern Sierra Nevada, California, maintained by feedbacks between bedrock channel incision and hillslope sediment production, *Geological Society of America Bulletin*, 131: 1179–1202. [11]
30. Richter, D. D., Billings, S. A., Groffman, P. M., Kelly, E. F., Lohse, K. A., McDowell, W. H., White, T. S., Anderson, S., Baldocchi, D. D., Banwart, S., Brantley, S., Braun, J. J., Brecheisen, Z. S., Cook, C. W., Hartnett, H. E., Hobbie, S. E., Kazanski, C., Gaillardet, J., Jobbagy, E., Jungkunst, H. F., Kazanski, C. E., Krishnaswamy, J., Markewitz, D., O'Neill, Riebe, C. S., Schoeder, P., Siebe, C., Silver, W. L., Thompson, A., Verhoef, A., & Zhang, G. 2018. Ideas and perspectives: Strengthening the biogeosciences in environmental research networks. *Biogeoscience*, 15: 4815–4832. [18]
29. Flinchum, B. A., Holbrook, W. S., Rempe, D., Moon, S., Riebe, C. S., Carr, B. J., Hayes, J. L., St. Clair, J., & Peters, M. P., 2018. Critical zone structure under a granite ridge inferred from drilling and three-dimensional seismic refraction data. *Journal of Geophysical Research, Earth Surface*, 123 (6): 1317–1343. [26]
28. Klos, P. Z., Goulden, M., Riebe, C. S., Tague, C., O'Geen, A.T., Flinchum B.A., Safeeq, M. Conklin, M., Hart, S., Berhe, A.A., Hartsough, P., Holbrook, W.S., & Bales, R. 2018. Subsurface plant-accessible water in mountain ecosystems with a Mediterranean climate. *Wiley Interdisciplinary Reviews (WIREs) Water* 1277: 1–14. [40]
27. Arvin, L. J.\*, Riebe, C. S., Aciego, S. M., & Blakowski, M. 2017 Global patterns of dust and bedrock nutrient supply to montane ecosystems. *Science Advances* 3, 1588. [29]
26. Aciego, S. M., Riebe, C. S., Hart, S., Blakowski, M. A., Carey, C., Aarons, S. M., Dove, N., Botthoff, J. K., Sims, K. W. W., & Aronson, E., Dust outpaces bedrock in nutrient supply to forest ecosystems. *Nature Communications* 8: 14800. [75]
25. Sklar, L. S., Riebe, C. S., Marshall, J. A., Genetti, J., Leclere, S., Lukens, C. L.\*, & Mercés, V. 2017. The problem of predicting the particle size distribution of sediment supplied by hillslopes to rivers. *Geomorphology* 277: 31–49. [74]
24. Riebe C. S., Hahm, W. J.\*, & Brantley, S. L. 2017. Controls on deep critical zone architecture: A historical review and four testable hypotheses. *Earth Surface Processes and Landforms*, 42: 128–156. doi: 10.1002/esp.4052 [119]
23. Sklar, L. S., Riebe, C. S., Lukens, C. E.\*, & Bellugi, D. G. 2016. Catchment power and the joint distribution of elevation and travel distance to the outlet. *Earth Surface Dynamics* 4, 799–818. [8]
22. Carey, C. J., Hart, S. C., Aciego, S. M., Riebe, C. S., Blakowski, M., & Aronson, E. 2016. Microbial community structure of subalpine snow in the Sierra Nevada, California. *Arctic, Antarctic, and Alpine Research* 48(4): 685–701. [9]
21. Lukens, C. E.\*, Riebe, C. S., Sklar, L. S., & Shuster, D. L. 2016. Grain-size bias in cosmogenic nuclide studies of stream sediment in steep terrain. *Journal of Geophysical Research, Earth Surface* 121: 978–999. [20]
20. Ferrier, K. L., Riebe, C. S., & Hahm, W. J.\* 2016. Testing for supply-limited and kinetic-limited chemical erosion in field measurements of regolith production and chemical depletion. *Geochemistry, Geophysics, Geosystems* 17: 2270–2285. [34]
19. Overstreet, B. T.\*, Riebe, C. S., Wooster, J. K., & Sklar, L. S. 2016. Tools for gauging the capacity of salmon spawning substrates. *Earth Surface Processes and Landforms* 41(1): 130–142. [7]

18. Riebe, C. S., Sklar, L. S., Lukens, C. E.\*, & Shuster, D. L. 2015. Climate and topography control the size and flux of sediment produced on steep mountain slopes. *Proceedings of the National Academy of Sciences* 112(51): 15574–15579. [56]
17. St. Clair, J., Moon, S., Holbrook, W. S., Perron, J. T., Riebe, C. S., Martel, S., Carr, B., Harman, C., Singha, K., & Richter, D. deB. 2015. Geophysical imaging reveals topographic stress control of bedrock weathering. *Science* 350(6260): 534–538. [185]
16. Dixon, J. L. & Riebe, C. S. 2014. Tracing and pacing soil across slopes. *Elements* 10(5): 363–368. [30]
15. Hahm W. J.\*, Riebe, C. S., Lukens, C. E.\*, & Araki, S.\* 2014. Bedrock composition regulates mountain ecosystems and landscape evolution. *Proceedings of the National Academy of Sciences* 111: 3338–3343. [145]
14. Riebe, C. S., Sklar, L. S., Overstreet, B. T.\*, & Wooster, J. K. 2014. Optimal reproductive potential in salmon spawning substrates linked to grain size and fish length. *Water Resources Research* 50: 898–918. [54]
13. Holbrook, W. S., Riebe, C. S., Mehrez, E. Hayes, J. L., Harry, D. L., Basler-Reeder, K., Malazian, A., Dosseto, A., Hartsough, P. C., & Hopmans, J. W. 2014. Geophysical constraints on deep weathering and water storage potential in the Southern Sierra Critical Zone Observatory. *Earth Surface Processes and Landforms* 39: 366–380. [120]
12. Riebe, C. S., & Granger, D. E. 2013. Quantifying the effects of deep and near-surface chemical erosion on cosmogenic nuclide buildup in soils, saprolite and sediment. *Earth Surface Processes and Landforms* 38: 523–533. [53] Winner of **2014 WILEY AWARD** for best paper in ESPL in 2013.
11. Brantley, S. L., Megonigal, J. P., Scatena, F. N., Balogh-Brunstad, Z., Barnes, R. T., Bruns, M. A., van Cappelen, P., Dontsova, K., Hartnett, H., Hartshorn, H., Heimsath, A., Herndon, E., Jin, L., Keller, C. K., Leake, J. R., McDowell, W. H., Meinzer, F. C., Mozdzer, T., Petsch, S., Pett-Ridge, J., Pregitzer, K. S., Raymond, P., Riebe, C. S., Shumaker, K., Sutton-Grier, A., Walter, R., & Yoo, K. 2011. Twelve testable hypotheses on the geobiology of weathering. *Geobiology* 9: 140–165. [135]
10. Ferrier, K. L., Kirchner, J. W., Riebe, C. S., & Finkel, R. C. 2010. Mineral-specific chemical weathering rates over millennial timescales: Measurements at Rio Icacos, Puerto Rico. *Chemical Geology* 277: 101–114. [49]
9. Riebe, C. S., Kirchner, J. W., & Finkel, R. C. 2004. Erosional and climatic effects on long-term chemical weathering rates in granitic landscapes spanning diverse climate regimes. *Earth and Planetary Science Letters* 224: 547–562. [442]
8. Riebe, C. S., Kirchner, J. W., & Finkel, R. C. 2004. Sharp decrease in long-term chemical weathering rates along an altitudinal transect, *Earth and Planetary Science Letters* 218: 421–434. [107]
7. Riebe, C. S., Kirchner, J. W., & Finkel, R. C. 2003. Long-term rates of chemical weathering and physical erosion from cosmogenic nuclides and geochemical mass balance. *Geochimica et Cosmochimica Acta* 67: 4411–4427. [283]
6. Riebe, C. S., Kirchner, J. W., Granger, D. E., & Finkel, R. C. 2001. Strong tectonic and weak climatic control of long-term chemical weathering rates. *Geology* 29: 511–514. [331]
5. Riebe, C. S., Kirchner, J. W., Granger, D. E., & Finkel, R. C. 2001. Minimal climatic control of erosion rates in the Sierra Nevada, California. *Geology* 29: 447–450. [223]
4. Riebe, C. S., Kirchner, J. W., & Granger, D. E. 2001. Quantifying quartz enrichment and its consequences for cosmogenic measurements of erosion rates from alluvial sediment and regolith. *Geomorphology* 40: 15–19. [57]
3. Kirchner, J. W., Finkel, R. C., Riebe, C. S., Granger, D. E., Clayton, J. L., & Megahan, W. F. 2001. Mountain erosion over 10 yr, 10 k.y., and 10 m.y. time scales. *Geology* 29: 591–594. [543]

