

Courtenay Strong

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Appointments

2021-present	Professor	University of Utah
2015-2021	Associate Professor	University of Utah
2009-2015	Assistant Professor	University of Utah
2007-2009	Postdoctoral Scholar	University of California Irvine
2005-2006	Visiting Scientist and Instructor	University of Missouri
2003-2005	National Science Foundation Graduate Research Fellow	University of Virginia
2001-2002	Research and Teaching Assistant	University of Virginia
1994-2000	Broadcast Meteorologist	Network television affiliates

Professional preparation

2005	Ph.D. Environmental Sciences (Atmospheric)	University of Virginia
2003	M.S. Environmental Sciences (Atmospheric)	University of Virginia
1999	B.S. Geoscience (Meteorology)	Mississippi State University
1993	B.A. Communications (Journalism)	University of Texas

Academic awards

2019	Top Researcher Award, Celebrate U Showcase of Extraordinary Faculty Achievements
2018	Outstanding Faculty Teaching Award, College of Mines and Earth Sciences, 2017-2018
2017	Outstanding Leadership of iUTAH (coupled human-natural system modeling)
2014	Early Career Teaching Award, University of Utah
2008	James R. Holton Junior Scientist Award, American Geophysical Union

Peer-reviewed Publications

1. Bai H, Strong C, LaMontagne J, Widick I, Zuckerberg B, 2023. A North American climate-masking-irruption teleconnection and its change under global warming, submitted.
2. LaMontagne JM, Strong C, Zuckerberg B, Bai H, 2023. Atmospheric waves synchronize and desynchronize mast seeding at a hemispheric scale, *submitted*.
3. Stone L, Strong C, Bai H, Reichler T, McCabe G, Brooks PD, 2023. Atlantic Ocean influence on Western U.S. hydroclimate and water resources, *npj Climate and Atmospheric Science*, **6**, Article number: 139.
4. Li X, Mace G, Strong C, Krueger S, 2023. Wintertime cooling of the Arctic TOA by low-level clouds, *Geophysical Research Letters*, <https://doi.org/10.1029/2023GL104869>.
5. Li J, Strong C, Wang J, Burian S, 2023. Flood resilience: an event-based index to assess impacts of land cover and climate changes on urban flooding, *Water*, <https://doi.org/10.3390/w15142663>.

