Curriculum vitae

Suzanne Prestrud Anderson

Department of Geological Sciences
Institute of Arctic and Alpine Research (INSTAAR)
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Education

Ph.D., Geology, University of California, Berkeley 1995
Dissertation: "Flow paths, solute sources, weathering, and denudation rates: The chemical geomorphology of a small catchment", *Advisor:* William E. Dietrich

M.S., Geology, University of Washington 1987
Thesis: "The upfreezing process and its role in sorted circles", *Advisor:* Bernard Hallet

B.S. cum laude, Chemistry, University of Puget Sound, Tacoma, Washington
Advisor: Tom Rowland 1979

Positions held

Professor, Dept. of Geological Sciences, University of Colorado, Boulder 2019-present
Fellow, Institute of Arctic and Alpine Research, University of Colorado, Boulder 2009-present
Professor, Dept. of Geography, University of Colorado, Boulder 2016-2018
Visiting Professor, Laboratory of Hydrology and Geochemistry of Strasbourg (LHYGES) University of Strasbourg, France 2012
Associate Professor, Dept. of Geography, University of Colorado, Boulder 2009-2016
Assistant Professor, Dept. of Geography, University of Colorado, Boulder 2004-2009
Research Associate, Institute of Arctic and Alpine Research, University of Colorado, Boulder 2003-2009
Assistant Research Scientist, Institute of Tectonics/Center for Study of Imaging and Dynamics of the Earth, UC Santa Cruz 1997-2003
Lecturer, Dept. of Earth Sciences, UC Santa Cruz 1997-1999
NSF Earth Sciences Post-doctoral Fellow, University of Wyoming 1995-1997
Mentors: James I. Drever and Neil F. Humphrey

Honors and Awards

Fellow, American Geophysical Union 2021
GK Gilbert Award in Surface Processes, American Geophysical Union 2020
Fellow, Geological Society of America 2019
Certificate of Recognition, International Association of GeoChemistry (IAGC) 2012
NSF Post-doctoral Fellowship in Earth Sciences 1995-1997
Outstanding Graduate Student Instructor Award, Univ of California, Berkeley 1994
NASA Graduate Student Fellowship in Global Change Research 1991-1994
Searles Fellowship, Regents Fellowship, University of California, Berkeley 1989,1990

Professional Memberships

American Association for the Advancement of Science
American Geophysical Union
Geochemical Society
Geological Society of America
International Association of GeoChemistry
International Glaciological Society

Publications

Peer-reviewed journal articles and book chapters

†Post-doc, *Graduate student, **Undergraduate student

70. Tyler, SW, Kent, J, **Anderson, SP**, Brooks, PD, Packman, AI, Uijlenhoet, R, Western, AW, Zeng, X (2023): Reflections and thoughts on the future of science from AGU Hydrology Section Fellows. *Perspectives of Earth and Space Sciences*, 4(1), e2023CN000206, doi: 10.1029/2023CN000206.
    This publication is a video recording of a conversation between a group of recent AGU Fellows.
69. *Corona, CR, Ge, S, and **Anderson, SP** (2023): Water table response to extreme precipitation events. *Journal of Hydrology*, 618, 129140, doi: 10.1016/j.jhydrol.2023.129140
68. Jansen, JD, Sandiford, M, Fujioka, T, Cohen, TJ, Struck, M, **Anderson, SP**, Anderson, RS, Wilcken, K and Egholm, DL (2022): Geomorphic imprint of dynamic topography and intraplate tectonism in central Australia. *Earth and Planetary Science Letters, 554*, doi: 10.1016/j.epsl.2022.117456
67. *Rush, M, Rajaram, H, Anderson, RS, and **Anderson, SP** (2021): Modeling aspect-controlled evolution of ground thermal regimes on montane hillslopes. *Journal of Geophysical Research - Earth Surface* 126, e2021JF006126, doi:10.1029/2021JF006126
66. †Wlostowski, AN, Molotch, N, **Anderson, SP**, Brantley, S, Chorover, J, Dralle, D, Kumar, P, Li, L, Lohse, K, Mallard, JM, McIntosh, JC, Murphy, SF, Parrish, E, Safeeq, M, Seyfried, M, Shi, Y, and Harman, C (2021): Signatures of hydrologic function and coevolution across the Critical Zone Observatory Network. *Water Resources Research* 57, e2019WR026635, doi:10.1029//2019WR026635
65. *Martin, C, Kampf, SK, Hammond, JC, Wilson, C, and **Anderson, SP** (2021): Controls on streamflow densities in semiarid Rocky Mountain catchments. *Water* 13(4), 521, doi: 10.3390/w13040521
64. **Anderson, SP**, Kelly, PJ, *Hoffman, N, Barnhart, K, Befus, K, and Ouimet, W (2021): Is this steady state? Weathering and critical zone architecture in Gordon Gulch, Colorado Front Range. *In* Hydrogeology, Chemical Weathering, and Soil Formation, AGU Geophysical Monograph 257, ed. by AG Hunt, M Egli, and B Faybishenko, John Wiley & Sons, Inc., p. 231-252, doi: 10.1002/9781119563952.ch13
63. †Rossi, MW, Anderson, RS, **Anderson, SP** and Tucker, GE (2020): Orographic controls on sub-daily rainfall statistics and flood frequency in the Colorado Front Range, USA. *Geophysical Research Letters* 47, e2019GL085086, doi: 10.1029/2019GL085086.
62. **Anderson, SP** (2019): Breaking it down: Mechanical processes in the weathering engine. *Elements* (15): 247-252, doi: 10.2138/gselements.15.4.247.
61. Anderson, RS, Rajaram, H, and **Anderson, SP** (2019): Climate driven co-evolution of weathering profiles and hillslope topography generates dramatic differences in critical zone architecture. *Hydrological Processes* 33(1): 4-19, doi: 10.1002/hyp.13307.
60. Richter, D, Billings, S, Groffman, P, Kelly, E, Lohse, K, McDowell, W, Riebe, C, Silver, W, White, T, **Anderson, SP**, Brantley, S, Brecheisen, Z, Chadwick, O, Hartnett, H, Hobbie, S, Kazanski, C, Markewitz, D, O'Neill, K, Schroeder, P, and Thompson, A (2018): Ideas and perspectives: Strengthening the biogeosciences in environmental research networks. *Biogeosciences* 15, 4815-4832, doi: 10.5194/gb-15-4815-2018.
59. Litaor, MI, Suding, K, **Anderson, SP**, Litus, G, and Caine, TN (2018): Alpine catena response to nitrogen deposition and its effects on the aquatic system. *Catena* 170: 108-118, doi: 10.1016/j.catena.2018.06.004.
58. *Von Voigtlander, J, Clark, MK, Zekkos, D, *Greenwood, WW, **Anderson, SP**, Anderson, RS, and Godt, JW (2018): Strong variation in weathering of layered rock maintains hillslope-scale strength under high precipitation. *Earth Surface Processes and Landforms*, 43: 1183-1194, doi: 10.1002/esp.4290.

57. Brantley, SL, McDowell, W, Dietrich, WE, White, TS, Kumar, P, **Anderson, SP**, Chorover, J, Lohse, KA, Bales, R, Richter, D, Grant, G, and Gaillardet, J (2017): Designing a network of Critical Zone Observatories to explore the living skin of the terrestrial Earth. *Earth Surface Dynamics* 5:841-860, doi: 10.5194/esurf-5-841-2017.
56. *Aguirre, A, Derry, LA, *Mills, TJ, and **Anderson, SP** (2017): Colloidal transport in the Gordon Gulch catchment of the Boulder Creek CZO and its effect on C-Q relationships for silicon. *Water Resources Research* 53, 2368-2383, doi: 10.1002/2016WR019730.
55. †Hinckley, ES, Ebel, BA, Barnes, RT, Murphy, SF, and **Anderson, SP** (2017): Critical zone properties control the fate of nitrogen during experimental rainfall in montane forests of the Colorado Front Range. *Biogeochemistry* 132 (1): 213-231, doi:10.1007/s10533-017-0299-8.
54. *Mills, TJ, **Anderson, SP**, Bern, C, *Aguirre, A, and Derry, LA (2017): Colloid mobilization and seasonal variability in a semi-arid, headwater stream. *Journal of Environmental Quality* 46 (1): 88-95, doi:10.2134/jeq2016.07.0268.
53. Hinckley, E-L, **Anderson, SP**, Baron, JS, Blanken, PD, Bonan, G., Bowman, WD, Elmendorf, S, Fierer, N, Fox, A, Goodman, K, Jones, K, Lombardozzi, D, Lunch, C, Neff, J, SanClements, M, Suding, K, and Wieder, W (2016): Optimizing available network resources to address questions in environmental biogeochemistry. *BioScience* XX: 1-10, doi:10.1093/biosci/biw005.
52. White, T, Brantley, S, Banwart, S, Chorover, J, Dietrich, W, Derry, L, Lohse, K, **Anderson, SP**, Aufdenkampe, A, Bales, R, Kumar, P, Richter, D, and McDowell, B (2015): Chapter 2—The role of critical zone observatories in critical zone science. *In*: Developments in Earth Surface Processes 19:15-78, doi:10.1016/B978-0-444-63369-9.00002-1.
51. †Mavris, C, Furrer, G, Dahms, D, **Anderson, SP**, Blum, A, Goetze, J, Wells, A, and Egli, M (2015): Decoding potential effects of climate and vegetation change on mineral weathering in alpine soils: An experimental study in the Wind River Range (Wyoming, USA). *Geoderma* 255-256: 12-26, doi:10.1016/j.geoderma.2015.04.014.
50. *Langston, A, Tucker, GE, Anderson, RS, and **Anderson, SP** (2015): Evidence for climatic and hillslope-aspect controls on vadose zone hydrology and implications for saprolite weathering, *Earth Surface Processes and Landforms* 40:1254-1269, doi:10.1002/esp.3718.
49. Anderson, SW, **Anderson, SP**, and Anderson, RS (2015): Exhumation by debris flows in the 2013 Colorado Front Range storm, *Geology* 43 (5): 391-394, doi:10.1130/G36507.1.
    This paper was the subject of a *Geology* Research Focus commentary: McCoy, SW (2015): Infrequent, large-magnitude debris flows are important agents of landscape change, *Geology* 43 (5): 463-464, doi:10.1130/focus052015.1.
48. †Hinckley, E-L, Barnes, RT, **Anderson, SP**, Williams, MW, and Bernasconi, S (2014): Nitrogen retention and transport differ by hillslope aspect at the rain-snow transition of the Colorado Front Range, *Journal of Geophysical Research-Biogeosciences* 119 (7): 1281-1296, doi:10.1002/2013JG002588.
47. *Gabor, RS, Eilers, KG, McKnight, DM, Fierer, N, and **Anderson, SP** (2014): From the litter layer to the saprolite: Chemical changes in water-soluble soil organic matter and their correlation to microbial community composition, *Soil Biology and Biochemistry* 68: 166-176, doi:10.1016/j.soilbio.2013.09.029.
46. **Anderson, SP**, Anderson, RS, Tucker, GE, and Dethier, DP (2013): Critical zone evolution: Climate and exhumation in the Colorado Front Range. *In* Abbot, LD and Hancock, GS, eds., Classic Concepts and New Directions: Exploring 125 Years of GSA Discoveries in the Rocky Mountain Region: Geological Society of America, Field Guide 33, p. 1-18, doi:10.1130/2013.0033(01).
45. Anderson, RS, **Anderson, SP**, and Tucker, GE (2013): Rock damage and regolith transport by frost: An example of climate modulation of critical zone geomorphology. *Earth Surface Processes and Landforms* 38: 299-316, doi:10.1002/esp.3330. (Publ. online 18 Oct 2012).
44. **Anderson, SP**, Anderson, RS, and Tucker, GE (2012): Landscape scale linkages in critical zone evolution. *Comptes rendus- Geoscience* 344: 586-596, doi:10.1016/j.crte.2012.10.008.

43. †Portillo, MC, **Anderson, SP**, and Fierer, N (2012): Temporal variability in the diversity and composition of stream bacterioplankton communities. *Environmental Microbiology* 14 (9): 2417–2428, doi:10.1111/j.1462-2920.2012.02785.x.
42. *Eilers, K, **Debenport, S, **Anderson, SP**, and Fierer, N (2012): Digging deeper to find unique microbial communities: the strong effect of depth on the structure of bacterial and archaeal communities. *Soil Biology & Biochemistry* 50: 58-65, doi:10.1016/j.soilbio.2012.03.011.
41. *Frederick, ZA, **Anderson, SP**, and Striegl, R, (2012): Annual estimates of water and solute export from 42 tributaries to the Yukon River. *Hydrological Processes* 26 (13): 1949–1961, doi: 10.1002/hyp.8255.
40. *Bartholomaus, TC, Anderson, RS, and **Anderson, SP** (2011): Growth and collapse of the distributed subglacial hydrologic system of Kennicott Glacier, Alaska, USA, and its effects on basal motion. *Journal of Glaciology* 57 (206): 985-1002.
39. †Hinckley, E-L, Ebel, BA, Barnes, RT, Anderson, RS, Williams, MW, and **Anderson, SP** (2014): Aspect control of water movement on hillslopes near the rain-snow transition of the Colorado Front Range, U.S.A. *Hydrological Processes* 28: 74-85, doi:10.1002/hyp.9549. (Publ. online 17 Oct 2012.)
38. *Riggins, SG, Anderson, RS, **Anderson, SP**, and Tye, AM (2011): Solving a conundrum of a steady-state hillslope with variable soil depths and production rates, Bodmin Moor, UK. *Geomorphology* 128: 73-84.
37. White AF, Schulz, MS, Vivit, DV, Blum, AE, Stonestrom, DA, and **Anderson, SP** (2008) Chemical weathering of a marine terrace chronosequence, Santa Cruz, California, I: Interpreting rates and controls based on soil concentration-depth profiles. *Geochimica et Cosmochimica Acta* 72: 36-68, doi: 10.1016/j.gca.2007.08.029
36. *Bartholomaus, TC, Anderson, RS, and **Anderson, SP** (2008) Response of glacier basal motion to transient water storage. *Nature Geoscience* 1: 33-37. (Published online: 20 December 2007)
This paper was accompanied by a cover photo on this inaugural issue of the journal and was featured in a Backstory piece titled "Midnight Glacier Hikes" (*Nature Geoscience* 1: E1).
35. **Anderson, SP**, von Blanckenburg, F, and White, AF (2007) Physical and chemical controls on the critical zone. *Elements* 3: 315-319.
34. Molnar, P.H., Anderson, R.S., and **Anderson, SP** (2007): Tectonics, fracturing of rock, and erosion. *Journal of Geophysical Research-Earth Surface* 112, F03014, doi:10.1029/2005JF000433, 12 pages.
33. Meier, MF, Dyurgerov, MB, *Rick, UK, O'Neel, S, Pfeffer, WT, Anderson, RS, **Anderson, SP**, and Glazovsky, AF (2007): Small glaciers dominate eustatic sea-level rise in the 21st century. *Science* 317 (5841): 1064-1067, doi:10.1126/science.1143906
32. *Ebel, BA, Loague, K, VanderKwaak, JE, Dietrich, WE, Montgomery, DR, Torres, R and **Anderson, SP** (2007): Near-surface hydrologic response for a steep, unchanneled catchment near Coos Bay, Oregon: 2. Physics-based simulations. *American Journal of Science* 307, 709-748, doi: 10.2475/04.2007.03.
31. *Ebel, BA, Loague, K, Dietrich, WE, Montgomery, DR, Torres, R, **Anderson, SP**, and Giambelluca, TW (2007): Near-surface hydrologic response for a steep, unchanneled catchment near Coos Bay, Oregon: 1. Sprinkling experiments. *American Journal of Science* 307, 678-708, doi: 10.2475/04.2007.02.
30. **Anderson, SP** (2007): Biogeochemistry of glacial landscape systems. *Annual Review of Earth and Planetary Sciences* 35: 375-399.
29. Nemergut, DR, **Anderson, SP**, Cleveland, CC, Martin, AP, Miller, AE, Seimon, A, and Schmidt, SK (2007): Microbial community succession in an unvegetated, recently-deglaciated soil. *Microbial Ecology* 53: 110-122 doi: 10.1007/s00248-006-9144-7. Published online 22 Dec 2006.
28. Walder, JS, Trabant, DC, *Cunico, M, Fountain, AG, **Anderson, SP**, Anderson, RS, **Malm, A (2006): Local response of a glacier to annual filling and drainage of an ice-marginal lake. *Journal of Glaciology* 52 (178): 440-450.