2. Granger, D. E., Riebe, C. S., Kirchner, J. W., & Finkel, R. C. 2001. Modulation of erosion on steep granitic slopes by boulder armoring, as revealed by cosmogenic  $^{26}\text{Al}$  and  $^{10}\text{Be}$ . *Earth and Planetary Science Letters* 186: 269–281. [107]
1. Riebe, C. S., Kirchner, J. W., Granger, D. E., & Finkel, R. C. 2000. Erosional equilibrium and disequilibrium in the Sierra Nevada, inferred from cosmogenic  $^{26}\text{Al}$  and  $^{10}\text{Be}$  in alluvial sediment. *Geology* 28: 803–806. [168]

#### Refereed Chapters in Books

2. Granger, D. E., & Riebe, C. S. 2014. Cosmogenic Nuclides in Weathering and Erosion. In: *Treatise on Geochemistry, Volume 5: Surface and Ground Water, Weathering, and Soils.* (editor: J. I. Drever). Elsevier, London. 2<sup>nd</sup> Edition [116 total in 2 editions]
1. Granger, D. E., & Riebe, C. S. 2007. Cosmogenic Nuclides in Weathering and Erosion. In: *Treatise on Geochemistry, Volume 5: Surface and Ground Water, Weathering, and Soils.* (editor: J. I. Drever) and also In: *Radioactive Geochronometry: A derivative of the Treatise on Geochemistry* (editors: H. D. Holland and K. K. Turekian) Elsevier, London. 1<sup>st</sup> Edition [116 total in 2 editions]

#### Refereed Proceedings and Transactions

2. Jessup, B. S.\*, Hahm, W. J.\*, Miller, S. N., Kirchner, J. W., & Riebe, C. S. 2011. Landscape Response to Tipping Points in Granite Weathering: The Case of Stepped Topography in the Southern Sierra Critical Zone Observatory. *Applied Geochemistry* 26: S48–S50. (Extended Abstract). Ninth International Symposium on Geochemistry of the Earth's Surface. Boulder CO, June 2011. [14]
1. Kirchner, J. W., Riebe, C. S., Ferrier, K. L., & Finkel, R. C. 2006. Cosmogenic nuclide methods for measuring long-term rates of physical erosion and chemical weathering. *Journal of Geochemical Exploration* 88: 296–299. (Extended Abstract). Seventh International Symposium on the Geochemistry of the Earth's Surface. Aix-en-Provence, France, August 2005. [26]

#### Non-refereed Reports and Publications

5. Huntington, K. W., Klepeis, K. A., with 66 community contributors (including Riebe, C.S.), 2018, Challenges and opportunities for research in tectonics: Understanding deformation and the processes that link Earth systems, from geologic time to human time. A community vision document submitted to the U.S. National Science Foundation. University of Washington, 84 pp., <https://doi.org/10.6069/H52R3PQ5>. [16]
4. Carey, C., Hart, S., Aciego, S., Riebe, C., Blakowski, M., & Aronson E., 2017. Life in the Snow: Characterizing Microbial Communities in the Subalpine Zone of the Sierra Nevada, California. *Mountain Views: Chronicles of the Consortium for Integrated Climate Research in Western Mountains (CIRMOUNT)* 11(1):24–27. [0]
3. Riebe, C. S., & Chorover, J. 2014. Report on Drilling, Sampling, and Imaging the Depths of the Critical Zone, an NSF Workshop, *in* Continental Scientific Drilling Workshop Series Report 2013: A compilation of five individual workshop reports outlining the needs of the continental scientific drilling community. Cohen, A. S., Zur, D. M. (eds.) 398 pp. [5]
2. Adams, K., Briggs, R., Bull, W., Brune, J., Granger, D., Ramelli, A., Riebe, C., Sawyer, T., Wakabayashi, J., & Wills, C. 2001. Friends of the Pleistocene Pacific Cell field trip northern Walker Lane and northeast Sierra Nevada. October 12–14, 2001. 20 pp. [0]
1. Riebe, C. S. 2000. Tectonic and climatic control of physical erosion rates and chemical weathering rates in the Sierra Nevada, California, inferred from cosmogenic nuclides and geochemical mass balance. Ph.D. Dissertation, Department of Geology and Geophysics, University of California, Berkeley. Advisor: Kirchner, J. W. 212 pp. [6]

## Research Grants and Contracts

Total research dollars awarded to U. Wyoming for research to be performed by Riebe: \$3,200,000.