6. Hasan MM, Strong C, Brooks P, Burian SJ, Barber ME, 2023. Quantifying climate change impacts on low flows of small high mountain watersheds, *Journal of Hydrology: Regional Studies*, <https://doi.org/10.1016/j.ejrh.2023.101463>.
7. Bai H, Strong C, 2023. Modeling Study on Teleconnections Driving the Summer North American Dipole, *Journal of Climate*, <https://doi.org/10.1175/JCLI-D-23-0015.1>.
8. Wolf MA, Jamison LR, Solomon DK, Strong C, Brooks P, 2023. Multi-year Controls on Groundwater Storage in Seasonally Snow-Covered Headwater Catchments, *Water Resources Research*, <https://doi.org/10.1111/1365-2656.13917>.
9. Widick I, Young M, LaMontagne J, Strong C, Zuckerberg B, 2023. Poleward Shifts and Altered Periodicity in Boreal Bird Irruption Over Six Decades. *Journal of Animal Ecology*, <https://doi.org/10.1111/1365-2656.13917>.
10. Bai, H., Strong, C., & Zuckerberg, B. 2022. Drivers of an Ecologically-Relevant Summer North American Dipole, *Journal of Climate*, doi: <https://doi.org/10.1175/JCLI-D-22-0542.1>.
11. Johnson RJ, Wolf M, Jamison L, Burian SJ, Oroza CA, Brooks PD, Strong C, Stewart J, Kirkham T. 2021. Drought in the West: embedded water demand stationarity compromises system vulnerability analysis, *Open Water Journal*, *Open Water Journal*: Vol. 7, Iss. 1, <https://scholarsarchive.byu.edu/openwater/vol7/iss1/6>.
12. Khatri, KB, Pokharel B, Strong C, 2021. Development of hydrologically-based cloud seeding suspension criteria in the Western United States, *Atmospheric Research*, 262, 105768, doi: <https://doi.org/10.1016/j.atmosres.2021.105768>.
13. Brooks PD, Gelderloos A, Wolf MA, Jamison LR, Strong C, Solomon DK, Bowen GJ, Burian S, Tai X, Arens S, Briefer L, Kirkham T, Stewart J. 2021. Groundwater memory of past climate controls water yield in snowmelt-dominated catchments, *Water Resources Research*, doi: 10.1029/2021WR030605.
14. Su J-Y, Goel R, Burian S, Hinnens SJ, Kochanski A, Strong C, Barber ME, 2021. Water Quality Trading Framework with Uncertainty for River Systems due to Climate and Population Characteristics, *Water*, doi.org/10.3390/w13131738.
15. Riley C, Rupper S, Steenburgh JW, Strong C, Kochanski A, Wolvin S. 2021. Characteristics of Historical Precipitation in High Mountain Asia Based on a 15-Year High Resolution Dynamical Downscaling, *Atmosphere*, 12(3), 355, doi: 10.3390/atmos12030355.
16. Putman, AL, Bowen, GJ, Strong C. 2021. Local and regional modes of hydroclimatic change expressed in modern multidecadal precipitation oxygen isotope trends, *Geophysical Research Letters*, doi:10.1029/2020GL092006.
17. Dars GH, Sattar M, Touseef M, Strong C, Najafi MR. 2021. Study of multi-model ensemble high-resolution projections of major climatic variables over the Indus River Basin and Pakistan, *Mehran University Research Journal of Engineering and Technology*, doi: <https://doi.org/10.22581/muet1982.2101.10>.
18. Golden K, Bennetts LG, Cherkaev E, Eisenman I, Feltham D, Horvat C, Hunke E, Jones C, Perovich DK, Ponte-Castaneda P, Strong C, Sulsky D, Wells AJ. 2020. Modeling sea ice, *Notices of the American Mathematical Society*, doi: <https://doi.org/10.1090/noti2171>.
19. Lambert A, Hallar AG, Garcia M, Strong C, Andrews E, Hand JL. 2020. Dust Impacts of Rapid Agricultural Expansion on the Great Plains, *Geophysical Research Letters*, doi: 10.1029/2020GL090347.
20. Li X, Krueger S, Strong C, Mace G. 2020. Relationship between wintertime leads and low clouds in the Pan-Arctic, *Journal of Geophysical Research*, doi: 10.1029/2020JD032595.