27. *Loso, MG, Anderson, RS, **Anderson, SP**, and Reimer, PJ (2006): A 1500-year record of temperature and glacial response inferred from varved Iceberg Lake, southcentral Alaska. *Quaternary Research* 66(1): 12-24.
26. Anderson, RS, Walder, JS, **Anderson, SP**, Trabant, DC, and Fountain, AG (2005): The dynamic response of Kennicott Glacier to the Hidden Creek Lake outburst flood. *Annals of Glaciology* 40: 237-242.
25. Walder, J.S., Trabant, DC, *Cunico, M, **Anderson, SP**, Anderson, RS, and Fountain, AG (2005): Fault-dominated deformation in an ice dam during annual filling and drainage of a marginal lake. *Annals of Glaciology* 40: 174-178.
24. †Skidmore, ML, **Anderson, SP,** Sharp, M, Foght, JM and Lanoil, BD, (2005): Comparison of microbial community compositions of two subglacial environments reveals a possible role for microbes in chemical weathering processes. *Applied Environmental. Microbiology,* 71(11): 6986-6997.
23. *Riihimaki, CA, *MacGregor, KR, Anderson, RS, **Anderson, SP**, and *Loso, MG (2005): Sediment evacuation and glacial erosion rates at a small alpine glacier. *Journal of Geophysical Research- Earth Surface* 110, F03003, doi:10.1029/2004JF000189, 17 pages.
22. **Anderson, SP** (2005): Glaciers show direct linkage between erosion rates and chemical weathering fluxes. *Geomorphology* 67 (1-2): 147-157.
21. *Loso, MG, Anderson, RS, **Anderson, SP** (2004): Post Little Ice Age record of coarse and fine clastic sedimentation in an Alaskan proglacial lake. *Geology* 32(12): 1065-1068.
20. Anderson, RS, **Anderson, SP**, *MacGregor, KR, Waddington, ED, *O'Neel, S, *Riihimaki, CA, and *Loso, MG (2004): Strong feedbacks between hydrology and sliding of a small alpine glacier. *Journal of Geophysical Research- Earth Surface* 109, F03005, doi:10.1029/2004JF000120, 17 pages.
19. **Anderson, SP**, **Longacre, SA, and *Kraal, ER (2003): Patterns of water chemistry and discharge in the glacier-fed Kennicott River, Alaska: Evidence for subglacial water storage cycles. *Chemical Geology* 202 (3-4): 297-312.
18. **Anderson, SP**, Walder, JS, Anderson, RS, *Kraal, ER, *Cunico, M., Fountain, AG, and Trabant, DC. (2003): Integrated hydrologic and hydrochemical observations of Hidden Creek Lake jökulhlaups, Kennicott Glacier, Alaska. *Journal of Geophysical Research- Earth Surface* 108(F1), 6003, doi:10.1029/2002JF000004, 19 pages.
17. **Anderson, SP**, Dietrich, WE, and Brimhall, GH, Jr. (2002): Weathering profiles, mass balance analysis, and rates of solute loss: Linkages between weathering and erosion in a small, steep catchment. *Geological Society of America Bulletin* 114(9): 1143-1158.
16. *Evans, MJ, Derry, LA, **Anderson, SP**, and France-Lanord, C (2001): A hydrothermal source of radiogenic Sr to Himalayan rivers. *Geology* 29(9): 803-806.
15. **Anderson, SP**, and Dietrich, WE (2001): Chemical weathering and runoff chemistry in a steep, headwater catchment. *Hydrological Processes* 15: 1791-1815.
14. *MacGregor, KR, Anderson, RS, **Anderson, SP**, and Waddington, E.D (2001): Numerical simulations of glacial-valley longitudinal profile evolution: Reply. *Geology* 29 (8): 760.
13. *MacGregor, KR, Anderson, RS, **Anderson, SP**, and Waddington, E.D (2000): Numerical simulations of glacial-valley longitudinal profile evolution. *Geology* 28 (11): 1031-1034.
12. **Anderson, SP**, Drever, JI, Frost, CD, and Holden, P (2000): Chemical weathering in the foreland of a retreating glacier. *Geochimica et Cosmochimica Acta* 64 (7): 1173-1189.
11. **Anderson, SP**, *Fernald, KH, Anderson, RS, and Humphrey, NF (1999): Physical and chemical characteristics of a spring flood event, Bench Glacier, Alaska: Evidence for water storage. *Journal of Glaciology* 45 (150): 177-189.
10. Torres, R, Dietrich, WE, Loague, K, Montgomery, DR, and **Anderson, SP** (1998): Unsaturated zone processes and the hydrologic response of a steep, unchanneled catchment. *Water Resources Research* 34 (8): 1865-1879.
9. **Anderson, SP**, Dietrich, WE, Montgomery, DR, Torres, R, Conrad, ME, and Loague, K (1997): Subsurface flow paths in a steep, unchanneled catchment. *Water Resources Research* 33 (12): 2637-2653.

8. **Anderson, SP**, Drever, JI, and Humphrey, NF (1997): Chemical weathering in glacial environments. *Geology* 25 (5): 399-402.
7. Montgomery, DR, Dietrich, WE, Torres, R, **Anderson, SP**, Heffner, JT, and Loague, K (1997): Hydrologic response of a steep unchanneled valley to natural and applied rainfall. *Water Resources Research* 33(1): 91-109.
6. **Anderson, SP**, Dietrich, WE, Torres, R, Montgomery, DR, and Loague, K (1997): Concentration-discharge relationships in a steep, unchanneled valley. *Water Resources Research* 33(1): 211-225.
5. **Anderson, SP**, and Anderson, RS (1990): Debris-flow benches: Dune contact deposits record paleo-sand dune positions in north Panamint Valley, Inyo County, California. *Geology* 18(6): 524-527.
4. Hallet, B., **Anderson, SP**, Stubbs, CW, and Gregory, EC, (1988): Surface soil displacements in sorted circles, western Spitsbergen. *In* Senneset, K., ed., Permafrost, Fifth International Conf. Proc. v.1: Trondheim, Norway, Tapir Publishers, p. 770-775.
3. **Anderson, SP** (1988): Upfreezing in sorted circles, western Spitsbergen. *In* Senneset, K., ed., Permafrost, Fifth International Conf. Proc. v.1: Trondheim, Norway, Tapir Publishers, p. 666-671.
2. **Anderson, SP** (1988): The upfreezing process: Experiments with a single clast. *Geological Society of America Bulletin* 100: 609-621.
1. Hallet, B, and **Prestrud, S** (1986): Dynamics of periglacial sorted circles in western Spitsbergen. *Quaternary Research* 26: 81-99, 10.1016/0033-5894(86)90085-2.

Textbook

Anderson, RS, and **Anderson, SP** (2010): *Geomorphology: The Mechanics and Chemistry of Landscapes*. Cambridge University Press, 340 pp.
Choice Outstanding Academic Title, 2011. Sales: 1356 in 2010; 1514 in 2011; 435 in 2012; 522 in 2013; 356 in 2014; 545 in 2015; 268 in 2016; 358 in 2017; 300 in 2018; 315 in 2019; 249 in 2020; 437 in 2021.

Children's book

Parrish, E and **Anderson, S** (2022): *The Living Landscape: Discovering the Critical Zone*. Muddy Boots, 32 pp.

Invited commentary

Anderson, SP (2012): How deep and how steady is the Earth's surface? *Geology* 40 (9): 863-864, doi:10.1130/focus092012.1.

Peer-reviewed short papers/extended abstracts for conferences

[Invited] Anderson, SP, †Hinckley, E-L, *Kelly, P, *Langston, A (2014): Variation in critical zone processes and architecture across slope aspects, *Procedia Earth and Planetary Science* 10: 28-33, doi:10.1016/j.proeps.2014.08.006. (10th International Symposium on Geochemistry of the Earth's Surface, Paris)

Anderson, SP, Anderson, RS, †Hinckley, ES, *Kelly, P, and Blum, AE (2011): Exploring weathering and regolith transport controls on critical zone development with models and natural experiments. *Applied Geochemistry* 26: S3-S5. (9th International Symposium on Geochemistry of the Earth's Surface, Boulder, CO)

*Langston, AL, Tucker, GE, Anderson, RS, and **Anderson, SP** (2011): Exploring links between vadose zone hydrology and chemical weathering in the Boulder Creek Critical Zone Observatory. *Applied Geochemistry* 26: S70-S71. (9th International Symposium on Geochemistry of the Earth's Surface, Boulder, CO)

[Invited] Anderson, SP, Bales, RC, and Duffy, CJ (2008): Critical Zone Observatories: Building a network to advance interdisciplinary study of Earth surface processes. *Mineralogical Magazine*, 72(1): 7-10, doi:10.1180/minmag.2008.072.1.7 (8th International Symposium on Geochemistry of the Earth's Surface, London)

Anderson, SP (2006): Case study: Impact of mineral surface area on solute fluxes at Bench Glacier, Alaska. *In* Knight, P., ed., Glacier Science and Environmental Change, Oxford: Blackwell Publishing, p. 75-78.

Anderson, SP, Mann, DH, and Blum, AE (2004): Chemical weathering along a deposequence of glacial loess-derived soils in Alaska. *In* Wanty, R. and Seal, R. (eds.) Eleventh International Symposium on Water-Rock Interaction, Vol. 1 Rotterdam: Balkema, p. 797-799.

Vivit, DV, Schulz, MS, White, AF, and **Anderson, SP** (2004): Cycling of Si in a marine terrace chronosequence demonstrated by pore-water Ge/Si ratios. *In* Wanty, R and Seal, R (eds.) Eleventh International Symposium on Water-Rock Interaction, Vol. 1 Rotterdam: Balkema, p. 887-890.

Anderson, SP (2002): A conceptual overview of the geochemistry of glaciation. *In* Abstracts Volume, Sixth International Symposium on the Geochemistry of the Earth's Surface (GES-6), p. 1-4.

Anderson, SP, Drever, JI, and Humphrey, NF (1996): Glacial chemical weathering regimes in relation to the continental norm. *In* Bottrell, S.H., ed., Proceedings of the Fourth International Symposium on the Geochemistry of the Earth's Surface, Leeds, University of Leeds Press, p. 529-533.

Anderson, SP, Dietrich, WE, Torres, R, Montgomery, DR, and Loague, K, (1993): A case for geochemical control of concentration-discharge relationships. *Chemical Geology* 107: 369-371. (Third International Symposium on Geochemistry of the Earth's Surface, Penn State)

Editorials, book reviews, reports

Fan, Y, Grant, G, and **Anderson, SP** (2019): Water within, moving through, and shaping the Earth's surface: Introducing a Special Issue on Water in the Critical Zone. *Hydrological Processes*1–6.https://doi.org/10.1002/hyp.13638.

Banwart, SA, Chorover, J, Gaillardet, J, Sparks, D, White, T, **Anderson, SP,** Aufdenkampe, A, Bernasconi, S, Brantley, SL, Chadwick, O, Dietrich, WE, Duffy, C, Goldhaber, M, Lehnert, K, Nikolaidis, NP, and Ragnarsdottir, KV (2013): *Sustaining Earth's Critical Zone: Basic science and interdisciplinary solutions for global challenges*. Workshop report, University of Sheffield, 48 p, ISBN: 978-0-9576890-0-8.

Anderson, SP and Gislason, S (2011): Preface: Geochemistry of the Earth's Surface, *Applied Geochemistry* 26: S1-S2, doi:10.1016/j.apgeochem.2011.02.123.

Anderson, SP (2010): Review of "Greetings from Spitsbergen: Tourists on the Eternal Ice 1827-1914" by John T. Reilly. *Arctic, Antarctic and Alpine Research, 42* (3): 376**.**

Loso, MG, Anderson, RS, Doak, DF, and **Anderson, SP** (2007): A disappearing lake reveals the Little Ice Age history of climate and glacier response in the icefields of Wrangell-St. Elias National Park and Preserve, *Alaska Park Science*, 6 (1): 30-35.

Brantley, SL, White, TS, White, AF, Sparks, D, Richter, D, Pregitzer, K, Derry, L, Chorover, J, Chadwick, O, April, R, **Anderson, SP** and Amundson, R. (2006): *Frontiers in Exploration of the Critical Zone:* Report of a workshop sponsored by the National Science Foundation (NSF), October 24-26, 2005, Newark, DE, 30p.

Anderson, SP, Blum, J, Brantley, SL, Chadwick, O, Chorover, J, Derry, LA, Drever, JI, Hering, JG, Kirchner, JW, Kump, LR, Richter, D, and White, AF (2004): Proposed initiative would study Earth's weathering engine, *Eos Transactions, AGU*, 85 (28): 265,269. (Note: AGU alphabetized author list)

Anderson, SP, and Blum, AE (2003): (Editorial) Controls on chemical weathering: small- and large-scale perspectives, *Chemical Geology*, **202** (3-4): 191-193.

Anderson, SP (2003): Glacier behavior linked to seasonal hydrology, *Witness the Arctic*, 10 (1): 17.

Jaeger, J, Hallet, B, Pavlis, T, Sauber, J, Lawson, D, Milliman, J, Powell, R, **Anderson, SP**, Anderson, R (2001): Orogenic and glacial research in pristine southern Alaska. *Eos, Transactions, AGU* 82 (19): 213-216.