10. 2020–2025 Collaborative Research: Network Cluster: Bedrock Critical Zone Collaboration Network. National Science Foundation. EAR-2012357, \$5.36M (U. Wyoming portion: \$1.63M). PI and Associate Director
9. 2013–2020 Southern Sierra Critical Zone Observatory. National Science Foundation. EAR-1331939, \$6,797,726 (U. Wyoming portion: \$336,935). Co-PI
8. 2013–2015 Collaborative Research: Spatial variability in eroded sediment size and geomorphic processes inferred from detrital thermochronometry and cosmogenic nuclides. National Science Foundation. EAR-1325033, \$320,000 (U. Wyoming portion: \$115,461). Lead PI
7. 2013–2014 NSF Workshop: Drilling, Sampling and Imaging the Depths of the Critical Zone. National Science Foundation. EAR-1242284, \$75,013. PI
6. 2012–2017 Wyoming Center for Environmental Hydrology and Geophysics. National Science Foundation. EPS-1208909, \$20,000,000. (Critical Zone Team Leader portion: \$450,000) Senior Person
5. 2012–2014 Collaborative Research: Beryllium-10 in detrital magnetite as a new tool in erosion and weathering studies. National Science Foundation. EAR-1148224, \$345,000 (U. Wyoming portion: \$55,560). PI
4. 2012–2013 Critical Zone Observatory: Snowline processes in the southern Sierra Nevada. National Science Foundation. EAR-1239521, \$1,000,000. (U. Wyoming portion: \$92,214) Co-PI
3. 2010–2010 Upper Santa Clara River Watershed Geomorphology Assessment. subcontract from Stillwater Sciences, \$11,000. PI
2. 2009–2011 RAPID: Systematic Quantification of Upper Particle-Size Limits of Salmon Spawning Gravel. National Science Foundation. EAR-0956289, \$67,467. sole PI
1. 2009–2012 Critical Zone Observatory: Snowline processes in the southern Sierra Nevada. U. Wyoming subcontract from UC Merced NSF EAR-0725097, \$4,250,000 (U. Wyoming portion: \$331,508). Co-PI

## Thesis Advising and Postgraduate-Scholar Sponsorship

Sayaka Araki, Research Associate, 2011–2012 – U Wyo  
 Dr. Sarah Konrad, Post-Doc, Fall 2012 – U Wyo; now: Assoc. Director, Wyoming EPSCoR  
 Brandon Overstreet, MS 2011 – U Wyo; now: US Forest Service  
 Franklin Dekker, MS 2012 – U Montana (co-advised with A. Wilcox)  
 Jonathan Garber, MS 2013 – Colorado State U (co-advised with E. Wohl)  
 W. Jesse Hahm, MS 2013 – U Wyo; now: Asst. Prof., Simon Fraser University  
 Ryan Armstrong, MS 2015 – U Wyo (co-advised with S. Holbrook); now: Hess Corporation  
 Jordan Hayes, PhD 2015 – U Wyo (co-advised with S. Holbrook); now: Asst. Prof., Dickinson  
 Nick Taylor, MS 2016 – U Wyo (co-advised with K. Dueker); now: Scientist, U.S.G.S  
 Claire Lukens, PhD 2016 – U Wyo; now: Asst. Prof., Univ. Calif. Merced  
 Lindsay Arvin, MS 2017 – U Wyo; now: Hydrologist, TriHydro, Laramie, Wyoming  
 Marlie Schell, MS 2019 – U Wyo; now: Hoback Junction, Wyoming  
 Sarah Granke, MS 2020 – U Wyo; now: Geologist, Terraphase Engineering, Oakland, California  
 Russell Callahan, PhD expected 2021 – U Wyo

## Invited Presentations **47 total in 3 categories**

### ***Invited presentations at international conferences: 13***

13. *Is more better? Sediment production, weathering, and erosion inferred from multiple geochemical proxies and comprehensive field measurements in mountain catchments*. EGU Annual Meeting, Vienna, Austria, May 2020. doi: 10.5194/egusphere-egu2020-13564. INVITED SPEAKER.

12. *Rock, water, life and death in a Sierra Nevada forest: Effects of lithology and weathering on landscape evolution and ecosystem resistance to drought.* Gilbert Club Annual Meeting, held at University of Maryland, College Park, Maryland, USA. December 15, 2018. INVITED SPEAKER.
11. *Built on bedrock, running on dust: Controls on ecosystem productivity and vulnerability in the Sierra Nevada, California.* Goldschmidt Conference, Boston, Massachusetts, USA August 2018. INVITED SPEAKER.
10. *Influence of bedrock composition and subsurface weathering on porosity production and ecosystem resilience in response to extreme drought.* AGU Fall Meeting; Session. December 2017. INVITED PRESENTER
9. *Reevaluating the role of dust in mountain ecosystems: Insights from tracer isotopes, microbial genomics, and global databases.* Tracking Earth Surface Processes: Isotope Tracing of Particulate and Dissolved Fluxes: Goldschmidt Conference, Paris, France, August 2017. INVITED SPEAKER
8. *Geologic limits on mountain ecosystem productivity and landscape evolution.* Evolution of Forest Soil Science: Perspectives and Prospects. A symposium of the Soil Science Society of America, Annual Meeting, Long Beach, California, November, 2014. INVITED SPEAKER
7. *Using cosmogenic nuclides in multiple detrital minerals to infer rates of erosion and differential weathering.* British Society for Geomorphology, Annual Meeting, University of Manchester, England, UK, September 2014. INVITED SPEAKER AND **WINNER OF WILEY AWARD** (from BSG for best paper in Earth Surface Processes and Landforms, 2013)
6. *Bedrock composition limits mountain ecosystem productivity and landscape evolution.* AGU Fall Meeting; Session B036 Linking Geomorphology with Biogeochemistry and Nutrient Cycling. December 2013. INVITED SPEAKER
5. *Climate and topography control the size and flux of sediment produced on steep mountain slopes.* Geological Society of America Annual Meeting, Denver; Session 165: T18. Critical Zone Evolution: Climate and Exhumation. October 28, 2013. INVITED SPEAKER
4. *Inferring process from provenance using apatite (U-Th)/He ages of coarse sediment in mountain streams.* Mineralogical Magazine. Goldschmidt Conference Abstracts, Goldschmidt Conference, Prague, Czech Republic, August 2011. **KEYNOTE SPEAKER**
3. *Supply-limited and kinetic-limited weathering.* Mineralogical Magazine. Goldschmidt Conference Abstracts, Goldschmidt Conference, Prague, Czech Republic, August 2011. INVITED SPEAKER
2. *Variations in rock-fragment abundance and bulk geochemistry of soils across the Southern Sierra Nevada CZO: Implications for hillslope-channel coupling.* Abstract EP51E-02. American Geophysical Union Fall Meeting, San Francisco, December 2009. INVITED SPEAKER
1. *Long-term rates of physical erosion and chemical weathering from diverse climatic and topographic settings.* Geological Society of America, Earth System Processes 2 Meeting, Calgary. Session No. T19. Paper No. 47-0. August 2005. INVITED SPEAKER

***Invited participation and presentations at international workshops: 11***

11. Continental Scientific Drilling and Coring Community Meeting 2018, June 4–5, 2018. With participation from the National Science Foundation at Crowne Plaza Old Town, Alexandria, VA. INVITED WORKSHOP PARTICIPANT.
10. *Re-evaluating the role of dust in mountain ecosystems: Insights from tracer isotopes, microbial genomics, and global databases.* Front Range Isotope Day (FRIDay), University of Wyoming, August 4, 2017. **KEYNOTE SPEAKER**
9. *Exploring critical zone architecture and its influence on Earth surface processes using drilling, sampling, and geophysical imaging.* AGU-SEG Hydrogeophysics Workshop: Imaging the Critical Zone. Stanford, California, July 24–27, 2017. INVITED WORKSHOP PARTICIPANT AND PRESENTER
8. *Porosity production in the critical zone: A life-sustaining process governed by both physical and chemical weathering.* US Continental Scientific Drilling Planning Workshop, University of Minnesota, May 18–19, 2017. INVITED PRESENTER