21. Strong C, McCabe G, Weech A. 2020. Step increase in eastern U.S. precipitation linked to Indian Ocean warming, *Geophysical Research Letters*, doi:10.1029/2020GL088911.
22. Bohne L, Strong C, Steenburgh J. 2020. Climatology of orographic precipitation gradients in the contiguous western United States, *Journal of Hydrometeorology*, in press, doi: <https://doi.org/10.1175/JHM-D-19-0229>.
23. Hasan M, Strong C, Kochanski A, Burian S, Barber M, 2020. Validating dynamically downscaled climate projections for mountainous watersheds using historical runoff data coupled with the Distributed Hydrologic Soil Vegetation Model (DHSVM), *Water*, doi: /10.3390/w12051389.
24. Zuckerberg B, Strong C, LaMontagne J, St George S, Betancourt J, Koenig W. 2020. Climate Dipoles as Continental Drivers of Plant and Animal Populations, *Trends in Ecology and Evolution*, doi: 10.1016/j.tree.2020.01.010.
25. Dars GH, Strong C, Kochanski A, Ansari K, Ali SH. 2020. The spatiotemporal variability of temperature and precipitation over the Upper Indus Basin: an evaluation of 15-year WRF simulations, *Applied Sciences*, 10(5), doi:10.3390/app10051765.
26. Li X, Krueger S, Strong C, Mace J, Benson S. 2020. Midwinter Arctic leads form and dissipate low clouds, *Nature Communications*, doi:10.1038/s41467-019-14074-5.
27. Khatri K, Strong C, von Stackelberg N, Buchert M, Kochanski AK. 2019. Impact of climate and land use change on streamflow and sediment yield in a snow dominated semi-arid mountainous watershed, *Journal of the American Water Resources Association*, doi: 10.1111/1752-1688.12803.
28. Ma Y, Sudakov I, Strong C, Golden K. 2019. Ising model for melt ponds on Arctic sea ice, *New Journal of Physics*, doi: 10.1088/1367-2630/ab26db.
29. Lin J, Mitchell L, Crosman E, Mendoza D, Buchert M, Bares R, Fasoli B, Bowling D, Pataki D, Catharine D, Strong C, Gurney K, Patarasuk R, Baasandorj M, Jacques A, Hoch S, Horel J, Ehleringer J. 2018. CO₂ and carbon emissions from cities: linkages to air quality, socioeconomic activity and stakeholders in the Salt Lake City urban area, *Bulletin of the American Meteorological Society*, doi: 10.1175/BAMS-D-17-0037.1.
30. Smith K, Strong C, Rassoul-Agha F. 2018. Multisite Generalization of the SHArP Weather Generator, *Journal of Applied Meteorology and Climatology*, doi: 10.1175/JAMC-D-17-0236.1.
31. Cherniavskaia E, Sudakov I, Golden K, Strong C, Timokhov L. 2018. Observed winter salinity fields in the surface layer of the Arctic Ocean and statistical approaches to predicting large-scale anomalies and patterns. *Annals of Glaciology*, 1-18. doi:10.1017/aog.2018.10.
32. Khatri K, Strong C, Kochanski A, Burian S, Miller C, Hasenyager C. 2018. Water Resources Criticality Due to Future Climate Change and Population Growth: Case of River Basins in Utah, USA, *Journal of Water Resources Planning and Management*, doi:10.1061/(ASCE)WR.1943-5452.0000959.
33. Tulley-Cordova C., Strong C., Brady I., Bekis J., Bowen, G. 2018. Navajo Nation, USA, precipitation variability from 2002 to 2015, *Journal of Contemporary Water Research & Education*, 163: 109-123. doi:10.1111/j.1936-704X.2018.03273.x.
34. Bowen B, Strong C, Golden K. 2018. Modeling the fractal geometry of Arctic melt ponds using the level sets of random surfaces, *Journal of Fractal Geometry*, 5(2), 121-142, doi: 10.4171/JFG/58.
35. Mitchell LE, Lin JC, Bowling DR, Pataki DE, Strong C, Schauer AJ, Bares R, Bush SE, Stephens BB, Mendoza D, Mallia D, Holland L, Gurney K, Ehleringer JR. 2018. Long-term urban carbon

- dioxide observations reveal spatial and temporal dynamics related to urban characteristics and growth, *Proceedings of the National Academy of Sciences*, doi: 10.1073/pnas.1702393115.
36. Strong C, Foster D, Cherkaev E, Eisenman I, Golden K. 2017. On the definition and analysis of marginal ice zone width, *Journal of Atmospheric and Oceanic Technology*, doi: <http://dx.doi.org/10.1175/JTECH-D-16-0171.1>.
 37. Zhao B, Reichler T, Strong C, Penland C. 2017. Simultaneous evolution of gyre and Atlantic Meridional Overturning Circulation anomalies as an eigenmode of the North Atlantic system, *Journal of Climate*, 30, 6737-6755, doi: 10.1175/JCLI-D-16-0751.1.
 38. Strong C, McCabe G. 2017. Observed variations in U.S. frost timing linked to atmospheric circulation patterns, *Nature Communications*, doi: 110.1038/ncomms15307.
 39. Cael BB, Strong C. 2017. A Laplacian characterization of phytoplankton shape, *Journal of Mathematical Biology*, doi:10.1007/s00285-017-1176-8.
 40. Strong C, Khatri K, Kochanski A, Lewis C, Allen N. 2017. Reference evapotranspiration from coarse-scale and dynamically downscaled data in complex terrain: sensitivity to interpolation and resolution, *Journal of Hydrology*, doi: 10.1016/j.jhydrol.2017.02.045.
 41. Smith K, Strong C, Rassoul-Agha F. 2017. A new method for generating stochastic simulations of daily air temperature for use in weather generators, *Journal of Applied Meteorology and Climatology*, doi: 10.1175/JAMC-D-16-0122.1.
 42. McCabe-Glynn S, Johnson KR, Zou Y, Yu J-Y, Sellars S, Strong C, Welker J. 2016 Isotopic signature of extreme precipitation events in the Western US and associated phases of Arctic and tropical climate modes, *Journal of Geophysical Research*, doi:10.1002/2016JD025524.
 43. Strong C, Golden K. 2016. Filling the polar data gap in sea ice concentration fields using partial differential equations, *Remote Sensing*, 8, doi:10.3390/rs8060442. *Invited for Special Issue on Sea Ice Remote Sensing and Analysis*.
 44. Scalzitti J, Strong C. 2016. Climate change impact on the roles of temperature and precipitation in western U.S. snowpack variability, *Geophysical Research Letters*, 43, 5361-5369, doi:10.1002/2016GL068798.
 45. Scalzitti J, Strong C, Kochanski A. 2016. A 26-year high-resolution dynamical downscaling over the Wasatch Mountains: synoptic effects on winter precipitation performance, *Journal of Geophysical Research*, 121, 3224-3240, doi:10.1002/2015JD024497.
 46. Goharian E, Burian S, Bardsley T, Strong C. 2016. Incorporating potential severity into vulnerability assessment of water supply systems under climate change conditions, *Journal of Water Resources Planning and Management*, 10.1061/(ASCE)WR.1943-5452.0000579, 04015051.
 47. Liptak J, Strong C. 2016. A modeling investigation of the Arctic sea ice-atmosphere feedback, *Climate Dynamics*, doi: 10.1007/s00382-016-2976-z.
 48. Smith K, Strong C, Wang S. 2015. Connectivity between historical Great Basin precipitation and interannual to multidecadal Pacific Ocean variability: A CMIP5 model comparison. *Journal of Climate*, 28, 6096–6112, doi: <http://dx.doi.org/10.1175/JCLI-D-14-00488.1>.
 49. Strong C, Zuckerberg B, Betancourt J, Koenig W. 2015. Climatic dipoles drive two principal modes of North^[SEP] American boreal bird irruption, *Proceedings of the National Academy of Sciences*, doi: 10.1073/pnas.1418414112.
 50. Hale R and coauthors. 2015. iSAW: Integrating Structure, Actors, and Water to study socio-Hydro-ecological systems. *Earth's Future*, doi: 10.1002/2014EF000295.