Anderson, SP (1999): Review of "Soils and Geomorphology", third edition by P. Birkeland, *Eos Transactions.* **80** (44): 524.

In press

In review

*Selander, BD, Rossi, MW, and Anderson, SP: Mapping bedrock outcrops: An assessment of algorithms and their performance across diverse landscapes. *Geomorphology*, submitted July 19, 2023.

Repasch, M, Arcuri, J, Overeem, I, **Anderson, SP**, Anderson, RS, and Koch, JC: Impacts of convective storms on runoff, erosion, and carbon export in a continuous permafrost landscape. 12th International Conference on Permafrost, Whitehorse, Yukon Territory, Canada.

Anderson, SP, Cochran, C, Anderson, RS, Repasch, M, Arcuri, J, Overeem, I, and Koch, JC: A carbon budget for an icy riverine landscape. 12th International Conference on Permafrost, Whitehorse, Yukon Territory, Canada.

*Rick, B, McGrath, D, Lehmann, B, Fegel, T, Williams, K, and **Anderson, SP**: Influence of an active rock glacier on basin hydrology in the Front Range, Colorado. *Permafrost and Periglacial Processes*, submitted 10 March 2023; revision submitted 22 September 2023.

In preparation

*Salberg, L, **Anderson, SP**, and Ge, S: The role of groundwater in a montane, semi-arid, headwater catchment. *Hydrological Processes*, submitted 15 October 2022.

Rossi, MW, Tucker, GE, **Anderson, SP** and Anderson, RS: Coevolution of forest canopy and fractional soil cover revealed by high resolution mapping. For *Geology*.

Anderson, SP, †Wlostowski, A, and Murphy, SF: Hydrology in the transitional snow persistence zone: Runoff generation in a semi-arid basin. For *Hydrological Processes*.

Grant funding

Active grants

NSF-OPP ANS 2001225: Icy landscapes from the Brooks Range to the Beaufort Sea: Quantifying the mobilization, transport and deposition of sediment and carbon in Arctic Alaska. PI: I Overeem, Co-PI: RS Anderson, SP Anderson. $1,306,498. 9/1/20-8/31/23.

NSF-EAR-1822062: Topographic response to the transition from snowmelt- to rainfall-triggered extremes. PI: Matt Rossi, Co-PI: RS Anderson, SP Anderson, GE Tucker. $404,990. 3/1/18-6/30/24. (On NCTE)

NSF-EAR-2323568: Groundwater connection between glaciers and streams under a warming climate. PI: Shemin Ge, Co-PI: SP Anderson, Christopher Frissell (Salish Kootenai College). $750,000. 9/1/23-8/31/26.

Pending proposals

Past grants

NSF-EAR-1331828 Boulder Creek CZO II: Evolution, Form, Function, and the Future of the Critical Zone. PI: SP Anderson, Co-PI: RS Anderson, NP Molotch, H Rajaram, GE Tucker. $4,900,000. 10/1/13-11/30/20. NCE for this and its supplements to 11/30/22.

NSF-EAR-1929517: Supplement to Boulder Creek CZO II: Evolution, Form, Function, and Future of the Critical Zone. PI: SP Anderson. $725,000. 9/1/19-11/30/20. *(Maintains BcCZO for 1 year to see completion of student & postdoc projects and maintain field and data infrastructure.)*

NSF-EAR-1928430: Supplement to Boulder Creek CZO II: Evolution, Form, Function, and Future of the Critical Zone. PI: SP Anderson. $37,482. *(Supports 1 current graduate student to intern with the USGS for 3 months via the Non-Academic Research Internships for Graduate Students (INTERN) (NSF 18-102) program.)*

NSF-EAR 1818965: Supplement to Boulder Creek Critical Zone Observatory II: Evolution, Form, Function, and Future of the Critical Zone (*supports National Cross-CZO post-doc, 2nd year*). PI: SP

Anderson, Co-PI: RS Anderson, NP Molotch, H Rajaram, GE Tucker. $136,105. 12/1/17-11/30/20.

NSF-EAR-1840758: Supplement to Boulder Creek Critical Zone Observatory II: Evolution, Form, Function, and Future of the Critical Zone (*supports graduate students, post-docs, staff, and monitoring*). PI: SP Anderson. $670,423. 4/1/19-11/30/20.

CU Boulder Outreach Committee Award: Past, Present, Future: Exploring Boulder's Natural Environment. PI: K Suding, Co-PI: N Molotch, SP Anderson. $24,000. 7/1/19-6/30/20.

NSF-EAR-1623798 Supplement to Boulder Creek CZO II: Evolution, Form, Function, and the Future of the Critical Zone. PI: SP Anderson. $20,187. 2/1/16-1/31/17. *(Supported 3 RECCS REU students to continue working with their CZO mentors for a year.)*

USGS National Earthquake Hazards Reduction Program- 11651959. Evaluation of weathering on rock strength and slope-stability during large earthquakes: Collaborative Research with University of Michigan and University of Colorado Boulder. PI: Marin Clark (UM). Co-PI: RS Anderson, SP Anderson. $28,492. 12/1/14-11/30/15; no-cost time extension to 11/30/2016.

NSF-EAR-1415571 RAPID: Effects of an extreme rain event in the Boulder Creek CZO. PI: SP Anderson, Co-PI: RS Anderson, GE Tucker. $22,142. 1/15/14-12/31/14. (NCTE to 12/31/15)

NSF-EAR-1332257 Integrated Data Management System for Critical Zone Observatories. PI: Anthony Aufdenkampe (Stroud Water Research Center). CU has a subcontract for $67,000, and supplement for $62,584. 3/7/13-3/31/14 (no-cost time extension to 3/31/16).

NSF-EAR- 1441972 Supplement for Boulder Creek CZO II: Evolution, Form, Function, and the Future of the Critical Zone. PI: SP Anderson, Co-PI: RS Anderson, NP Molotch, H Rajaram, GE Tucker. $17,100. 6/1/14-5/31/15. *(This supplement supports a pilot REU for Colorado Community College students, which we ran jointly with CIRES.)*

NSF EAR-1239281 Boulder Creek Critical Zone Observatory Renewal: Weathered profile development in a rocky environment and its influence on watershed hydrology and biogeochemistry. PI: SP Anderson, Co-PI: RS Anderson, N Molotch, H Rajaram, GE Tucker. $1,000,000. 9/1/12-8/31/13 (no-cost time extension to 8/31/14).

NSF-EAR 0724960 Boulder Creek Critical Zone Observatory: Weathered profile development in a rocky environment and its influence on watershed hydrology and biogeochemistry. PI: SP Anderson, Co-PI: RS Anderson, N Fierer, AF Sheehan, and GE Tucker, plus 9 additional senior personnel at CU, Stanford, Williams College, Technical University of Munich, and USGS. $4,249,997. 9/1/07-8/31/12. (no-cost extension to 8/31/13)

NSF EAR-1051483 Instrumentation & Facilities: Upgrade of Laboratory Facilities for Sediment Characterization in the INSTAAR Sedimentology Laboratory. PI: Suzanne Anderson, Co-PIs: Mark Williams, Anne Jennings, Holly Barnard. $61,582. 4/1/12-3/31/13.

NSF-EAR 0950181 Supplement to CZO: Boulder Creek Critical Zone Observatory—Weathered profile development in a Rocky Environment and Its Influence on Watershed Hydrology and Biogeochemistry. This supplement funds data management for the National CZO program. $394032. 9/22/09-8/31/12.

NSF-EAR 0922307 Acquiring Airborne Lidar data to study hydrologic, geomorphologic, and geochemical processes at three Critical Zone Observatories (CZO). PI: Qinghua Guo, UC Merced. Co-PIs: SP Anderson, Roger Bales (UC Merced), Chris Duffy (Penn State). $675446 (budget for UC Merced). 9/15/09-8/31/12.

NSF-EAR 0836327 Supplement to CZO: Boulder Creek Critical Zone Observatory--Weathered Profile Development in a Rocky Environment and Its Influence on Watershed Hydrology and Biogeochemistry. This supplement funds travel and participation of a National Steering Committee for the CZOs. PI: SP Anderson. $111,471. 9/11/08-9/10/12.

CRCW (University of Colorado) Student Support for the 9th International Symposium on Geochemistry of the Earth's Surface. $2000. Submitted January 2011.

NSF-1115479 Student Support for the 9th International Symposium on Geochemistry of the Earth's Surface. PI: Suzanne Anderson. $16425. 1/1/11-12/31/11.

Army Research Office Terrestrial Sciences: Support for the 9th International Symposium on Geochemistry of the Earth's Surface. PI: Suzanne Anderson. $5000. 1/1/11-12/31/11.

NSF-1036598 RAPID: Collecting field data in support of LiDAR acquisition during maximum snow conditions and maximum leaf out in the Boulder Creek Critical Zone Observatory. PI: Suzanne Anderson. Co-PIs: Noah Molotch, Greg Tucker. $33150. 6/15/10-5/31/11.

NSF- 0949398 Acquisition of Liquid Chromatography and Sample Preparation Instrumentation for Enhanced Reconstruction of Quaternary Environmental Change. PI: Giff Miller. Co-PIs: Diane McKnight, Suzanne Anderson, Jason Neff, Sarah Spaulding. $203444. 6/1/10-5/31/11.

NSF-EAR 0930048 Acquisition and upgrade of instrumentation for research on transport and reactivity of dissolved and particulate organic materials in soils, sediments and the atmosphere. PI: Diane McKnight. Co-PIs: Mark Williams, Suzanne Anderson, Natalie Mladenov. $80,069. 12/15/09-11/30/10.

NSF-EAR 0549566 SGER: Glacial response to an outburst flood, Kennicott Glacier, Alaska. Co-PI with R.S. Anderson. $34,630. 1/1/06-12/31/06.

NSF EAR-0519060 (Geomorphology and Land-use Dynamics) The linkage of chemical and mechanical processes in the evolution of high surfaces of the Front Range crest, Colorado. PI: SP Anderson, Co-PI: RS Anderson. $201,689. 9/1/05-8/31/07.

NSF EAR-0447129 Acquisition and upgrade of instruments for research on water-rock interaction and sediment transport. PI: Suzanne Anderson; CoPIs: JT Andrews, A Jennings, D McKnight, M Williams. $56, 335. 4/15/05-3/31/06.

Council on Research and Creative Works Seed Grant (University of Colorado): Erosion in contrasting tectonic settings: Western Ghats and Himalaya, India. $7,000. 1/1/05-12/31/05.

NSF-0310313 (Hydrologic Sciences) Linkages between soil water and stream water: Hydrology and hydrochemistry in a dissected terraced landscape. $148,306. 9/1/03-8/31/06

NSF-0240676 (Arctic Natural Sciences) Collaborative research: The role of loess weathering in global geochemical cycles. Co-PI Dan Mann (Univ. of Alaska Fairbanks). CU budget: $255,310. 3/1/03-2/28/06. Transferred to University of Colorado, renumbered NSF-0345136.

NSF-0307221 Supplemental funding for Outbursts From an Ice-Dammed Lake: A Collaborative Study. $26,531. 2/1/03-11/31/03.

IGPP-UCSC minigrant. Hydrochemistry of Peasley Gulch, Wilder Ranch State Park. $5,847. 1/31/03-6/30/03.

NSF EAR-00113400 Iceberg Lake: a high resolution glacial record exposed in an outburst-drained proglacial lake. Co-PI with RS Anderson. $34,859. 4/1/01-3/31/02.

NSF OPP-9912129 Outbursts from an ice-dammed lake: A collaborative study. Collaborators Andrew Fountain (Portland State University) and Joseph Walder (USGS-CVO). UCSC budget: $105,507. 6/1/00-5/31/02 (REU Supplement awarded for $6,420).

NSF OPP-9818251 Collaborative research: Glacial valley profile evolution. PI: Robert Anderson (UCSC); Collaborator: Ed Waddington (University of Washington). UCSC budget: $273,987. 3/1/99-2/28/02.

NSF OPP-9812945 Outbursts from an ice-dammed lake: A collaborative study. Collaborators Andrew Fountain (Portland State University) and Joseph Walder (USGS-CVO). UCSC budget: $66,498. 1/1/99-1/31/00 (Includes REU supplement)

NSF Research Planning Grant for Women EAR-9706180 Toward a model of inorganic and organic carbon flux through a cycle of glacier advance and retreat, $17,922, 9/1/97-2/28/00.

NSF Earth Sciences Post-doctoral Research Fellowship EAR-9404465 Chemical denudation in glaciated environments, $72,000, 4/5/95-4/4/97.

Non-peer reviewed abstracts (presentations at conferences)

*Denotes student presenter
AGU = American Geophysical Union
EGU = European Geosciences Union
Goldschmidt = V.M. Goldschmidt Conference, largest annual international geochemistry meeting
GSA = Geological Society of America

2023

Repasch, M, Galy, V, Anderson, SP, Overeem, I, *Arcuri, J, Koch, J, and Anderson, RS (2023): Tracking the degradation of organic carbon in Arctic Rivers: Insights from RPO-14C analyses in the Canning River, Alaska. *Goldschmidt*, Lyons, France.

*Corona, C, Ge, S, and Anderson, SP (2023): Extreme precipitation variability and soil texture controls on water table response. *AGU23*, San Francisco, CA, 11-15 Dec 2023.

Rossi, MW, Tucker, GE, Anderson, RS, and Anderson, SP (2023): Agent-based modeling of soil production and sediment transport. *AGU23*, San Francisco, CA, 11-15 Dec 2023.

Overeem, I, Arcuri, J, Repasch, M, Anderson, RS, Anderson, SP, Urban, F, Koch, J, and Vachon, R (2023): Thermal state controls coupling discharge and sediment transport in Arctic rivers. *AGU23*, San Francisco, CA, 11-15 Dec 2023.

2022

[*Invited keynote*] Anderson, SP (2022): A layered approach to understanding the critical zone. *12th International Symposium on Geochemistry of the Earth's Surface*, Zurich, 24-29 July, 2022.

Parrish, E, Barnard, H., and Anderson SP (2022): Expanding critical zone science communication. *GSA Abstracts with programs* 54 (5): doi: 10.1130/abs/2022AM-379774.

Rossi, MW, Anderson, SP, Tucker, GE, and Anderson, RS (2022): Mapping patchy soil mantles using lidar topography in the Rampart Range, CO. *GSA Abstracts with programs* 54 (5): doi: 10.1130/abs/2022AM-381325.

*Arcuri, J, Overeem,I, Repasch, M, Anderson, RS, Anderson, SP, and Koch, JC (2022): Riverbanks on ice: Modeling thermal erosion by gravel-bedded Arctic rivers. *GSA Abstracts with programs* 54 (5): doi: 10.1130/abs/2022AM-382384

Repasch, MN, Anderson, SP, Koch, J, Rahman, S, Arcuri, J, Anderson, RS, and Overeem, I (2022): Feedbacks between permafrost thaw and oxidative weathering in the Arctic critical zone. *Fall Meeting, AGU*, Chicago, IL, 12-16 Dec 2022.