7. Answering the Four Critical Questions about Trees, Water, and Soil: A Research Agenda. Penn State University, September 9–11, 2015. INVITED WORKSHOP PARTICIPANT AND PRESENTER
6. *Looking Deep, Beyond the Average, and Into the Future of Surface Processes Research*. EarthCube Domain End-User Workshop: Engaging the Critical Zone community to bridge long tail science with big data (an NSF workshop), University of Delaware, January 22, 2013. INVITED WORKSHOP PARTICIPANT AND PRESENTER
5. Roy J. Shlemon Quaternary Studies Symposium: “What Big Questions can the Quaternary Help Answer?” At the University of Wyoming, featuring invited panelists from UW, CSU, University of Utah and the USGS. November 12, 2011. INVITED PANELIST.
4. International CZO planning meeting. University of Delaware, November 8–10, 2011. INVITED WORKSHOP PARTICIPANT
3. Science, Engineering, and Education for Sustainability (SEES) in Earth Surface Processes. University of Minnesota, October 6–7, 2011. INVITED WORKSHOP PARTICIPANT
2. DOSECC: Continental Scientific Drilling Workshop, National Science Foundation, Arlington, VA, May 22–24, 2011. INVITED WORKSHOP PARTICIPANT AND PRESENTER
1. Frontiers in Exploration of the Critical Zone II: The Geobiology of Weathering and Erosion. Smithsonian Institute, Washington, D.C., October 5–7, 2009. INVITED WORKSHOP PARTICIPANT

***Invited departmental presentations: 23***

23. *Sediment production in the critical zone: Implications for the evolution of mountain landscapes and Pacific salmon*. Simon Fraser University, Vancouver, BC, Canada. June 26, 2019. INVITED SPEAKER
22. *How bedrock composition controls ecosystem productivity and drought resilience in the Sierra Nevada, California*. Northern Colorado University, Greeley, CO. March 8, 2018. INVITED SPEAKER
21. *How bedrock composition controls ecosystem productivity and drought resilience in the Sierra Nevada, California*. Georgia Tech University, Atlanta, GA. October 26, 2017. INVITED SPEAKER
20. *How bedrock composition controls ecosystem productivity and drought resilience in the Sierra Nevada, California*. Department of Geography Colloquium Series, University of Colorado, Boulder, CO. October 20, 2017. INVITED SPEAKER
19. *Top-down and bottom-up controls on mountain ecosystems and landscape evolution*. Bren School of Environmental Science and Management, University of California, Santa Barbara, March 16, 2017. INVITED SPEAKER
18. *The influence of bedrock composition on drought-induced mortality in southern Sierra Nevada forests*. Department of Earth and Climate Sciences Speaker Series, San Francisco State University, CA, November 1, 2016. INVITED SPEAKER
17. *Geologic limits on life and water in mountain landscapes*. Research Across Disciplines Colloquium Series, University of Wyoming, Laramie, WY, March 6, 2015. INVITED SPEAKER
16. *Geologic limits on life in mountain landscapes*. Yosemite Forum, Yosemite National Park, January 13, 2015. INVITED SPEAKER
15. *Eroding the critical zone: Implications for evolution of mountain slopes and Pacific salmon*. Seminar Series, Cornell University, October 8, 2014. INVITED SPEAKER
14. *Geologic Limits on Life in Mountains and Rivers*. Colloquium Series, University of South Carolina, April 3, 2014. INVITED SPEAKER
13. *Geologic limits on life in mountains and rivers*. Colloquium Series, Utah State University, March 3, 2014. INVITED SPEAKER
12. *Geologic limits on life in mountains and rivers*. Department of Geology and Geophysics Distinguished Lecturer Series, University of Wyoming, December 2, 2013. INVITED SPEAKER
11. *Gauging the reproductive potential of salmon spawning substrates*. Geology and Environmental Sciences Colloquium Series, Stanford University, May 9, 2012. INVITED SPEAKER

10. *Inferring process from provenance using tracer thermochronometry in steep mountain streams.* Geology and Environmental Sciences Colloquium Series, Stanford University, May 8, 2012. INVITED SPEAKER
9. *Gauging the reproductive potential of salmon spawning substrates.* Department of Ecosystem Science and Management Colloquium Series, University of Wyoming, Laramie, WY, February 24, 2012. INVITED SPEAKER
8. *Gauging the reproductive potential of salmon spawning substrates.* Department of Geosciences Colloquium Series, University of Montana, Missoula, MT, February 13, 2012. INVITED SPEAKER
7. *Coarse riverbeds and nutrient deserts: limits on salmon spawning and landscape evolution.* Department of Geosciences Seminar Series, Colorado State University, Fort Collins, CO, November 15, 2010. INVITED SPEAKER
6. *Sediment supply to channels: How coarse is it, and how coarse is too coarse for salmon spawning substrates?* Department of Geography Colloquium Series, University of Colorado, Boulder, CO, October 23, 2009. INVITED SPEAKER
5. *From mountain hillslopes to big rivers: Tales of erosion, weathering, and salmon spawning habitat.* Department of Earth Sciences, University of Northern Colorado, Greeley CO, September 18, 2009. INVITED SPEAKER
4. *Mass-balance modeling of chemical weathering in eroding landscapes.* Department of Geology and Geophysics, University of Wyoming. March, 2008. INVITED SPEAKER
3. *Cosmogenic nuclides, erosion, and weathering in diverse, mountainous settings.* Department of Geology and Geophysics, University of Wyoming. March, 2008. INVITED SPEAKER
2. *Cosmogenic nuclides, erosion, and weathering in diverse, mountainous settings.* Department of Geosciences, Fresno State University, Fresno, CA. March, 2007. INVITED SPEAKER
1. *Rates of landscape evolution in Sierra Nevada granites.* University of California, Berkeley, Department of Geography Colloquium Series. 1999. INVITED SPEAKER

### Synergistic Activities

#### Workshops and Webinars Organized:

Co-organizer (PI) with co-PI Jon Chorover (U. Arizona) *Drilling, Sampling and Imaging the Depths of the Critical Zone*, an international, NSF-sponsored workshop held in Denver, Colorado, October 24-26, 2013.

*Nutrient Deserts of the Sierra Nevada and Their Effects on Life, Soils, and Topography.* Voluntary webinar presented on behalf of the National Science Foundation's National Critical Zone Observatory Program: April 18, 2013.

#### Professional Development:

*Science: Becoming the Messenger*, a voluntary communication-skills workshop sponsored by the National Science Foundation and Wyoming EPSCoR, Laramie, WY, September 11-12, 2013.

Teaching Geomorphology in the 21st Century, a weeklong voluntary workshop organized by the National Association of Geoscience Teachers (NAGT) and the Science Education Resource Center and convened at Colorado St. Univ., in August 2008. Contributed instructor's notes for a field-based activity to the "On the Cutting Edge" database.