51. Gorski G, Strong C, Good SP, Barnes R, Ehleringer JR, Bowen GJ. 2015. Vapor hydrogen and oxygen isotopes reflect water of combustion in the urban atmosphere. *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.1424728112.
52. Strong C, Kochanski A, Crosman E. 2014. A slab model of the Great Salt Lake for regional climate simulation, *Journal of Advances in Modeling Earth Systems*, 06, doi: 10.1002/2014MS000305.
53. Liptak J, Strong C. 2014. A model-based decomposition of the sea ice-atmosphere feedback over the Barents Sea during winter. *Journal of Climate*, 27, 2533–2544, doi: <http://dx.doi.org/10.1175/JCLI-D-13-00371.1>
54. Liptak J, Strong C. 2014. The winter atmospheric response to sea ice anomalies in the Barents Sea. *Journal of Climate*, 27, 914–924, 10.1175/JCLI-D-13-00186.1.
55. Strong C, Rigor I. 2013. Arctic marginal ice zone trending wider in summer and narrower in winter. *Geophysical Research Letters*, 40, 4864–4868, doi:10.1002/grl.50928. Analysis method is featured in the *Princeton Companion to Applied Mathematics* (ISBN: 9780691150390).
56. McCabe-Glynn S, Johnson KR, Strong C, Berkelhammer M, Sinha A, Edwards RL. 2013. A Speleothem Record of North Pacific Decadal Variability since the 9th Century AD, *Nature Geoscience*, 6, 617–621, doi:10.1038/ngeo1862.
57. Liptak J, Strong C. 2013. Propagating atmospheric patterns associated with sea ice motion through the Fram Strait. *Journal of Climate*, 26, 2292–2297.
58. Strong C. 2012. Atmospheric influence on Arctic marginal ice zone position and width in the Atlantic sector, February–April 1979–2010, *Climate Dynamics*, 39, 3091–3102.
59. Strong C, Liptak J. 2012. Propagating atmospheric patterns associated with Midwest winter precipitation. *Journal of Hydrometeorology*, 13, 1371–1382.
60. Strong C, Stwertka C, Bowling D, Stephens B, Ehleringer J. 2011. Urban carbon dioxide cycles within the Salt Lake Valley: a multiple box model validated by observations, *Journal of Geophysical Research – Atmospheres*, 116, doi:10.1029/2011JD015693.
61. Strong C, Maberly S. 2011. The influence of atmospheric wave dynamics on interannual variation in the surface temperature of lakes in the English Lake District, *Global Change Biology*, 17, 2013–2022.
62. Strong C, Magnusdottir G. 2011. Dependence of NAO variability on coupling with sea ice. *Climate Dynamics*, 36, 1681–1689, DOI 10.1007/s00382-010-0752-z.
63. Strong C, Magnusdottir G. 2010. The role of Rossby wave breaking in shaping the equilibrium atmospheric circulation response to North Atlantic boundary forcing. *Journal of Climate*, 23, 1269–1276.
64. Strong C, Magnusdottir G, Stern H. 2009. Observed feedback between winter sea ice and the North Atlantic Oscillation. *Journal of Climate*, 22, 6021–6032.
65. Strong C, Magnusdottir G. 2009. Modeled winter sea ice variability and the North Atlantic Oscillation: a multi-century perspective. *Climate Dynamics*, 34, 515–525.
66. Strong C, Magnusdottir G. 2009. The role of tropospheric Rossby wave breaking in the Pacific Decadal Oscillation. *Journal of Climate*, 22, 1819–1833.
67. Strong C, Davis RE. 2008. Comment on “Historical trends in the jet streams” by C. L. Archer and K. Caldeira. *Geophysical Research Letters*, doi:10.1029/2008GL034829.
68. Strong C, Magnusdottir G. 2008. Tropospheric Rossby wave breaking and the NAO / NAM. *Journal of the Atmospheric Sciences*, 65, 2861–2876.