Anderson, SP, Repasch, MN, Overeem, I, Arcuri, J, Anderson, RS, and Koch, J (2022): Icy riverine landscapes: mobilization and fate of carbon-rich sediment in a periglacial braided river corridor. *Fall Meeting, AGU*, Chicago, IL, 12-16 Dec 2022.

*Corona, C, Ge, S, and Anderson, SP (2022): Water table response to extreme precipitation events. *Fall Meeting, AGU*, Chicago, IL, 12-16 Dec 2022.

*Arcuri, J, Overeem, I, Repasch, MN, Anderson, SP, Anderson, RS, and Koch, J (2022): Permafrost riverbanks shaped by thaw-dependent fluvial erosion. *Fall Meeting, AGU*, Chicago, IL, 12-16 Dec 2022.

Rossi, MW, Tucker, GE, Anderson, RS, and Anderson, SP (2022): Linking forest dynamics to soil production and hillslope denudation using numerical modeling and high resolution mapping. *Fall Meeting, AGU*, Chicago, IL, 12-16 Dec 2022.

2021

Janson, J, Sandiford, M, Fujioka, T, Cohen, TJ, Struck, M, Anderson, SP, Anderson, RS and Egholm, DL (2021): Geomorphic imprints of dynamic topography and intraplate tectonism in central Australia. *EGU General Assembly*, online, 19-30 April 2021, EGU21-9165.

*Selander, B, Anderson, SP, and Rossi, MW (2021): Evaluating bedrock outcrop mapping algorithms across diverse landscapes. *EGU General Assembly*, online, 19-30 April 2021, EGU21-6620.

Anderson, SP and Brantley, SL (2021): Whence the Critical Zone? *Goldschmidt Abstracts*, Lyons, France, 4-9 July 2021, , https://doi.org/10.7185/gold2021.7889

Anderson, SP, Salberg, L, and Ge, S (2021): Merging insight from solute fluxes and groundwater modeling in a semi-arid montane catchment. *Goldschmidt Abstracts*, Lyons, France, 4-9 July 2021, https://doi.org/10.7185/gold2021.8244

Anderson, RS, Anderson, SP, Tucker, GE, and Rossi, M (2021): Correspondence between Colorado Front Range batholiths and "erosion surfaces". *GSA Abstracts with programs* Vol 53, No. 6, doi: 10.1130/abs/2021AM-365825

Rossi, MW, Tucker, GE, Anderson, RS, Anderson, SP, and McGlinchy, J (2021): Influence of plants in elevation- and aspect-dependent emergence of bedrock tors in the Rampart Range, CO. *GSA Abstracts with programs* Vol 53, No. 6, doi: 10.1130/abs/2021AM-369423

*Salberg, L, Anderson, SP, and Ge, S (2021): Coupling field data and a flow model to characterize the role of groundwater in a montane, semi-arid, headwater catchment, Gordon Gulch, Colorado. *Fall Meeting, AGU,* New Orleans, LA, 13-17 Dec 2021.

Rossi, MW, Tucker, GE, Anderson, RS, Anderson, SP, and McGlinchy, J (2021): Driving hillslope evolution models using an agent-based model of forest dynamics and soil production. *Fall Meeting, AGU,* New Orleans, LA, 13-17 Dec 2021.

2020

Janson, J, Sandiford, M, Fujioka, T, Cohen, TJ, Struck, M, Anderson, SP, Anderson, RS and Egholm, DL (2020): Geomorphic imprint of dynamic topography and intraplate tectonism in central Australia. *EGU General Assembly*, 3-8 May 2020, Vienna, Austria.

Rossi, MW, Tucker, GE, Anderson, SP, and Anderson RS (2020): Simulating thin and patchy soils using an Agent-Based Model of forest dynamics, root growth, and soil production. Abstract, *Fall Meeting, AGU,* San Francisco, CA, 7-11 Dec 2020.

*Salberg, L, Anderson, SP, and Ge, Shemin (2020): Modeling groundwater-surface water interactions in a semi-arid, montane environment, Gordon Gulch, Colorado. Abstract, *Fall Meeting, AGU,* San Francisco, CA, 7-11 Dec 2020.

2019

*Greenwood, W, Zekkos, D, Clark, M, Cowell, K, Anderson, S, and Anderson R (2019): Seismic slope stability and characterization of a basaltic cliff at Kauhola Point on the Island of Hawaii. *7th International Conference on Earthquake Geotechnical Engineering*, Rome, Italy, 17-20 June 2019.

Heindel, RC, Putman, AL, Hinckley, E-L S, Murphy, SF, Repert, DA, and Anderson, SP (2019): Dry deposition delivers nutrients and heavy metals to the Colorado Front Range. *National Atmospheric Deposition Program Scientific Symposium and Fall Meeting*, 4-8 November 2019, Boulder, Colorado.

*Hoffman, N, Anderson, SP, and Wing, BA (2019): Hydrologic mixing model approach identifies saprolite as the source of inorganic colloids in a granitoid catchment. Abstract H43L-2203, *Fall Meeting, AGU*, San Francisco, CA, 9-13 Sept.

Rossi, MW, Anderson, RS, Anderson, SP and Tucker, GE (2019): Interactions among hydrologic and geomorphic thresholds in fluvial landscape evolution. Abstract EP33E-2375, *Fall Meeting, AGU*, San Francisco, CA, 9-13 Dec 2019.

Anderson, SP, Hinckley, ES, Ragar, D, Gill, N, and Parrish, EG (2019): A catchment in the transitional snow zone: Gordon Gulch, Boulder Creek Critical Zone Observatory. Abstract PA11C-0962, *Fall Meeting, AGU*, San Francisco, CA, 9-13 Dec 2019.

2018

Anderson, SP, Anderson, RS, and Rajaram, H (2018): Hillscapes in wet and dry conditions: Contrasting climates produce dramatically different critical zone architectures. *Goldschmidt Abstracts*, Boston, August 12-17, 2018.

Gold, A, Curry, R, Briggs, J, Smith, L, McNeal, KS, Atkins, RM, Batchelor, R, Luna, LM, and Anderson, SP (2018): Research experience for community college students: Expanding the pipeline for 2YC students into geoscience programs at 4YCs. *GSA Abstracts with programs* 50 (6), doi: 10.1130/abs/2018AM-323350.

*Hale, K, Wlostowski, AN, Badger, A, Anderson, SP, Godsey, S, and Molotch, NP (2018): Unpacking the influence of warming on hydrological partitioning in rain-snow transition zones of the western United States. Abstract H11R-0681 *Fall Meeting, AGU*, Washington, DC, 10-14 Dec.

Heindel, RC, Hinckley, ES, Murphy, SF, Repert, DA, and Anderson, SP (2018): Quantifying atmospheric dust deposition to the Colorado Front Range. Abstract A21I-0119 presented at 2018 *Fall Meeting, AGU*, Washington, DC, 10-14 Dec.

Rossi, MW, Anderson, RS, Anderson, SP and Tucker, GE (2018): Runoff and erosion thresholds dictated by the balance between stochastic rainfall statistics and Critical Zone architecture. Abstract EP23G-2221 *Fall Meeting, AGU*, Washington, DC, 10-14 Dec.

2017

Klein, TI, Anderson, SP, Murphy, SF, Rossi, M., Hammack, G, and Anderson, RS (2017): High-intensity rain storm connects hillslopes to channels in a steep semi-arid catchment. AGU Chapman Conference on *Extreme Climate Events on Aquatic Biogeochemical Cycles and Fluxes*, San Juan, Puerto Rico.

Anderson, SP, Wlostowski, A, Murphy, SF, Rock, ND, and Hoffman, C (2017): Runoff response in a semi-arid headwater driven by catchment-scale water movement. *GSA Abstracts with programs*, 49 (6), doi: 10.1130/abs/2017AM-306446.

Rossi, MW, Anderson, RS, Anderson, SP, and Tucker, GE (2017): Geomorphic implications on the orographic transition from snowmelt to rainfall triggered extremes in the Colorado Front Range. *GSA Abstracts with programs*, 49 (6), doi: 10.1130/abs/2017AM-308125.

*Glade, RC, Lanka, DJ, Anderson, SP, and Anderson, RS (2017): Legions of lobes: self-organization and movement of solifluction features at Niwot Ridge. *GSA Abstracts with programs*, 49 (6), doi: 10.1130/abs/2017AM-306312.

Smith, L, Gold, AU, Anderson, SP, Taylor, JL, Luna, LM, and Batchelor, R (2017): Research experience for community college students in critical zone science: Smoothing the pipeline for 2YC students into geoscience programs at 4YCs. *GSA Abstracts with programs*, 49 (6), doi: 10.1130/abs/2017AM-305594.

*Selander, B, Anderson, SP, and Rossi, M (2017): The breakdown: Hillslope sources of channel blocks in bedrock landscapes. *Eos Trans. AGU* 98 (52), Fall Meeting Suppl., Abstract EP33B-1938.

Anderson, SP, Rengers, FK, Foster, MA, Winchell, EW, and Anderson, RS (2017): Rainfall influence on styles of mass movement. *Eos Trans. AGU* 98 (52), Fall Meeting Suppl., Abstract EP51B-1638.

Anderson, RS, Rajaram, H, and Anderson, SP (2017): Effects of climate on co-evolution of weathering profiles and hillscapes. *Eos Trans. AGU* 98 (52), Fall Meeting Suppl., Abstract H44G-05.

*Rush, M, Rajaram, H, Anderson, RS, and Anderson, SP (2017): Modeling aspect controlled formation of seasonally frozen ground on montane hillslopes: A case study from Gordon Gulch, Colorado. *Eos Trans. AGU* 98 (52), Fall Meeting Suppl., Abstract H43S-05.

2016

*Greenwood, W, Clark, M, Zekkos, D, Von Voigtlander, J, Bateman, J, Lowe, K, Hirose, M, Anderson, SP, Anderson, RS, and Lynch, J (2016): Assessment of rock mechanical properties and seismic slope stability in variably weathered layered basalts. *Geophysical Research Abstracts* 18, EGU2016-11787.

Clark, M.K., Anderson, SP, Anderson, RS, and Zekkos, D. (2016): Effects of weathering on mechanical strength of layered basalts. *GSA Abstracts with Programs*, 48 (7), doi: 10.1130/abs/2016AM-284546

Smith, L, Gold, A, Anderson, SP, Taylor, J, and Batchelor, R (2016): Research Experience for Community College Students in Colorado: Insights on Improving the Pipeline of 2YC Students into the Geosciences. *GSA Abstracts with programs*, 48 (7), doi: 10.1130/abs/2016AM-281684.

*Ross, SL, and Anderson, SP (2016): Rock weathering observed in outcrops and in bedrock exposed by debris flows: A preliminary investigation of granodiorite weathering in a landscape context. *GSA Abstracts with programs*, 48 (7), doi: 10.1130/abs/ 2016AM-285787.

Anderson, SP, and Mills, TJ (2016): Seasonal variations in stream chemistry in a semi-arid montane headwater stream reveal changing hydrologic flowpaths. *Eos Trans. AGU* 97 (52), Fall Meeting Suppl., Abstract H54E-02.

2015

[*Invited*] Anderson, SP, Foster, MA, Anderson, SW, Dühnforth, M., and Anderson, RS (2015): Putting weathering into a landscape context: Variations in exhumation rates across the Colorado Front Range. *Geophysical Research Abstracts* 17, EGU2015-7992.

Mavris, C, Furrer, G, Dahms, D, Anderson, SP, Blum, A, Goetze, J, Wells, A, and Egli, M (2015): Mineral weathering experiments to explore the effects of vegetation shifts in high mountain region (Wind River Range, Wyoming, USA). *Geophysical Research Abstracts* 17, EGU2015-15638.

Pelt, E, Chabaux, F, Mills, TJ, Anderson, SP, and Foster, MA (2015): Saprolite formation rates using U-series isotopes in a granodiorite weathering profile from Boulder Creek CZO (Colorado, USA). *Geophysical Research Abstracts* 17, EGU2015-11724.

Anderson, SP, Foster, MA, Anderson, RS, and Anderson, SW (2015): Weathering, exhumation, and sediment production in granite steeplands. 25th Goldschmidt, Prague, August 16-21, 2015.

Anderson, SP, Dietrich, WE, Rempe, D, West, N, Brantley, SL, Bacon, AR, Buss, HL, Fisher, BA, Flinchum, B, Holbrook, S, Klos, PZ, Leopold, M, Moon, S, Nielson, T, Pelletier, J, and Terry, N. (2015): Seeking GUTH, the Grand Unified Theory of Hillslopes: Linking weathering, erosion and landscapes. *Eos Trans. AGU* 96 (52), Fall Meeting Suppl., Abstract EP34A-01.

2014

Mavris, C., Furrer, G., Anderson, SP, Blum, AE., Wells, A., Dahms, D., and Egli, M. (2014): Linking soil chemistry, treeline shifts and climate change: scenario modeling using an experimental approach. *Geophysical Research Abstracts* 16, EGU2014-7273.

Anderson, SW, Anderson, SP, Anderson, RS, and Schellhase, DA (2014): Exhumation by landslide-initiated debris flows in the 2013 Colorado Front Range storm. *Eos Trans. AGU* 95 (52), Fall Meeting Suppl., Abstract EP53B-3654.

Anderson, SP, Smith, L, Gold, AU, Batchelor, R, and Monday, B (2014): Attracting students into science: Insights From a Summer Research Internship Program for Community College Students in Colorado. *Eos Trans. AGU* 95 (52), Fall Meeting Suppl., Abstract ED31A-3426.

[*Invited*] Anderson, SP, Barnhart, K, Kelly, PK, Foster, MA, and Langston, A (2014): Using opposing slope aspects to understand water and energy flow controls on critical zone architecture. *Eos Trans. AGU* 95 (52), Fall Meeting Suppl., Abstract EP23E-3631.

*Barnhart, TB, Molotch, NP, Harpold, AA, Knowles, JF, and Anderson, SP (2014): Sensitivity of Hydrologic Partitioning to Snowpack Dynamics, Como Creek, CO. *Eos Trans. AGU* 95 (52), Fall Meeting Suppl., Abstract H51D-0643.

*Brenner, AE, Anderson RS, Anderson, SP, Winchell, EW, Schellhase, D, and Marquez, JA (2014): Reconstructing peak discharge in a Colorado Front Range headwater stream during the September 2013 storm. *Eos Trans. AGU* 95 (52), Fall Meeting Suppl., Virtual Abstract.

2013

Mavris, C., Anderson, S.P., Egli, M., Blum, A.E., Furrer, G., and Dahms, D. (2013): Linking soil chemistry, treeline shifts and climate change: a scenario. *V.M. Goldschmidt Conference*, Florence, Italy.