#### Duties as an Editor, Reviewer, and Proposal Review Panelist:

*Editing:* Associate Editor, Journal of Geophysical Research, Earth Surface (2017-2018); Geological Society of America, Bulletin (2017); Co-guest editor with Dr. Sue Brantley on *Probing the Depths of the Critical Zone*, a special issue at Earth Surface Processes and Landforms.

*Service on Proposal Panels:* NSF EAR-Geomorphology and Land Use Dynamics, 2014-2015. Department of Energy, Basic Research 2017.

*Proposal Reviews:* NSF EAR-Geomorphology and Land Use Dynamics; NSF EAR-Postdoctoral Fellowships; NSF MRI; NSF Integrated Earth Systems; Deutsche Forschungsgemeinschaft - Physik, Mathematik, Geowissenschaften; NSF EAR-Sedimentary Geology and Paleobiology; NSF EAR-Geobiology and Low-Temperature Geochemistry; NSF Office of Cyber Infrastructure;



Stanford Synchrotron Radiation Lightsource; DOE Instrumentation; NSF EAR-Geology and Paleontology.

*Manuscript Reviews:* Journal of Geology, Geology, Nature, JGR-Earth Surface, Geochimica et Cosmochimica Acta, Chemical Geology, Geomorphology, Earth Surface Processes and Landforms, Geological Society of America Bulletin, Earth and Planetary Science Letters, Vadose Zone Journal, Biogeochemistry, Proceedings of the National Academy of Sciences, Catena, Journal of Environmental Quality, Science, SOIL, Science Advances, Earth Surface Dynamics, Water Resources Research.

Conference Session Organization:

EP31A & 34A: *Sediment Size Input to Fluvial Networks: Production, Transformation, Delivery, and Effects*, AGU Fall Meeting, December 2016.

05 *Weathering and Surface Processes Theme Team Member*, Goldschmidt Conference, Prague, Czech Republic, August 14–19, 2015.

05c *From Rock to Soil and Sediment: Chemical and Physical Transformations and Transport Across Landscapes* Goldschmidt Geochemical Conference, Prague, Czech Republic, August 14–19, 2015.

*Invited Co-Chair: Critical Zone Evolution – Legacy Influences on Contemporary Processes.* CUAHSI 4th Biennial Colloquium on Hydrologic Science and Engineering, National Conservation Training Center, Shepherdstown, WV, USA. July 28–30, 2014. Invited by CUAHSI Board of Directors.

T5. *Critical Zone: Where Rock Meets Water and Life at Earth's Surface.* Cordilleran Section Meeting, Geologic Society of America, May 2013. Co-Chair w/ L. Sklar and K. Maher.

EP32: *The Deep Critical Zone and the Inception of Surface Processes*, AGU Fall Meeting, December 2012.

EP09: *From Rock to Clay: Evolution of Grain-Size Distributions in Geomorphic Systems*, AGU Fall Meeting, December 2011.

EP25: *Advances in Critical Zone Research: Interactions among Water, Rock and Life at Earth's Surface*, AGU Fall Meeting, December 2010.

14b *Lithologic and Erosional Influences on the Critical Zone*, Goldschmidt Geochemical Conference, Knoxville TN, USA, June 2010.

Education:

Created and taught new courses at the University of Wyoming, including: “*Water, Dirt, and Earth's Environment*”, an introductory course in Geology and Geophysics (G&G) and the Haub School of Environment and Natural Resources (ENR); “*Environmental Data Analysis*”, a dual listed upper-division undergraduate and graduate-level course in G&G and ENR; and “*Rates and Timescales of Earth Surface Processes*”, a graduate-level course in G&G.

Field Trip Leadership:

*Northern Walker Lane and Northeast Sierra Nevada: Friends of the Pleistocene Pacific Cell Field Trip* (voluntary co-Leader with J. Wakabayashi, C. Wills and T. Sawyer), September, 2001, catering to over 150 participants.

Committee Memberships: \*indicates service as committee chair

*Departmental:* Curriculum: 2013-2014, 2017; Graduate Admissions: 2009, 2013, 2015\*, 2016\*, 2017\*; Head's Advisory: 2010, 2011-2012\*; Geochemical Analyst Search: 2010-2011; Material Characterization Analyst Search: 2010-2011; Distinguished Lecturer Series: 2010, 2012; Web Site: 2008-2010; Rock Room: 2013-2014\*.

*College:* Faculty Advisory, Haub School of Environment and Natural Resources: 2011-2015.

*University:* Academic Calendar: 2013.

*National/International:* Executive Committee, Southern Sierra Critical Zone Observatory: 2013-2018; Data Management Committee, National Critical Zone Observatory Program: 2013-2014; International Advisory Board, Earth Surface Processes and Landforms: 2014; Science Planning Committee, Drilling, Observation and Sampling of Earth's Continental Crust (DOSECC): 2012.

### Honors and Awards

- Extraordinary Merit in Research Award, College of Arts and Sciences, University of Wyoming, 2016.  
 Wiley Award for best paper in 2013 in *Earth Surface Processes and Landforms*, British Society for Geomorphology, 2014, awarded for paper by Riebe & Granger titled *Quantifying the effects of deep and near-surface chemical erosion on cosmogenic nuclide buildup in soils, saprolite and sediment* (ESPL, v. 38, pp. 523-533).  
 Antarctic Service Medal, US Antarctic Program (McMurdo Station) 2004  
 G. D. Louderback Award for Distinguished Field Research, Department of Geology and Geophysics UC Berkeley, 1998; Frankhauser Scholarship, University of California Berkeley, 1994; Regents Scholarship, University of California, Berkeley, 1994.  
 Graduated *summa cum laude*, Department of Civil and Environmental Engineering (B.S.E.), University of Michigan, Ann Arbor, December 1992.

### Memberships in Professional Societies

- American Geophysical Union, Geological Society of America, Geochemical Society, Tau Beta Pi, Chi Epsilon.

### Non-Refereed Proceedings and Transactions

- \* denotes MS or PhD student supervised; \*\* denotes undergraduate supervised.
112. Callahan, R. P.\*, Riebe, C. S., Granke, S. B. -M.\*, Carr, B. J., Hayes, J. L., Schell, M. S.\*, and Sklar, L. S., 2020. Anisovolumetric weathering is the norm, not the exception, in granitic saprolite. AGU Annual Meeting.
  111. **Invited:** Riebe, C. S., Sklar, L. S., and Lukens, C. E.\* 2020. Is more better? Sediment production, weathering, and erosion inferred from multiple geochemical proxies and comprehensive field measurements in mountain catchments. EGU Annual Meeting. doi: 10.5194/egusphere-egu2020-13564.
  110. Sklar, L. S., and Riebe, C. S. 2020. A process-based model for production and evolution of sediment particles by physical and chemical weathering in mountain catchments. EGU Annual Meeting. doi: 10.5194/egusphere-egu2020-13008.
  109. Riebe, C. S., and Callahan, R. P.\* 2019. Mountain ecosystem response to drought moderated by lithologic and climatic controls on subsurface water-storage capacity. AGU Annual Meeting.
  108. Granke, S.\*, and Riebe, C. S. 2019. Relative importance of physical and chemical weathering in saprolite porosity production across a steep climate gradient. AGU Annual Meeting.
  107. Callahan, R. P.\*, and Riebe, C. S. 2019. Strong lithologic and climatic control on deep subsurface weathering revealed in landscape-scale porosity distributions. AGU Annual Meeting.
  106. Riebe, C. S., and Callahan, R. P.\* 2019. Lithologically mediated feedbacks between subsurface weathering and ecosystem productivity. Goldschmidt Conference, Barcelona, Spain.
  105. **Invited:** Riebe, C. S. Rock, water, life and death in a Sierra Nevada forest: Effects of lithology and weathering on landscape evolution and ecosystem resistance to drought. Gilbert Club Annual Meeting, held at University of Maryland, College Park, Maryland, USA., December 15, 2018.
  104. Sklar, L. S., and Riebe, C. S. 2018. Downvalley fining of hillslope sediment size in an alpine catchment. AGU Annual Meeting.
  103. Callahan, R. P.\*, Riebe, C. S., Holbrook, W. S., and Goulden, M. 2018. Climatic and lithologic controls on critical zone structure and ecosystem productivity in the Sierra Nevada, California. AGU Annual Meeting.
  102. **Invited:** Riebe, C. S., Callahan, R. P.\*, and Arvin, L. J.\* 2018. Built on bedrock, running on dust: Controls on ecosystem productivity and vulnerability in the Sierra Nevada, California. Goldschmidt Conference, Boston, Massachusetts.

101. Aarons, S. M. , Arvin, L. J.\* , Aronson, E. L., Aciego, S. M., Riebe, C. S., Hart, S. C., and Carey, C. J. 2018. Competing droughts affect dust delivery to the Sierra Nevada. Goldschmidt Conference, Boston, Massachusetts.
100. Hart, S. C., Aarons, S., Aciego, S., Aronson, E., Barnes, M., Blakowski, M., Carey, C., Christensen, J., Coble, A., Dove, N., Gu, C., Maltz, M., Nwosu, G., O'Day, P., Riebe, C., and Zhu, M. 2018. Ashes to ashes, dust to dust: the significance of aeolian particulate inputs to temperate ecosystems. Ecological Society of America Annual Meeting, New Orleans, LA.
99. Preece, J. R., Shinker J. J., Riebe, C. S. 2018. A Comparison of Seasonal Precipitation Response to Strong ENSO Events Between Drainage Basins in Wyoming J. AAG Annual Meeting, New Orleans, LA.
98. Riebe, C. S., Arvin, L.\* , Ferrier, K. L., and Aciego, S. M. 2017. Dust and chemical erosion biases in cosmogenic nuclide studies: A factor-of-ten problem that could mask strong climatic effects on landscape evolution. AGU Annual Meeting.
97. **Invited:** Riebe, C. S., Callahan, R. P.\* , Goulden, M., Pasquet, S., Flinchum, B. A., Taylor, N. J.\* and Holbrook, W. S. 2017. The influence of subsurface porosity and bedrock composition on ecosystem productivity and drought resilience in the Sierra Nevada Batholith, California. AGU Annual Meeting.
96. Callahan, R. P.\* , Riebe, C. S., and Ferrier, K. L. 2017. Mountain erosion over decades and millennia: New insights from sediment yields and cosmogenic nuclides. AGU Annual Meeting.
95. Carr, B., Zhang, Y., Ren, S., Flinchum, B. A., Parsekian, A., Holbrook, W. S., Riebe, C. S., Moravec, B. G., Chorover, J., Pelletier, J. D., and Richter, D. 2017. Insights into the base of the critical zone from geophysical logging and groundwater flow testing at U.S. Critical Zone Observatories (CZO) and critical zone study sites (CZs). AGU Annual Meeting.
94. Klos, P. Z., Goulden, M., Riebe, C. S., Tague, C., O'Geen, A.T., Flinchum B.A., Safeeq, M. Conklin, M., Hart, S., Berhe, A.A., Hartsough, P., Holbrook, W.S., and Bales, R. 2017. Predicting plant-accessible water in the critical zone: Mountain ecosystems in a Mediterranean climate. AGU Annual Meeting
93. Preece, J. R., Shinker J. J., Riebe, C. S. 2017. Examining the relationship between ENSO and seasonal precipitation across drainage basins within the state of Wyoming. Great Plains/Rocky Mountains Regional AAG Meeting, Grand Forks, ND.
92. Huntington, K.W., Klepeis, K., Cassell, E. J., Currie, C. A., DiBiase, R. A., Kirkby, E., Lang, K. A., Pazzaglia, F., Riebe, C. S., and Zeitler, P. 2017. Understanding the dynamic interactions between Earth-surface processes and tectonics: Opportunities for progress from outcrop to global scales. Geological Society of America Annual Meeting, Seattle, USA.
91. **Invited:** Riebe, C. S., Arvin, L. J.\* , Carey, C. J., Aciego, S. M., Aarons, S. M., Blakowski, M. A., Hart, S. C., and Aronson, E. 2017. Reevaluating the role of dust in mountain ecosystems: Insights from tracer isotopes, microbial genomics, and global databases. Goldschmidt, Paris, France.
90. Arvin, L. J.\* , Riebe, C. S., Aciego, S., and Blakowski, M. 2016. Global datasets and Nd isotopes in pine needles estimate dust inputs to ecosystems in eroding landscapes. AGU Annual Meeting.
89. Taylor, N. J.\* , Riebe, C. S., Dueker, K. G., Goulden, M., Flinchum, B. A., Pasquet, S., Callahan, R. P.\* , Hahm, W. J., Keifer, I. S., and Holbrook, W. S. 2016 Comprehensive seismic surveys suggest that subsurface water-holding capacity is secondary to bedrock nutrient content as a regulator of vegetation productivity in the Sierra Nevada Batholith, California. AGU Annual Meeting.
88. Callahan, R. P.\* , Taylor, N. J.\* , Pasquet, S., Dueker, K. G., Riebe, C. S., and Holbrook, W. S. 2016 Probing the critical zone using passive- and active-source estimates of subsurface shear-wave velocities. AGU Annual Meeting.
87. Lukens, C. E.\* , Shuster, D. L., Sklar, L. S., and Riebe, C. S. 2016. Spatial variations in the size distribution of sediment supplied to channels: A synthesis of detrital thermochronometry from 11 size classes in Inyo Creek, California. AGU Annual Meeting.