*Anderson, L.S., Anderson, R.S., and Anderson, S.P. (2013): Numerical modeling of fill-terrace formation in response to glacial-interglacial climate fluctuations: A case study from the Boulder Creek CZO. *GSA Abstracts with programs* 45(7): 409.

Anderson, S.P., and Rock, N. (2013): Snowmelt and rain in a marginal snowpack watershed: Amount and duration of water input controls runoff. *Eos Trans. AGU* 94 (52), Fall Meeting Suppl., Abstract EP13C-0881.

Brantley, S.L., White, T.S., Anderson, S.P., Bales, R.C., Chorover, J., and McDowell, W.H. (2013): Critical zone science and observatories. *Eos Trans. AGU* 94 (52), Fall Meeting Suppl., Abstract TH15D-01.

2012

Banwart, S.A., Anderson, S.P., Aufdenkampe, A.K., Bernasconi, S.M., Brantley, S.L., Chadwick, O.A., Chorover, J., Dietrich, W.E., Duffy, C.J., Gaillardet, J., Goldhaber, M.B., Lehnert, K.A., Nikolaidis, N.P., Ragnarsdottir, K.V., Sparks, D.L., and White, T.S. (2012): An international initiative for critical zone observatories (CZO) and research along environmental gradients. *Eurosoil* 2012.

Anderson, S.P., Anderson, R.S., Kelly, P.J., Tucker, G.E., and Wickert, A. (2012): Frost weathering: Climate control of regolith production and critical zone evolution. *Geophysical Research Abstracts* 14, EGU2012-6803.

[*Invited*] Anderson, S.P., Mills, T.J., and Gabor, R. (2012): Hydrochemistry of a variably snow-covered catchment. V.M. Goldschmidt Conference, Montreal, Canada. *Mineralogical Magazine*, 76(6) 1425.

[*Invited*] Anderson, S.P., Anderson, R.S., and Tucker, G.E. (2012): Landscape scale linkages in critical zone evolution. French Academy of Sciences symposium "L'érosion : des mécanismes élémentaires aux conséquences géodynamiques", Paris, 26-27 March.

[*Invited*] Anderson, S.P., Fierer, N., Gabor, R., Barnard, H., Anderson, R.S., Hoffman, B., and McKnight, D.M. (2012): Ecogeomorphology: Impressions of organisms in critical zone evolution. *Eos Trans. AGU* 93 (52), Fall Meeting Suppl., Abstract EP33C-08.

*Langston, A.L., Tucker, G.E., Anderson, R.S., Foster, M.A., and Anderson, S.P. (2012): Interpreting climate-driven aggradation and incision along the fringes of a decaying mountain range. *Eos Trans. AGU* 93 (52), Fall Meeting Suppl., Abstract EP53C-1056.

*Kelly, P.J., Anderson, S.P., and Blum, A.E. (2012): Rock strength reductions during incipient weathering. *Eos Trans. AGU* 93 (52), Fall Meeting Suppl., Abstract EP43B-0868.

*Riggins, S., Anderson, S.P., and Tye, A. (2012): Mineral transformations in and chemical evolution of mobile regolith on Osborn Mountain, Wyoming, USA. *Eos Trans. AGU* 93 (52), Fall Meeting Suppl., Abstract EP41D-0837.

Chorover, Jon, Anderson, S.P., Bales, R., Duffy, C., Scatena, F., Sparks, D., and White, T. (2012): Critical Zone Observatories (CZOs): Integrating measurements and models of Earth surface processes to improve prediction of landscape structure, function and evolution. *Eos Trans. AGU* 93 (52), Fall Meeting Suppl., Abstract GC54A-05.

2011

[*Invited*] Anderson, S.P., Tucker, G.E., Anderson, R.S., Langston, A., and Kelly, P. (2011): Rock into Regolith: Earth's Critical Zone on Volcanic Ocean Islands. *AGU Chapman conference* on The Galápagos as a Laboratory for Earth Science, Puerto Ayora, Galápagos, Ecuador, July, 2011.

Hinckley, E.S., Barnes, R.T., Williams, M.W., and Anderson, S.P. (2011) The fate of reactive nitrogen differs by hillslope aspect in montane forests of the Colorado Front Range, U.S.A. *Ecological Society of America* annual meeting abstract.

*Langston, A.L. Tucker, G.E., Anderson, R.S., and Anderson, S.P. (2011): Turning rock into saprolite: Linking observations and models of vadose zone dynamics and chemical weathering. *Eos Trans. AGU* 92 (52), Fall Meeting Suppl., Abstract EP23C-0768.

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Anderson, R.S., Anderson, S.P., and Tucker, G.E. (2011): Of Rock Damage and the Regolith Conveyor Belt: A Geomorphologist's View of the Critical Zone. *Eos Trans. AGU* 92 (52), Fall Meeting Suppl., Abstract EP44B-02.

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Anderson, S.P., Blum, A.E., Hinckley, E.S., Lee, J., Gilbert, R., Trotta, J., and Dethier, D. (2010): Slope aspect and weathering in the Colorado Front Range. V.M. Goldschmidt Conference, Knoxville, TN, Jun 13-18, *Geochim. Cosmochim. Acta Suppl.* 74(12): A21.

Hinckley, E.-L., Barnes, R.T., Williams, M.W., and Anderson, S.P. (2010): Mobilization and metabolism of deposited N in high montane forests of the Colorado Front Range, U.S. *Eos Trans. AGU* 91 (52), Fall Meeting Suppl., Abstract.

*Langston, A., Tucker, G.E., Anderson, S.P., and Anderson, R.S. (2010): Exploration of subsurface flow paths as a precursor to understanding the spatial pattern of weathering in a rocky landscape, *Eos Trans. AGU* 91 (52), Fall Meeting Suppl., Abstract.

Riggins, S.G., Anderson, S.P., and Anderson, R.S. (2010): Weathering in the cold: Granite hillslopes in Osborn Mountain, Wyoming and Bodmin Moor, UK, *Eos Trans. AGU* 91 (52), Fall Meeting Suppl., Abstract EP43A-0744.

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*Riggins, SG, Anderson, SP, and Anderson, RS (2009): Predicting Soil Production in Diverse Landscapes, *Eos Trans. AGU* 90 (52), Fall Meeting Suppl., Abstract EP51E-06.

Anderson, SP, Blum, A, Lee, J., Cowie, R., Williams, M., and Frederick, Z. (2009): Weathering, water, and slope aspect. *Eos Trans. AGU* 90 (52), Fall Meeting Suppl., Abstract EP53D-0639.

[*Invited*] Anderson, SP, Duhnforth, M., Anderson, R.S., Berlin, M., Dethier, D., Tucker, G., Wobus, C., Blum, A., Leopold, M., Williams, M., Befus, K., and Sheehan, A. (2009): Transient Events and Landscape Response in Boulder Creek, Colorado Front Range. *Eos Trans. AGU* 90 (52), Fall Meeting Suppl., Abstract EP44A-02

Anderson, R.S., Wobus, C., Berlin, M., Duhnforth, M., Tucker, G., and Anderson, S.P. (2009): History matters: The Large Scale Landscape Setting of the Boulder Creek Critical Zone Observatory. *Eos Trans. AGU* 90 (52), Fall Meeting Suppl., Abstract EP51E-01.

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*Riggins, SG, Anderson, SP, and Blum, AE (2008): Transformations across the bedrock/saprolite-regolith boundary. V.M. Goldschmidt Conference, July 13-18, Vancouver, B.C., *Geochim. Cosmochim. Acta Suppl.* 72(12): A798.

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2007

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*Frederick, ZA, Anderson, SP, and Striegl, RG (2007): Yukon River tributaries sum to total basin export based on solute loads. *Geological Society of America Annual Meeting*, 28-31 October, Denver.

Anderson, S.P., Blum, A.E., Dethier, D.P., Murphy, S.F., Williams, M.W., McKnight, D., Fierer, N., Tucker, G., Wobus, C., Anderson, R.S., Caine, N., Loague, K., Leopold, M., Voelkel, J., and Sheehan, A. (2007): Developing Methods to Test the

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Loso, M.G., Anderson, R.S., Anderson, S.P., Reimer, P.J. (2007): Sediments Exposed by Drainage of a Collapsing Glacier-Dammed Lake Show That Contemporary Summer Temperatures and Glacier Retreat Exceed the Medieval Warm Period in Southern Alaska. *Eos Trans. AGU* 88 (52), Fall Meeting Suppl., Abstract PP44A-01.

*Riggins, S., Tye, A., Anderson, S.P., and Smith, B. (2007): Processes influencing regolith development on Bodmin Moor, UK. *Eos Trans. AGU* 88 (52), Fall Meeting Suppl., Abstract H52B-06.

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Pfeffer, W.T., Rick, U.K., Engel, C., Anderson, R.S., Anderson, S.P., Meier, M.F., and Harper, J. (2007): Kinematic Constraints on Greenland's Contribution to Sea Level Rise in the Next Century. *Eos Trans. AGU* 88 (52), Fall Meeting Suppl., Abstract C53A-04.

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Hallet, B., and Anderson, S.P. (2007): The rich contributions of A.L. Washburn to permafrost and periglacial studies. *Eos Trans. AGU* 88 (52), Fall Meeting Suppl., Abstract C51C-01.

*Frederick, Z., Striegl, R., and Anderson, S.P. (2007): Breaking down the Yukon River: Analysis of solute chemistry in Yukon River tributaries. *Eos Trans. AGU* 88 (52), Fall Meeting Suppl., Abstract B41D-0755.

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*Cacy, C., Anderson, S.P., Mann, D., Blum, A. (2006): Chemical weathering in loess soils of the Matanuska Valley, Alaska. 102nd Annual Meeting of the Cordilleran Section, GSA, 81st Annual Meeting of the Pacific Section, AAPG, and the Western Regional Meeting of the Alaska Section, Anchorage, AK, May 8-10, 2006.

*Cacy, C., Anderson, S.P., Blum, A., and Mann, D. (2006): Chemical weathering in loess soils of the Matanuska Valley, Alaska, International Arctic Workshop, Boulder, CO, March 16-18, 2006.

Anderson, R.S., Anderson, S.P., and Riggins, S. (2006): Modeling chemical weathering rates at the bedrock-regolith interface, *Eos Trans. AGU*, 87 (36), Jt. Assem. Suppl., Abs H43F-03.

Loso, M., Anderson, R.S., Doak, D.F., and Anderson, S.P. (2006): A 1500-year record of temperature and glacial response from varved Iceberg Lake. *Alaska Park Science Symposium*. Park Science in Central Alaska: Crossing Boundaries in a changing Environment. Denali National Park and Preserve, Sept. 12-14, 2006.

Anderson, SP, Bartholomaus, TC, and Anderson, RS (2006): Sliding, water pressure, water chemistry and outburst floods at Kennicott Glacier, Alaska, *Eos Trans. AGU*, 87 (52), Abs. C54A-06.

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*Bartholomaus, TC, Anderson, RS, and Anderson, SP (2006): Melt Season Surface Velocities at the Kennicott Glacier, Alaska, Including Response to the 2006 Hidden Creek Lake Jökulhlaup, *Eos Trans. AGU*, 87 (52), Fall Meet. Suppl., Abs C33A-1252.

2005

[*Invited*] Anderson, S.P. (2005): Mechanical-chemical weathering linkage: erosion and solute fluxes due to glaciers. V.M. Goldschmidt Conference, Moscow, Idaho, *Geochimica et Cosmochimica Acta*, 69 (10S): A685.

*Eversole, E.K., Goetz, S., Ham, N., Anderson, S.P., Peters, S., Lawson, D., and Evenson, E. (2005): Geochemical analysis of ice, water and sediments at Matanuska Glacier, AK, Geological Society of America North-Central Section Annual Meeting.

[*Invited*] Anderson, S.P. (2005): Interactions between physical and chemical weathering. Geological Society of India, National Workshop on Sahyadri: Evolution and Erosional Processes, Bangalore, 9 May 2005.

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*Ebel, B., Loague, KM, Dietrich, WE, Montgomery, DR, Torres, R., Anderson, SP, Giambelluca, TW, VanderKwaak, JE. (2005): Process-based characterization of hydrologic-response for a steep, zero-order catchment. *Eos Trans. AGU.*, 86(52), Fall Meet. Suppl., Abstract H51C-0370.

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Molnar, P., Anderson, R.S., and Anderson, S.P. (2005): The roles of tectonics in erosion: Fracturing and fragmentation are key, rock uplift is not, *Eos Trans. AGU.*, 86(52), Fall Meet. Suppl., Abstract T31E-08.

Bain, D.J., Anderson, S.P., Bullen, T.D., Fitzpatrick, J., Schulz, M.S., Vivit, D.V., and White, A.F. (2005): Lithogenic vs Biogenic Stream Water Chemistry: Following the Solute Flush, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H22B-06.

*Cacy, C. and Anderson, S.P. (2005): Characterization of parent material in loess dominated soils, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H51C-0365.

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*Riihimaki, C.A., MacGregor, K.R., Anderson, R.S., Anderson, S.P., and Loso, M. G. (2003): Interpretation of fine and coarse sediment yield from Bench Glacier, Alaska. *Eos Trans. AGU,* 84 (46) Fall Meet. Suppl., Abstract H52A-1165.

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Anderson, SP, Dietrich, WE, Torres, R, Montgomery, DR, and Loague, K (1994): Water flowpaths in a small catchment during steady, artificial rain and a natural storm. Eighth International Conference on Geochronology, Cosmochronology, and Isotope Geology, *In* Lanphere, M.A., Dalrymple, G.B., and Turrin, B.D., eds, *U.S. Geological Survey Circular* C1107: 7.

Anderson, SP, Dietrich, WE, Torres, R, Montgomery, DR, and Loague, K (1993): Subsurface flow paths in a steep unchanneled valley: Results from deuterium and bromide tracer experiments. *Eos, AGU Trans* 74 (44): 290.

Torres, RX, Dietrich, WE, Anderson, SP, Loague, K, and Montgomery, DR (1993): Experimentally derived unsaturated flow fields from a steep unchanneled valley in coastal Oregon. *Eos, AGU Trans* 74 (44): 316.

Anderson, SP, Dietrich, WE, Brimhall, GH, Torres, R, and Montgomery, DR (1992): An experimental field study of chemical weathering. *AGU Chapman Conference on Tectonics and Topography*, Snowbird, Utah.

Montgomery, DR, Dietrich, WE, Torres, R, Anderson, SP, Heffner, JT, Sullivan, KO, and Loague, K (1990): Hydrologic experiments in a steep unchanneled valley: (1) Experimental design and piezometric response. *Eos, AGU Transactions* 71 (43): 1342.

Torres, R, Montgomery, DR, Anderson, SP, Dietrich, WE, and Loague, K (1990): Hydrologic experiments in a steep unchanneled valley: (2) Characterization of unsaturated flow. *Eos, AGU Transactions* 71 (43): 1342.

Anderson, SP, Montgomery, DR, Torres, R, Dietrich, WE, and Loague, KM (1990): Hydrologic experiments in a steep unchanneled valley: (3) Runoff chemistry dynamics. *Eos, AGU Transactions* 71(43): 1342.

Hallet, B, Prestrud, S, Gregory, EC, and Stubbs, CW (1987): Soil convection in periglacial sorted circles, western Spitsbergen. *GSA Abstracts with Programs,* p. 690.

Anderson, RS, Haff, PK, and Anderson, SP, (1987): Earth pillars of the Straight Cliffs, Kane County, Utah. *GSA Abstracts with Programs*, p. 573.

Hallet, B, Anderson, SP, Stubbs, CW, and Gregory, EC (1987): Active layer temperature and ice content, western Spitsbergen. *Eos, AGU Transactions* 26 (44): 1264.

Invited talks

(No abstract published, not listed above)

3 Nov 2022	University of Utah, Department of Geology and Geophysics colloquium, "*A layered approach to understanding the critical zone*"
21 Jan 2022	University of New Mexico, Department of Earth and Planetary Sciences colloquium, "*Characterizing the critical zone to advance understanding of water cycling and landscape evolution*".
5 Oct 2021	University of California Los Angeles, Department of Earth, Planetary & Space Sciences colloquium, "*Characterizing the critical zone to advance understanding of water cycling and landscape evolution*"
29 Sept 2021	University of Northern Colorado, Earth and Atmospheric Sciences Seminar Series, "*Characterizing the critical zone to advance understanding of water cycling and landscape evolution*"
5 Mar 2021	Gilbert Club, international geomorphology meeting (virtual in 2021), "*Inside the critical zone*"
9 Jan 2017	University of Potsdam, Germany, Earth Surface Processes speaker series, "*The critical zone: Geo-bio-hydro interactions that shape the Earth's surface*".
2 Nov 2016	Crowell Lecturer, University of California, Santa Barbara, Department of Earth Sciences, "*In the wake of a knick zone: From block fall to debris flows*"
12 May 2016	NSF EarthCube Building Block: Earth System Bridge, Environmental Chemistry Names/Ontology Workshop, Boulder, CO, "*Geochemistry Names: Geochemical data in the CZOs*".
14 Apr 2016	Montana State University, Department of Earth Sciences colloquium, "*The long and the short of it: Frost cracking, debris flows, and critical zone architecture*".
4 Mar 2016	University of Iceland, Faculty of Earth Sciences, Reykjavík, "*Weathering in glaciated landscapes*".
20 Nov 2015	University of Wisconsin-Madison, Department of Geosciences, Weeks Lecture Series, "*The long and the short of it: Frost cracking, debris flows, and critical zone architecture*".

23 Jun 2015	University of Wollongong, Australia, GeoQuest seminar, "*Variations in critical zone processes and architecture, Colorado Front Range, USA*".
14 Oct 2014	Rocky Mountain Hydrologic Research Center, 69th Annual meeting, Wild Basin lodge, Allenspark, CO, "*Exhumation by debris flows in the 2013 Front Range storm: A role in landscape response to base-level lowering*" (with Bob Anderson), and "*Groundwater in the 2013 storm*".
8 Oct 2014	University of Colorado, Boulder, School of the Environment and Sustainability 2014-15 Colloquium Series, "*The surprisingly deep history of Boulder's iconic landscape*".
22 Sep 2014	Critical Zone Observatories National All-Hands Meeting, Yosemite, California, 8 minute challenge talk: "*Natural experiments to test models: knickpoints, aspect, drill the ridge, and more*".
24 Oct 2013	NSF workshop on Drilling, Sampling, and Imaging the Depths of the Critical Zone, Denver, Colorado. "*Drill the Ridge examples, Coos Bay, Oregon and Boulder Creek, Colorado*"
20 Jun 2013	Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology & Geochemistry, Andover, New Hampshire. "*Weathering: When good minerals meet the Earth's surface*"
21 Feb 2013	Colorado School of Mines, Hydrology Program van Tuyl lecture series. "*Slope aspect controls on water, weathering, and critical zone evolution*"
15 Oct 2012	University of Texas, Austin, Jackson School of Geosciences. "*Boulder Creek CZO: Natural experiments to study critical zone evolution and function*"
5, 13 Apr 2012	University of Strasbourg, Laboratory of HYdrology and GEochemistry (LHyGeS) seminars. "*Boulder Creek CZO: Natural experiments to study critical zone evolution and function*" and "*Biogeochemistry of glacial landscape systems*"
25 Oct 2011	CUAHSI (Consortium of Universities for the Advancement of Hydrologic Science, Inc) cyberseminar. "*Boulder Creek CZO: Natural experiments to study critical zone evolution and function*"
25 Jul 2011	AGU Chapman Conference on The Galápagos as a Laboratory for Earth Science, Puerto Ayora, Galápagos, Ecuador. "*Rock to Regolith: Earth's Critical Zone on Volcanic Ocean Islands*"
1 Mar 2011	Woods Hole Oceanographic Institute, Geodynamics Program. "*Glaciers: Rivers of ice in surficial Earth systems*"
25 Oct 2010	University of Wyoming, Geology and Geophysics Distinguished Lecturer Series. "*Weathering, erosion and the critical zone*"
5 May 2010	Oregon State University, Water Resources Program seminar series. "*Weathering, erosion and the critical zone*"
5 Nov 2010	University of Michigan, Dept. of Geological Sciences Smith Lecture Series. "*Weathering, erosion and the critical zone*"
19 Apr 2009	University of Puget Sound, Chemistry Dept. Retirement Symposium for Dr. Ken Rousslang. "*Interdisciplinary science of Earth's Critical Zone: Where rocks meet water, air and life*"
17 Apr 2009	University of Oklahoma, School of Geology and Geophysics Colloquium. "*Biogeochemistry of glacial landscape systems*"
9 Feb 2009	Colorado State University, Geosciences Dept. Seminar. "*Boulder Creek Critical Zone Observatory*"
27 Feb 2008	Utah State University, Water Initiative Seminar. "*Biogeochemistry of glacial landscape systems*"
20 Feb 2008	University of Colorado, Hydrology, Water Resources, and Environmental Fluid Mechanics Seminar Series.
11 Apr 2005	Colorado State University, Geosciences Colloquium.
15 Mar 2005	Vanderbilt University, Earth and Environmental Sciences Colloquium.
27 Jan 2005	The Pennsylvania State University, Geosciences Colloquium.
2 Oct 2004	Keynote speaker, Binghamton Symposium- Weathering and Landscape Evolution, University of Kentucky.
27 Feb 2004	MIT, Earth, Atmosphere, and Planetary Sciences.
26 Feb 2004	Boston University, Dept. of Earth Sciences.

24 Oct 2003	University of Colorado, Geography.
14 Apr 2003	University of Colorado, CIRES.
19 Feb 2003	Stanford University, Hydrogeology Seminar.
24 Apr 2002	Colorado College, Geology Dept.
26 Sep 2001	University of Colorado, Geological Sciences Dept.
24 Sep 2001	University of Wyoming, Dept. of Geology and Geophysics.
4 Jun 2001	Stanford University, Environmental Fluid Mechanics Seminar.
16 Jul 2000	Wrangell-St. Elias National Park and Preserve, Arts and Science Lecture Series.
1 Feb 2000	Joint US-Japan Seminar on Hydrology and Biogeochemistry of Headwater Catchments, East-West Center, Honolulu, Hawaii. "*Chemical weathering and runoff chemistry in a steep, headwater catchment*"
19 Feb 1999	Jet Propulsion Laboratory, Pasadena, CA.
8 Apr 1998	Caltech Geology Club.
23 Oct 1997	University of Puget Sound, Chemistry Dept.
3 Feb 1997	University of Southern California, Dept. of Earth Sciences.
31 Jan 1997	Scripps Institution of Oceanography, UCSD.
8 Jan 1997	Stanford University, Hydrogeology Seminar.
21 May 1996	University of Washington, Dept. of Geological Sciences.
7 May 1996	University of California, Santa Cruz, Earth Sciences Dept.
30 Apr 1996	The Pennsylvania State University, Geosciences Dept.
29 Jan 1996	University of Wyoming, Dept. of Geology and Geophysics.
16 Dec 1995	Gilbert Club (International geomorphology meeting), UC Berkeley.
27 Nov 1995	University of Colorado, INSTAAR.
31 Oct 1995	The Pennsylvania State University, Geosciences Dept.
Aug 1988	University of Oslo, Dept. of Geography.

Teaching

Courses taught at CU

GEOL 1010 **Exploring Earth** (F2019, F2023). Enrollment 165.
GEOL 1170 **Our Deadly Planet** (Sp2022, Sp2023) Enrollment 60-168.
GEOL 3090 **Science Writing** (F2020) Enrollment 12.
GEOL/GEOG 4241 **Principles of Geomorphology** (F2009, F2010, F2012, F2013, F2014, F2015, F2016; Sp2020, Sp2021, Sp2022) Enrollment 12-30.
GEOL 5700 **The Cryosphere** (Sp2023) Enrollment 9.
GEOG 1011 Environmental Systems 2: **Landscapes and Water** (Sp2006; Sp2007; F2007; Sp2009; Sp2010; Sp2013; Sp2014; Sp2015; Sp2017; Sp2018) Physical geography core. Enrollment 100-150.
GEOG 4261 **Glaciers and Permafrost**, Course number has varied. Developed this course as Geog 4120/6181, Geol 4700/5700: (F2005, team taught with R.S. Anderson, Geol) 12 undergrad, 7 grad. Geog 4120/5100: (F2007) 10 undergrad, 4 grad. Geog 4120: (Sp2009, Sp2010) Enrollment 22-39. Geog 4261: (Sp2016, Sp2018) Enrollment12-18.
GEOG 4120/6181 Special Topics: **Wetland Environments** (F2004)
GEOG 4120 Special Topics: **Earth's Critical Zone**, Undergraduate course on critical zone science. 23 students, Spg 2011.
GEOG 5241 Special Topics in Physical Geography: **Extreme Events in the Critical Zone** (Sp2014). 6 students enrolled; regular attendance of ~10, incl. faculty, post-doc.
GEOG 5241 Special Topics in Physical Geography: **Earth's Critical Zone** (F2015). 8 students from 4 departments.
GEOG 5100 Special Topics: **Earth's Critical Zone** (F2008). 14 students from 5 departments.
GEOG 5100 Special Topics: **Watershed Weathering** (Sp2007) Graduate reading seminar with 4 students; regularly attended by 2 add'l students plus 1 other faculty member.

GEOG 6181 Special Topics: **Weathering Systems** (F2005) Graduate reading seminar with 4 students and regularly attended by 2 other faculty, 2 USGS scientists, 1 post doc.

Courses taught outside CU

University of Tsukuba, Japan, graduate summer course on **Critical Zone and Ecosystem Dynamics: Abandonment & Rebound**. (Sum2023). Enrollment 35 (16 international, 19 Japanese). Ten-day summer course for graduate students and post-docs on the critical zone and land-use change and their impacts on water, soils and society. One of 15 instructors from Japan, Taiwan, France, and USA; Taught unit on regolith, the weathering engine and geomorphology.

University of Michigan, Camp Davis field course, based in Jackson, WY. Earth/Environ 450 **Ecosystem Science of the Rocky Mountains** (Sum2022). Enrollment 24. Co-taught with Marin Clark a one-week unit on extreme weather and erosion in this month-long field course. First course in the 93-year history of Camp Davis with an all-female faculty (5 women faculty).

Courses taught prior to CU appointment

University of California, Santa Cruz

1999 Water Planet (ES 80) Developed gen-ed course on earth science of water. 55 students.
1998 Surface Processes in the Field (ES 139) 9 students.

University of California, Berkeley

1993 Geomorphology (as Graduate Student Instructor) Taught lab; earned teaching award.

Pasadena City College (Pasadena, CA)

1987-1988 Physical Geology.

Fort Steilacoom Community College (Lakewood, WA) and *Tacoma Community College (Tacoma, WA)*

1980-1981 Introduction to College Chemistry; Algebra; Trigonometry; Pre-Algebra Math

Postdoctoral Researchers Supervised

Marisa Repasch, 2022-24, NSF Polar Programs Post-doctoral Fellow, *Linking the physical and chemical drivers of carbon cycling in Arctic source-to-sink systems*, co-supervised with Shaily Rahman.

Matt Rossi, 2016-19, EarthLab (CU Grand Challenge project)/Boulder Creek CZO post-doc, co-supervised with Greg Tucker and Bob Anderson. (Now research scientist, EarthLab)

Christian Mavris, 2012-13, Visiting Swiss National Science Foundation Post-doctoral Fellow, *Global warming induced vegetation changes and their effects on mineral weathering in a cold-dry and alpine environment (Wind River Range)*. (Now post-doc at Natural History Museum, London)

Eve-Lyn Hinckley, 2009-11, NSF Earth Sciences Post-doctoral Fellow, *An Integrated Approach to Study the Interactions between Hydrologic Response and Nitrogen Biogeochemistry* (Now Assoc. Prof. University of Colorado, Boulder)

Daniel Bain, 2004-06, National Research Council Post-doctoral Fellow, (co-advised with Tom Bullen, USGS), *Hydrology and hydrochemistry of the Santa Cruz marine terraces*. (Now Assoc Prof. University of Pittsburg)

Graduate Theses Supervised

Masters degrees

Cole Cochran, in progress, Icy landscapes project. (B.S. Geology with honors, William and Mary, 2022)

Lauren Salberg (co-advised with Prof. Shemin Ge), 2021, *Coupling field data and a flow model to characterize the role of groundwater in a montane, semi-arid watershed, Gordon Gulch, Colorado*, M.S. thesis, Dept. of Geological Sciences, University of Colorado. (B.A. Geology, Carleton College, 2015. Now at West Yost Associates, Lake Forest, California).

Noah L. Hoffman, 2019, *Lithogenic mixing model approach identifies saprolite as the source of inorganic colloids in a granitoid catchment*, M.A. thesis, Dept. of Geography, University of Colorado. (B.A. Geology and B.A. Biology, Oberlin College, 2015. Now PhD student on NSF GRFP at U Minnesota).

Patrick Kelly, 2012, *Subsurface evolution: Characterizing physical and geochemical weathering in bedrock of Gordon Gulch, Boulder Creek Critical Zone Observatory*, M.A thesis, Dept. of Geography, University of Colorado. (B.S., Geology, Colorado State University, 200). Now at US EPA, San Francisco, CA.)

Zanden Frederick, 2008, *Water and solute export from the Yukon River and its tributaries,* M.A. thesis, Dept. of Geography, University of Colorado, 77 pp. (B.S., Geology, Western Washington University, 2000. Now in Anchorage, Alaska.)