86. Lukens, C. E.\* , Riebe, C. S., Shuster, D. L., and Sklar, L. S. 2016. Grain-size bias in detrital thermochrometry: implications for interpreting sediment provenance and landscape evolution. Geological Society of America, Annual Meeting, Denver, Colorado.
85. Arvin, L. J.\* , Riebe, C. S., Aciego, S., and Blakowski, M. 2016. Nd isotopes in soils and pine needles trace aeolian inputs to Sierra Nevada ecosystems. Goldschmidt, Yokohama, Japan.
84. Callahan, R. P.\* , Riebe, C. S., and Dosseto, A. 2016. Using cosmogenic and U-series nuclides in stream sediment to test hypotheses about mountain landscape evolution. Goldschmidt, Yokohama, Japan.
83. Malone, M. S.\*\* , Lukens, C. E.\* , Riebe, C. S., and Sklar, L. S. 2016. Variations in chemical depletion across an altitudinal gradient in the Sierra Nevada, California. Geological Society of America, Rocky Mountain Regional Meeting.
82. Holbrook, W.S., Carr, B., Moon, S., Perron, J. T., Hayes, J. L., Flinchum, B. A., St Clair, J. T., Riebe, C. S., Richter, D., Leone, J. 2015. Weathering, Fractures and Water in the deep Critical Zone: Geophysical investigations in the US Critical Zone Observatories. AGU Annual Meeting
81. Lukens, C. E.\* , Riebe, C. S., Sklar, L. S., and Shuster, D. L. 2015. If rocks could talk: Origin stories of stream sediment told by apatite helium ages and cosmogenic nuclides. AGU Annual Meeting
80. Hayes, J. L.\* , Riebe, C. S., Holbrook, W. S., and Hartsough, P. C. 2015. Generating porosity in the critical zone: Does volumetric strain dominate chemical mass loss? AGU Annual Meeting
79. Taylor, N. J.\* , Dueker, K. G., and Riebe, C. S., 2015. Three-dimensional passive seismic imaging of near-surface weathering and its influence on overlying vegetation. AGU Annual Meeting
78. Nauer, C.\* , Dewey, J. C., Riebe, C. S., Reeter, D. K.\*\* , and Frost, B. R. 2015. Laboratory study of lithologic controls on solute fluxes from chemical weathering. AGU Annual Meeting
77. Carey, C., Hart, S. C., Riebe, C. S., Aciego, S., Blakowski, M., and Aronson, E. 2015. The role of elevation and time in structuring soil microbial communities in the Sierra Nevada Mountains, California. ESA Annual Meeting
76. Aronson, E., Carey, C., Riebe, C. S., Aciego, S., Blakowski, M., and Hart, S. C. 2015 Aeolian deposited microbial communities differ along an elevation gradient in the Southern Sierra CZO. ESA Annual Meeting.
75. Kirchner, J. W., and Riebe, C. S. 2015. Chemical weathering rates in granitic mountain catchments over 10-year and 10,000-year time scales. Goldschmidt Conference Abstracts, Goldschmidt Conference, Sacramento, California, August 16-21, 2015.
74. Reeter, D. K.\*\* , Nauer, C. E.\* , Dewey, J., Riebe C. S. 2015. Laboratory study of the influence of fluid residence time of granite weathering rates. GSA Cordilleran Section Meeting, May 2015
73. Ferrier, K. L., Riebe, C. S., Hahm, W. J. 2015. Testing for supply-limited and kinetic-limited chemical erosion in field measurements of regolith production and chemical depletion. AGU-CGU Joint Assembly, May 2015.
72. Riebe, C. S., Sklar, L. S., Overstreet, B. T.\* , Wooster, J. K., Bellugi, D. G. 2014. Reproductive potential of salmon spawning substrates inferred from grain size and fish length. AGU Fall Meeting.
71. Lukens, C. E.\* , Riebe, C. S., Sklar, L. S., Shuster, D. L. 2014. A widespread grain size bias in detrital cosmogenic nuclide studies: Implications for sampling in steep terrain. AGU Fall Meeting.
70. Sklar, L. S., Riebe, C. S., Bellugi, D. G., Lukens, C. E.\* Noll, C. 2014. Catchment power and the joint distribution of elevation and travel distance to the outlet. AGU Fall Meeting.
69. Ferrier, K. L., Riebe, C. S., Hahm, W. J.\* , Kirchner, J. W. 2014. Testing for supply-limited chemical erosion in field measurements of soil production and chemical depletion. AGU Fall Meeting. Lead author Ferrier was invited.
68. Aronson, E. L., Carey, C. J., Riebe, C. S., Aciego, S. M., Hart, S. 2014. Altitudinal Contrasts in Drought-Driven Aeolian Microbial Inputs to Montane Soil Ecology: Impacts of a 500-Year Drought in the Sierra Nevada, California. AGU Fall Meeting

67. Wilcox, A. C., Dekker, F. J.\*, Riebe, C. S. 2014. Sediment Budgeting in Dam-Affected Rivers: Assessing the Influence of Damming, Tributaries, and Alluvial Valley Sediment Storage on Sediment Regimes. AGU Fall Meeting.
66. **Invited:** Riebe, C. S., Hahm, W. J.\* 2014. Geologic limits on mountain ecosystem productivity and landscape evolution. Soil Science Society of America, Annual Meeting, Long Beach, California, November, 2014.
65. Sklar, L. S., Riebe, C. S., Overstreet, B. T., Wooster, J. K. 2014. Beyond the 10% rule: A new method for predicting salmon spawning potential from substrate grain size and fish length. 8<sup>th</sup> Biennial Bay-Delta Science Conference, Sacramento, October 28–30 2014.
64. **Invited & winner of Wiley Award:** Riebe, C. S., Granger D. E. 2014. Using cosmogenic nuclides in multiple detrital minerals to infer rates of erosion and differential weathering. British Society for Geomorphology, Annual Meeting, University of Manchester, England, UK, September 2, 2014.
63. Granger D. E., Riebe, C. S., Moore, A. K., Rogers, H. E.\*, Lifton, N. A. 2014. Production rate of <sup>10</sup>Be in magnetite. Session 12A, GAA-18, AMS 13, Aix en Provence, France, August 28, 2014.
62. Riebe, C. S., Rogers, H. E.\*, Moore, A. K., Granger, D. E., 2014. Differential weathering inferred from cosmogenic nuclides in multiple detrital minerals. Goldschmidt Conference Abstracts, Goldschmidt Conference, Sacramento, California, June 9, 2014.
61. **Invited:** Riebe, C. S., Hahm, W. J.\*, Lukens, C. E.\* 2013. Bedrock composition limits mountain ecosystem productivity and landscape evolution. AGU Fall Meeting.
60. Lukens C. E.\*, Riebe, C. S., Sklar, L. S., Shuster, D. L. 2013. Evidence for climatic and topographic control of the size and flux of eroded sediment across a steep mountain catchment. AGU Fall Meeting.
59. Rogers, H. E. \*, Riebe, C. S., Granger, D. E., 2013. Cosmogenic <sup>10</sup>Be in quartz and magnetite: Using the same nuclide in multiple minerals to quantify differential weathering. AGU Fall Meeting.
58. Granger, D. E., Rogers, H. E.\*, Riebe, C. S., Lifton, N. A., 2013. Production rate of cosmogenic <sup>10</sup>Be in magnetite. AGU Fall Meeting.
57. **Invited:** Riebe, C. S., Sklar, L. S., Lukens, C. E.\*, Shuster, D. L. 2013. Climate and topography control the size and flux of sediment produced on steep mountain slopes. Geological Society of America Annual Meeting, Denver, CO.
56. Hahm, W. J.\*, Riebe, C. S., Lukens, C. E., Araki, S.\* 2013. Strong lithologic control on mountain ecosystem productivity and landscape evolution. Geological Society of America Annual Meeting, Denver, CO.
55. Lukens C. E.\*, Riebe, C. S., Sklar, L. S., Shuster, D. L. 2013. Altitudinal variations in the size and flux of eroded sediment revealed by cosmogenic nuclides and detrital thermochronometry. 8th IAG International Conference on Geomorphology, Paris, France, August 27-31, 2013.
54. Hahm, W. J.\*, Riebe, C. S., Araki, S.\* 2013. Effects of bedrock nutrient density on life and topography in granitic landscapes. 8th IAG International Conference on Geomorphology, Paris, France, August 27th to 31st.
53. Orr, B. K., Riebe, C. S. & Peek, R. L. 2013. Linking Biological Responses To River Processes: Implications for conservation and management of the Sacramento River - a focal species approach, Middle Sacramento River Science Conference, hosted by The Nature Conservancy and the USFWS Sacramento River National Wildlife Refuge, Sacramento, CA, June 3-4, 2013.
52. Riebe, C. S., Hahm, W. J.\*, 2013. The influence of bedrock nutrient concentrations on life and topography in the Sierra Nevada Batholith. GSA Cordilleran Section Meeting, Fresno, CA, May 2013.
51. Valenzuela, R. A.\*\*\*, Riebe, C. S., Ramírez-Herrera, M. T., 2013. Contrasts in denudation rates, climate, subduction dip angles, and plate convergence rates along the southwestern Mexican coast. GSA Cordilleran Section Meeting, Fresno, CA, May 2013.
50. Granger, D. E., Reid, C. R., Riebe, C. S., 2013. Exhumation of the Granite Mountains, Wyoming from cosmogenic dipstick dating. GSA Cordilleran Section Meeting, Fresno, CA, May 2013.