Cynthia Cacy, 2006, *Chemical weathering in the loess-mantled landscape of the Matanuska Valley, Alaska,* M.S. thesis, Dept. of Environmental Studies, University of Colorado, 101 pp. (B.S. Chemical Engineering, Rensselaer Polytechnic Institute, 2004. Hired by hydrologic consulting firm S.S. Papadopulos & Associates, Boulder.)

Erin Kraal, 2001, *The 1999 and 2000 Hidden Creek Lake outburst floods on the Kennicott Glacier, Alaska*, M.S. thesis, Dept. of Earth Sciences, University of California, Santa Cruz, 119 pp. (B.S. Geology, Washington and Lee University, 1999. Now Professor, Kutztown University, PA.)

Doctor of Philosophy

Claudia R. Corona (co-advised with Prof. Shemin Ge), 2023, *Impact of extreme precipitation events on the water table and groundwater recharge,* PhD dissertation, Dept. of Geological Sciences, University of Colorado. (BS, Geology, Williams College, 2013; MS, San Francisco State University, 2016. Now post-doc, Colorado School of Mines.)

Brittany Selander, 2022, *Bedrock hillslopes in the Colorado Front Range and their relationship to channel incision,* PhD dissertation, Dept. of Geography, University of Colorado. (BS, Earth Science, UC Santa Cruz, 2011; MS, Geology, San Jose State University, 2015. Now USGS Mendenhall post-doc, Golden, CO.)

Taylor Joseph Mills, 2016, *Water chemistry under a changing hydrologic regime: Investigations into the interplay between hydrology and water-quality in arid and semi-arid watersheds in Colorado, USA,* PhD dissertation, Dept. of Geography, University of Colorado. (BA, Environmental Studies, CU, 2008; MS, Colorado School of Mines, 2010. Now at NCAR, Boulder, CO.)

Susan G. Riggins, 2010, *The production and evolution of mobile regolith: Modeled soil production and measured chemical weathering,* PhD dissertation, Dept. of Geography, University of Colorado. (B.S. with distinction, Geology, University of Illinois, Urbana-Champaign, 2000; M.S. Geological Sciences, University of Colorado, 2003. Awarded CZEN International Scholars Fellowship, 2006-2007. Lecturer, Geological and Environmental Sciences, California State University, Chico.)

Student Advising committees (not as supervisor)

Served on thesis committee (completion dates indicated):

Corinne Liu, MS, (Shemin Ge, advisor), Geological Sciences, in progress.
Adriana Alfaro, MS, (Kristy Tiampo, advisor), Geological Sciences, in progress.
Abigail Eckland, PhD, (Irina Overeem, advisor), Geological Sciences, in progress.
Josie Arcuri, PhD, (Irina Overeem, advisor), Geological Sciences, in progress.
Rachel Havranek, PhD, (Katie Snell, advisor), Geological Sciences, 2022. Committee chair.
Eric Smyth, PhD, (Eric Small, advisor), Geological Sciences, 2022. Committee chair.
Aaron Hurst, PhD, (Robert Anderson, advisor), Geological Sciences, 2021.
Mylène Jacquemart, PhD, (Kristy Tiampo, advisor), Geological Sciences, 2021.
Michael Rush, PhD, (Hari Rajaram, advisor), Environmental and Architectural Engineering, CU, 2020.
Isaac Bukoski, MA, (Holly Barnard, advisor), Geography, CU, 2019.
Rachel Glade, PhD, (Robert Anderson, advisor), Geological Sciences, CU, 2019.
Katherine Hale, MA, (Noah Molotch, advisor), Geography, CU, 2018.
Theo Barnhart, PhD, (Noah Molotch, advisor), Geography, 2018.
Derek Weller, PhD, (Charles Stern, advisor), Geological Sciences, CU, 2017.
Eric Winchell, PhD., (Robert Anderson, advisor), Geological Sciences, CU, 2017.
Melissa A. Foster, PhD, (Robert Anderson, advisor), Geological Sciences, CU, 2016.
Sachin Pandey, PhD, (Hari Rajaram, advisor), Environmental and Architectural Engineering, CU, 2015.
Fei Xing, PhD, (JPM Syvitski, advisor), Geological Sciences, CU, 2015.
Anya Byers, MA, (Mark Williams, advisor), Geography, CU, did not complete.
Abigail Langston, PhD, (Greg Tucker, advisor), Geological Sciences, CU, 2014.

Rachel Gabor, PhD, (Diane McKnight, advisor), Environmental Studies, CU, 2013.
Scott Anderson, MA, (John Pitlick, advisor), Geography, CU, 2013.
Danielle Perrot, MA, (Noah Molotch, advisor), Geography, CU, 2012.
Erich Mueller, PhD, (John Pitlick, advisor), Geography, CU, 2012.
Peter (Ty) Atkins, MA, (Mark Williams, advisor), Geography, CU, did not complete.
Katie Eilers, MA, (Noah Fierer, advisor), Ecology and Evolutionary Biology, CU, 2011.
Roland Viger, PhD, (Barbara Buttenfield, advisor), Geography, CU, 2011.
Kurt Refsnider, PhD, (Giff Miller, advisor), Geological Sciences, CU, 2011.
Rory Cowie, MA, (Mark Williams, advisor), Geography, CU, 2010.
Jordan Parman, MA, (Mark Williams, advisor), Geography, CU, 2010.
Kevin Befus, MA, (Anne Sheehan, advisor), Geological Sciences, CU, 2010.
Barbara-Lynn Concienne, MA, (Steve Schmidt, advisor), Ecology and Evolutionary Biology, CU, 2010.
Corey Lawrence, PhD, (Jason Neff, advisor), Geological Sciences, CU, 2009.
Anthony La Greca, MA, (John Pitlick, advisor), Geography, CU, 2009.
Aimee McLaughlin, MS, (Diane McKnight, advisor), Environmental Studies, CU, 2009.
Rachel McLoughlin, MS, (Diane McKnight, advisor), Environmental Studies, CU, 2009.
Daniel McGrath, MA, (Koni Stefan, advisor), Geography, CU, 2009.
Benjamin Andre, PhD, (Hari Rajaram, advisor), Civil, Environmental and Architectural Engineering, CU, 2009.
Maureen Berlin, PhD, (Robert Anderson, advisor), Geological Sciences, CU, 2009.
Catalina Segoura-Sossa, PhD, Geography, CU, 2008.
Timothy Bartholomaus, MS, (Robert Anderson, advisor), Geological Sciences, CU, 2007.
Kristina Klos Wynne, MA, (John Pitlick, advisor), Geography, CU, 2006.
Daniel Cordalis, MA, Geography, (Mark Williams, advisor), CU, 2006.
Michael G. Loso, PhD, (Robert Anderson and Dan Doak, co-advisors), Earth Sciences, UCSC, 2004.
Kelly MacGregor, PhD, (Robert Anderson, advisor), Earth Sciences, UCSC, 2002.
Dave Schleupner, MS, (Robert Anderson, advisor), Dept. of Earth Sciences, UCSC. 1999.
Kara Goscinski, MS, (Neil Humphrey, advisor), Dept. of Geology and Geophysics, University of Wyoming, 1998

Served on exam committee (exam dates noted):
Abigail Eckland, PhD, (Irina Overeem, advisor), Geological Sciences, 9 Dec 2021
Eric Smyth, PhD, (Eric Small, advisor), Geological Sciences, 20 Nov 2019.
Rachel Havranek, PhD, (Katie Snell, advisor), Geological Sciences. 22 Apr 2019.
Mylène Jacquemart, PhD, (Kristy Tiampo, advisor), Geological Sciences, 29 Jan 2019.
Aaron Hurst, PhD, (Robert Anderson, advisor), Geological Sciences, 12 Nov 2018.
Mickey Rush, PhD, (Hari Rajaram, advisor), Civil Environmental and Architectural Engineering, 8 Dec 2017.
Rachel Glade, PhD, (Robert Anderson, advisor), Geological Sciences, 21 Oct 2016.
Eric Winchell, PhD, (Robert Anderson, advisor), Geological Sciences,11 Feb 2015.
Fei Xing, PhD, (JPM Syvitski, advisor), Geological Sciences, 4 May 2012.
Melissa Foster, PhD, (Robert Anderson, advisor), Geological Sciences,16 Apr 2012.
Abigail Langston, PhD, (Greg Tucker, advisor), Geological Sciences, 2011.
Rachel Gabor, PhD, (Diane McKnight, advisor), Environmental Studies, 2010.
Erich Mueller, PhD, (John Pitlick, advisor), Geography, 2009.
Roland Viger, PhD, (Barbara Buttenfield, advisor), Geography, 2009.
Benjamin Andre, PhD, (Hari Rajaram, advisor), Civil, Environmental and Architectural Engineering, 2008.
Kurt Refsnider, PhD, (Giff Miller, advisor), Geological Sciences, 2008.

Maureen Berlin, (Robert Anderson, advisor), Geological Sciences, 2006.
Catalina Segoura-Sossa, PhD, (John Pitlick, advisor), Geography, 2006.
Leora Nanus, Geography, (Mark Williams, advisor), 2005.
Catherine Riihimaki, PhD, (Robert Anderson, advisor), UCSC, 2001.
Lesley Perg, PhD, (Robert Anderson, advisor), UCSC, 2000.
Kelly MacGregor, PhD, (Robert Anderson, advisor), UCSC, 1999.

International graduate committees:

Marisa Repasch, Doctoral examination committee member, University of Potsdam, Institute of Geosciences, Potsdam, Germany, January 29, 2021.
Eydís Salome Eiriksdóttir, External opponent for doctoral defense, Faculty of Earth Science, University of Iceland, Reykjavík, March 4, 2016.

Undergraduate Theses Supervised

Kevin Knopp, BA May 2019 in Physical Geography. Senior thesis: *Mass balance of the Arikaree Glacier.* Published in CU College of Arts and Sciences Honors Journal (https://www.colorado.edu/honorsjournal/archives/2019).
Dylan Lanka, BA *summa cum laude* in Physical Geography, 2018. Senior honors thesis: *Solifluction Lobes on Niwot Ridge: Using Drones, Time-lapse Cameras, and Weather Data to Study Periglacial Features*. Supported by a von Dreden Stacey Fellowship in summer 2017.
Kristina Cowell, BA 2017 in Geography. (Did not complete thesis) Working title: *Hydrochemistry of Betasso catchment in the Boulder Creek watershed*. Supported by a von Dreden Stacey Fellowship in summer 2016.
Garret Hammack, BA in Geological Sciences, 2017. Senior thesis: *Runoff generation in Betasso catchment: Investigation of Hortonian overland flow*.
Emily Gulick, BA 2016 in Geography and Environmental Studies. Senior honors thesis: *Analyzing heterogeneous landscapes to reveal ecological processes: the spatial modeling of forest-meadow ecotones using aerial photography*. Supported by a von Dreden Stacey Fellowship in summer 2015.
Satya Akquia, BA in Geography, 2015. Senior thesis: *Bedrock incision and gravel deposition along the rivers in the High Plains.*
Chris Heckman, BA *cum laude* in Environmental Studies, 2012. Honors thesis: *Springs of Gordon Gulch: A groundwater analysis.*
Nathan Rock, BA *cum laude* in Geography, 2010. Honors thesis: *Water balance for Gordon Gulch, Colorado Front Range*.
Jaclyn Gorman, BA *magna cum laude* in Geography, 2006. Honors thesis: *Fluvial Transportation of the New Zealand Mudsnail.*
C. Beckett Hart, BA *magna cum laude* in Geography, 2005. Honors thesis: *Hydrochemistry of Middle Boulder Creek and Coal Creek*
Sharon Longacre, UCSC, BS in Earth Sciences, 2001. Senior thesis: *Chemistry of Kennicott River during an outburst flood: Implications for sub-glacial hydrology*.
Shannon Wong, UCSC, BS in Earth Sciences, 1997. Senior thesis: *Preferential flow: Its significance on the water table response to rainfall at Elkhorn Slough, California*.

Undergraduate thesis committees (not as supervisor)

Dillon Ragar, BA Environmental Studies, 2017.
Cole Pazar, BA Geological Sciences, 2016.
Emily Gulick, BA Geography and Environmental Studies, 2016.
David Liefert, BA *magna cum laude* in Geological Sciences, 2015.
Molly Jane Jones, BA *cum laude* in English, 2010.
Nina Russell, BA *magna cum laude* in Environmental Studies, 2010.
Daniel Eldridge, BS *summa cum laude* in Geological Sciences, 2009.

Professional Service

President-elect, AGU Earth and Planetary Surface Processes (EPSP) Section, 2023-2024. Elected position.

AGU Search Committee for Editor-in-Chief for Global Biogeochemical Cycles, 2021.

Chair-Elect, Chair, and Retiring Chair of the Section on Geology and Geography, American Association for the Advancement of Science (AAAS), 2020-2023. Elected position.

External evaluator of candidates for professorship in applied geochemistry, University of Oulu, Finland, 2021.

Science Committee for the Goldschmidt 2021 meeting, Lyons, France. 9-member committee charged with overseeing planning for the Goldschmidt meeting—identifying theme leaders, plenary speakers, decisions on scheduling.

External Review Committee member, University of Wyoming Department of Geology and Geophysics, 2019.

Search Committee external expert for new professorship in Soil Weathering and Development. Faculty of Geosciences and Environment, University of Lausanne, Switzerland, 2017-2018.

Reviewer for student awards, Quaternary Geology and Geomorphology division of the Geological Society of America, 2016.

Science Committee member: Continental Scientific Drilling Coordination Office (CSDCO), NSF funded facility based at the University of Minnesota, 2016-2017

Science Advisor: UK National Environmental Research Council – National Research Foundation of China (NERC-NSFC) Collaborative project "Soil processes and ecological services in the karst critical zone of southwest China", 2016-2021

Science Advisory Board: Niwot Ridge Long Term Ecological Research (LTER) site, 2015-2019

Convened *Salon on the Deep Critical Zone, June 2015.* Four-day workshop with 18 participants to synthesize data and understanding from 11 sites.

QWARTS (Quantifying WeAthering RaTes for Sustainable Forestry) Science Advisory Board member, 2013-2018. Swedish joint program between SLU (Swedish Agricultural University) and Uppsala University

Kirk Bryan Field Trip leader, Geological Society of America Annual Meeting, October 30, 2013.
Lead largest field trip (75 participants) of the 2013 GSA Annual Meeting and convened a theme session on the topic of "*Critical zone evolution: Climate and exhumation in the Colorado Front Range*".

SoilTrEC (Soil Transformations in European Catchments) Science Advisory Board member, 2010-2015.
SoilTrEC was a €7M European Commission project administered at University of Sheffield.

AGU Earth and Planetary Surface Processes focus group Executive Committee, 2009-2018
Convener of "The Value of CZ Science in Service of Society" and "Tree, water, regolith and rock: The role of roots and plant hydraulics in CZ processes", 2018; "The Architecture and Workings of the Critical Zone", and Union session "The Critical Zone: Revealing the Structure, Function, and Evolution of Earth's Living Skin", 2016; "The Deep Critical Zone and the Inception of Surface Processes", 2012; "Critical Zone Processes", 2009.
Awards committee (GK Gilbert Award, Luna Leopold Award): 2016, 2018

Scientific Program Committee: Twelfth International Symposium on the Geochemistry of the Earth's Surface (GES12), Zurich, Switzerland, 2022;

Scientific Program Committee: Tenth International Symposium on Geochemistry of the Earth's Surface (GES-10), Paris, France, 2014.

Secretary General, Ninth International Symposium on Geochemistry of the Earth's Surface (GES-9), Boulder, Colorado, June 2011. Hosted this triennial conference (125 participants), sponsored by the IAGC.

Terrestrial Working Group core member, Community Surface Dynamics Modeling System (CSDMS), 2007-2014

Steering committee, Critical Zone Exploration Network (CZEN), 2003-2007

AGU Hydrology Section Langbein Lecture Committee, 2005-2008
Selects the Walter Langbein Lecturer (given at the AGU Fall Meeting) for their lifetime contributions to hydrology and/or service promoting cooperation in hydrologic research.

AGU Hydrology Section Sediment and Landscape Dynamics Technical Committee, 1996-2007 (Chair, 2002-2004)
Convener of "Geomorphology of Mountainous Regions", 1998; "Hillslope and Fluvial Posters", 1999; "Geomorphology", 2000; "Glacial Sediment Systems from Source to Sink", 2001; "Linkages between physical erosion and chemical weathering", 2004; "Glaciers and Permafrost", 2007

AGU Hydrology Section Outstanding Student Paper Award Committee, 1997-1999

Coordinated judging of student papers for 4 AGU meetings, in era before this activity was union wide and on-line.

Reviewing and Editorial Service

Reviewer for U.S. National Science Foundation, U.K. Natural Environmental Research Council, Swiss National Research Council, Swiss National Science Foundation, German Helmholtz Association, American Chemical Society Petroleum Research Fund, Icelandic Research Fund, Israel Science Foundation, Czech Research Foundation, and National Geographic Society Research fund.
Number of proposals reviewed: 2023- 7; 2022-2; 2021-3; 2020- 5; 2019- 2; 2018- 1.

Reviewer for journals and publishers, e.g. in 2023: *Science of the Total Environment*; *Earth Surface Processes and Landforms*; *Water Resources Research; Nature Geoscience.* Number of ms reviewed: 2023- 4; 2022- 4; 2021- 5; 2020- 5; 2019- 1; 2018- 2

The Holocene Editorial Advisory Board member, 2017-present.

Earth Surface Processes and Landforms International Advisory Board member, 2014-present.

Reviewer for National Research Council reports "Landscapes on the Edge" (2010), "Challenges and Opportunities in Hydrologic Sciences" (2011)

NSF review panel member, Biocomplexity- 2004; Geomorphology and Land Use Dynamics-spring and fall 2008.

Guest editor, *Hydrological Processes* Special Issue in 2019 on "Water in the Critical Zone", with Ying Fan Reinfelder (Rutgers) and Gordon Grant (USFS/OSU). 27 invited papers.

Guest Editor, *Applied Geochemistry* Vol. 26 Supplement, 2011. Issue contained 111 abstracts and extended abstracts from the 9th International Symposium on Geochemistry of the Earth's Surface.

Guest Editor, *Chemical Geology* December 2003 issue on "Controls on Chemical Weathering"
Co-guest editor, Alex Blum (USGS). Issue contained 14 papers.

Associate Editor, *Arctic, Antarctic, and Alpine Research*, 2007-2011
Selected reviewers, reviewed, and advised editors on ~10 manuscripts per year

Editor, *Arctic, Antarctic, and Alpine Research*, 2004-2006.
With Co-Editor A. Jennings, hired new Managing Editor, caught up on 9 month publication backlog, initiated web-based review system and developed board of ~12 Associate Editors. Handled ~70 manuscripts per year.

Collection advisor, AGU Editor's Choice: Surface Processes virtual journal, 2002-2007.
With 3 others, scanned 11 AGU journals monthly to select cross-cutting papers on surface processes and geomorphology for this virtual journal.

Associate Editor, *Journal of Geophysical Research- Earth Surface*, 2002-2006.
Selected reviewers, reviewed, and advised editor on ~10 manuscripts per year.

University Service

Provost's Academic Review and Planning Advisory Committee (ARPAC), 2023-2026 (first meeting, November 2022)

INSTAAR Director Search Committee member, 2023-2024

Colorado Art + Science + Environment (CASE) Science Fellow, 2022-2023

INSTAAR Personnel Committee Chair, 2022-2024.

INSTAAR Executive Committee member, 2022-2023.

INSTAAR ARPAC (Academic Review and Planning Advisory Committee) Report Committee member, 2020-2021.

INSTAAR/Ecology & Evolutionary Biology Department Primary Unit Review Committee for Professor Merritt Turetsky promotion to professor, 2020.

Geological Sciences Awards Committee Chair, 2021-2024.

Geological Sciences Quality Teaching Initiative Committee, 2021-2023

Geological Sciences Department Primary Unit Review Committees
Professor Alisha Clark reappointment, 2023 (Chair)
Professor Irina Overeem tenure, 2021
Professor Seb Kopf reappointment, 2020
Professor Karen Chin promotion to professor, 2019
Dr. Jennifer Stempien promotion, 2019

Professor Irina Overeem reappointment, 2019
Chair, Geography Department Search Committee, Assistant Professor in Physical Geography, 2017-2018.
Chair, Geography Department Colloquium Committee, 2017-2018.
Geography Department Primary Unit Evaluation Committees
Professor Najeeb Jan tenure and promotion, 2016
Professor Seth Spielman tenure and promotion, 2015
Professor Holly Barnard reappointment, 2013
Professor Najeeb Jan reappointment, 2013
Internal reviewer for the Department of Germanic and Slavic Languages and Literature, 2015-2016.
Arts and Science Council *ad hoc* Core Curriculum Revision Committee, 2015-16
Geography Dept. Undergraduate Committee member, 2004-05, 2014-15, 2015-16. *Restructured Undergraduate degree requirements. Gave Geography Dept commencement faculty speech, May 8, 2015.*
Environmental Science Working Group, CU School of the Environment and Sustainability, 2014-15. *Designed proposed new STEM environmental science undergraduate major.*
Graduate School Research Review Board, 2013-16.
Chair, Directed Search Committee, INSTAAR and Environmental Studies Program, for hire of Dr. Eve-Lyn Hinckley as Assistant Prof. in interdisciplinary environmental science, 2014.
Associate Chair, Director of Graduate Studies, and Chair of Graduate Admissions and Awards, Dept. of Geography, 2010-2011, 2012-13.
Graduate School Executive Advisory Council, 2010-11, 2012-13.
Chair, Geography Dept. post-tenure review committee for Professor Mark Williams, 2010, 2015.
Geography Dept. Personnel Committee member, 2008-10.
Geography Dept. Colloquium Committee member, 2005-08, 2013-14.
Supervisor for INSTAAR Sediment Laboratory Manager, a classified staff member, Nov 2003-2020.
Mountain Research Station Executive Committee member, 2006-2019.
INSTAAR *ad hoc* committee on Information Dissemination, 2007-08
INSTAAR Planning Committee for Scientific Advisory Committee visit, 2006-07.
LEAP: Introductory Leadership Workshop for Junior Faculty, summer 2005.
INSTAAR *ad hoc* Mountain Research Station Implementation Committee, June-November 2004.
INSTAAR Executive committee member, 2003-04.

Outreach

General public: Co-led a Deep Think Tank at the Conference on Community Writing on *"Coloradans and Our Shared Environment in Times of Challenge and Change: A Multimodal Dialogue Among Artists, Scientists, and Community*" with Lisa Schwartz and artist Darya Warner, October 12, 2023.

Science writers: Hike with a Scientist field trip co-leader (two hikes, ~24 people each) during National Association of Science Writers 2023 Conference, Boulder, CO, October 7 & 8, 2023.

General public: Colorado Art + Science + Environment (CASE) Fellow, 2022-2023. Paired with artist Darya Warner to integrate science into an artwork on a Colorado-specific environmental problem for an exhibit in the Rotunda of the Colorado State Capital.

General public: Co-author of children's picture book "*The Living Landscape: Discovering the Critical Zone* " by Eric Parrish and Suzanne Anderson, published by Muddy Boots in 2022.

General public: Science advisor and contributor to Museum of Boulder exhibit, "*Our Living Landscape: Exploring Boulder's Watershed*", January-March 2020.

General public: Science expert for INSTAAR tour by group from Frasier Meadows Retirement Community, Jan 30, 2020.

K-12 community: Science expert on field trip with K-12 Professional Development class on Mountain Research Experience, Niwot Ridge, June 27, 2018.

Scientific community: Quoted in article on Critical Zone Observatories: "Earth's skin is an interdisciplinary laboratory" by Toni Feder, *Physics Today* 71, 1, 22 (2018): https://doi.org/10.1063/PT.3.3813.

Scientific community: Hosted delegation of 15 scientists from Chinese Geological Survey to the Boulder Creek Critical Zone Observatory, Nov 6-10, 2017.

Scientific community: Hosted delegation of 8 scientists from Kangwon National University, South Korea to the Boulder Creek Critical Zone Observatory, Jan 27-30, 2016.

Undergraduate students: Led University of Nebraska, Omaha geoscience students on a field trip to Boulder Creek CZO, May 17, 2016. (20 undergraduate students and 4 faculty).

Undergraduate students: Featured in a virtual field trip video supplement to *McKnight's Physical Geography: A Landscape Appreciation* by Darryl Hess (Pearson). The 9-minute video filmed and written by Michael Collier, titled "The Critical Zone at Boulder Creek", is one of 20 virtual field trip videos accessible to students who purchase the textbook.

General public: Fall AGU 2015 meeting presentation inspired a cartoon tweeted by Miles Traer: http://blogs.agu.org/geospace/2015/12/17/hillslopes-and-hobbes/

General public: publication of Anderson et al., (2015) Exhumation by debris flows in the 2013 Colorado Front Range storm, *Geology* 43 (5): 391-394, doi:10.1130/G36507.1, led to the following media coverage:

3/30/15 *Physics.org*: http://phys.org/news/2015-03-lidar-sept-colorado-front-range.html

3/31/15 *Wired* magazine: http://www.wired.com/2015/03/lasers-map-earth-moved-colorados-epic-floods/

4/3/15 *Live Science*: http://www.livescience.com/50367-colorado-floods-scoured-hills.html

4/6/15 *Ars Technica*: http://arstechnica.com/science/2015/04/epic-2013-colorado-rainstorm-accomplished-centuries-worth-of-erosion/

4/6/15 *Yahoo! News*: http://news.yahoo.com/huge-colorado-floods-helped-sculpt-mountains-120131227.html

4/29/15 Radio interview on Colorado Public Radio's *Colorado Matters* show. http://www.cpr.org/news/story/study-2013-front-range-floods-caused-thousand-years-worth-erosion

8/27/15 CU Press release: http://www.colorado.edu/news/releases/2015/08/27/historic-2013-colorado-front-range-storm-accomplished-1000-years-erosion-cu

8/27/15 *Boulder Daily Camera:* http://www.dailycamera.com/cu-news/ci_28710384/boulder-countys-2013-flood-eroded-1-000-years

8/27/15 *Science Daily*: http://www.sciencedaily.com/releases/2015/08/150827083428.htm

9/10/15 Radio interview on KUNC: http://www.kunc.org/post/2013-s-historic-storm-caused-1000-years-erosion-boulder-canyon

Fall 2015 *Research and Creative Work 2014-2015*, p. 3-5, magazine published by the University of Colorado Office of the Vice Chancellor for Research: http://www.colorado.edu/vcr/sites/default/files/attached-files/2015%20Research%20Magazine.pdf

K-12 students: Presentation on water and floods in Gold Hill School, a one-room K-5 school with about 25 students in Gold Hill, CO, October 2014.

General public: Presentation followed by Q&A in the One Year Later: Boulder County Flood Seminar Series. "Flood landscape: The physical geography of the Front Range and the 2013 storm", Sept 15, 2014, Lyons Middle/Senior High School.

General public: Radio interview with Maeve Conran, KGNU, for the "Flood Show". Interviewed 4/1/14, broadcast 4/6/14. Discussed the September 2013 storm produced landslides and what may happen in spring 2014.

Graduate students: Led field trip on effects of September 2013 storm and flood in Boulder for Prof. Michael Kodas' graduate environmental journalism class. Nov. 18, 2013. Eight students.

Undergraduate students and General public: Advised "Human Glacier Project" movement piece by Maren Waldman, with Beth Osnes' movement class. Performed on April 1, 2013 at Macky Auditorium, before James Balog's The Art of Chasing Ice performance. See: http://www.youtube.com/watch?v=lsx5ECGK-Ow&feature=youtu.be Taught dancers about

glacier dynamics and mass balance, so that their movement piece incorporated elements of scientific understanding of glaciology.

Early career scientists: National Association of Geoscience Teachers (NAGT) On the Cutting Edge-Preparing for an Academic Career in the Geosciences workshop for graduate students and post-doctoral fellows. Presented and led session on research, teaching, careers and career paths (July 7, 2013).

K-12 students: Participated in field trip to Eldorado Canyon State Park with students from Platt Choice Middle School science classes to study rocks. About 30 kids, 6 parents, and 1 teacher present on each trip. October, 2012; April 2013.

Public agency: Presentation "Boulder Creek CZO: Project goals and work in Betasso Open Space" given to Boulder County Parks and Open Space staff (rangers, managers), March 12, 2013.

K-12 and graduate students: Boulder Creek CZO project partnered with Science Discovery to bring graduate students and post-docs into K-12 teaching. 2009-2011: brought environmental science to 5th graders through the Outdoor Classroom program (~90 kids/year) and to middle school kids through Summer Camp (~25 kids per year). 2011-2014: Science Explorers and STEM Workshops, Classroom presentations, Teacher Professional Development workshops, Summer and After school programs reached 3678 learners, 366 K-12 teachers, and 468 adults and chaperones.

General public: Boulder Creek CZO project maintained a webpage from 2008-2020 with materials for scientific community and for general public (Now archived, see https://czo-archive.criticalzone.org/boulder/)

K-12 students: Led field trip to see soils and erosion features for 4th and 5th grade classes at Friends' School, as a culmination of their science unit on erosion, Sept 21, 2009.

General public: Interviewed for 30 minutes (with Bob Anderson) on KGNU radio's Metro program about our research on glacier dynamics, Jan 17, 2008.

Undergraduate students: Panel member for discussion forum following the Geography Department Undergraduate Club showing of "An Inconvenient Truth", Feb 21, 2007. One of 4 panel members; attended by >100 students.