49. Riebe, C. S., Sklar, L. S., Lukens, C. E.\*, Shuster, D. L., 2012. Altitudinal increase in size of sediment shed from slopes revealed by tracer thermochronometry. AGU Fall Meeting.
48. Lukens, C. E.\*, Riebe, C. S., Sklar, L. S., Shuster, D. L. 2012. Moving beyond the average in cosmogenic nuclide studies of erosion and weathering. AGU Fall Meeting.
47. Hahm, W. J.\*, Riebe, C. S., Araki, S.\* 2012. The effects of bedrock nutrient density on vegetation and topography in the Sierra Nevada Batholith, California. AGU Fall Meeting.
46. Holbrook, W. S., Riebe, C. S., Hayes, J. L., Reeder, K., Harry, D., Malazian, A., Dosseto, A., Hartsough, P., Hopmans, J. 2012 Geophysics in the Critical Zone: Constraints on deep weathering and water storage potential in the Southern Sierra CZO.
45. Garber, J. L., Wohl, E. E., Riebe, C. S. 2012. Using cosmogenic nuclides and geochemical mass balance measurements to characterize millennial-scale denudation rates in the Colorado Front Range. AGU Fall Meeting.
44. Beyeler, J. D., Sklar, L. S., Riebe, C. S. 2012. Combining natural experiments in source lithology with laboratory tumbling to quantify sediment resistance to comminution and its role in downstream fining. AGU Fall Meeting.
43. St. Clair, J. L., Holbrook, W. S., Riebe, C. S. 2012. Fractures in the Critical Zone: Insights from GPR and seismic refraction surveys. AGU Fall Meeting.
42. Hahm, W. J.\*, Araki, S.\*, Jessup, B. S.\*, Lukens, C. E.\*, Kelley, A. E., Riebe, C. S., 2012. Exploring the effects of bedrock nutrient density on life and topography in the Sierra Nevada Batholith, California. Goldschmidt Conference Abstracts, Goldschmidt Conference, Montreal, Quebec, Canada, August 2012.
41. Riebe, C. S., Granger D. E. 2011. Effects of chemical erosion on cosmogenic nuclide buildup in soils, saprolite and sediment. AGU Fall Meeting, Session EP41B.
40. Hayes, J. L., Holbrook, W. S., Riebe C. S. 2011. Critical zone weathering in the southern Sierra Nevada and Laramie Mountains imaged by seismic tomography. AGU Fall Meeting, Session H41D.
39. Overstreet B. T.\*, Riebe C. S., Wooster, J. K. 2011. Gauging the reproductive potential of salmon spawning substrates. AGU Fall Meeting Session EP43B.
38. Hahm, W. J.\*, Riebe C. S., Ferrier, K., Kirchner, J. W. 2011. From minerals to hillslopes: Towards an integrated framework for interpreting chemical and physical erosion. AGU Fall Meeting, Session EP43C.
37. Lukens, C. E.\*, Riebe C. S., Shuster, D. L., Sklar, L. S., Beyeler, J. D. 2011. Tracing the origins of coarse sediment in steep mountain catchments. AGU Fall Meeting, Session EP51A.
36. Beyeler, J. D., Sklar, L. S., Riebe C. S., Lukens, C. E.\* 2011. Predicting rates of bedload comminution from rock properties: scaling from lab to field using scanning electron microscopy. AGU Fall Meeting, Session EP51A.
35. **Keynote:** Riebe, C. S., Lukens, C. E.\*, Sklar, L. S., Beyeler, J. D., Shuster, D. L. 2011. Inferring process from provenance using apatite (U-Th)/He ages of coarse sediment in mountain streams. Mineralogical Magazine. Goldschmidt Conference Abstracts, Goldschmidt Conference, Prague, Czech Republic, August.
34. **Invited:** Riebe, C. S., Ferrier, K. L., Hahm, W. J.\*, and Kirchner, J. W. 2011. Supply-limited and kinetic-limited weathering. Mineralogical Magazine. Goldschmidt Conference Abstracts, Goldschmidt Conference, Prague, Czech Republic, August 2011.
33. Dosseto, A., and Riebe, C. S. 2011. Inception! Quantifying U-series disequilibria during the early stages of granite alteration. Mineralogical Magazine. Goldschmidt Conference Abstracts, Goldschmidt Conference, Prague, Czech Republic, August 2011.
32. Riebe, C. S., Overstreet, B. T.\*, Wooster, J. W. and Ligon, F. K. 2010. A New Tool for Assessing Salmon Spawning Substrates in Coarse Bedded Rivers. Abstract H43D-1292. American Geophysical Union Fall Meeting, San Francisco, December.
31. Jessup, B. S.\*, Miller, S. N., Kirchner, J. W. & Riebe, C. S. 2010. Erosion, Weathering and Stepped Topography in the Sierra Nevada, California; Quantifying the Dynamics of Hybrid (Soil-

- Bedrock) Landscapes. Abstract EP41D-0736. American Geophysical Union Fall Meeting, San Francisco, December.
30. Overstreet, B. T.\*, Riebe, C. S., Wooster, J. K. & Ligon, F. K. 2010. Limits on salmon spawning in coarse-bedded rivers. Abstract 25395. Ecological Society of America 95<sup>th</sup> Annual Meeting, Pittsburg, PA, August.
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