69. Strong C, Magnusdottir G. 2008. How Rossby wave breaking over the Pacific forces the North Atlantic Oscillation. *Geophysical Research Letters*, 35, L10706, doi:10.1029/2008GL033578.
70. Strong C, Davis RE. 2008. Variability in the position and strength of winter jet stream cores related to Northern Hemisphere teleconnections. *Journal of Climate*, 21, 584-592.
71. Strong C, Davis RE. 2007. Winter jet stream trends over the Northern Hemisphere. *Quarterly Journal of the Royal Meteorological Society*, 133, 2109-2115.
72. Strong C, Davis RE. 2006. Temperature-related trends in the vertical position of the summer upper tropospheric surface of maximum wind. *International Journal of Climatology*, 26, 1977-1997, doi:10.1002/joc1344.
73. Strong C, Davis RE. 2006. Variability in the altitude of fast upper tropospheric winds over the Northern Hemisphere during winter. *Journal of Geophysical Research – Atmospheres*, 111, D10106, doi:10.1029/2005JD006497.
74. Strong C, Davis RE. 2005. The surface of maximum wind as an alternative to the isobaric surface for wind climatology. *Geophysical Research Letters*, 32, L04813, doi:10.1029/2004GL022039.
75. Strong C, Fuentes JD, Garstang M, Betts AK. 2005. Diurnal cycle of low-level clouds and the tropical convective boundary layer in Amazonia. *Journal of Applied Meteorology*, 44, 1607–1619.
76. Strong C, Fuentes JD, Baldocchi D. 2004. Reactive hydrocarbon flux footprints during canopy senescence. *Agricultural & Forest Meteorology*, 127, 159-173.
77. Strong C, Fuentes JD, Davis RE, Bottenheim JW. 2002. Thermodynamic attributes of Arctic boundary layer ozone depletion. *Atmospheric Environment*, 36, 2641-2652.

Technical reports and other non-peer-reviewed publications

1. Lavergne T, Tonboe R, Sorensen A, Eastwood S, Strong C, Golden K, Cherkaev E. (2021) Algorithm Theoretical Basis Document for the OSI SAF Global Sea Ice Concentration Climate Data Records (OSI-450-a, OSI-430-a, OSI-458) Version 2.0, *European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Ocean and Sea ice Satellite Application Facility (OSI SAF)*, 44 pages.
2. Golden KM, Ma Y, Strong C, Sudakov I. (2020) From Magnets to Melt Ponds, *SIAM News, the newsjournal of the Society for Industrial and Applied Mathematics*, November 2020 issue.
3. Khatrri K, Strong C. (2020) Climate Change, Water Resources, and Potential Adaptation Strategies in Utah, *Report prepared for and published by Division of Water Resources, Utah Department of Natural Resources*, 30 pages.
4. Dars GH, Lashari BK, Sattar M, Strong C, Ansari K. (2020) Pakistan's water resources in the Era of Climate Change, *Chapter for "Pakistan's Water Outlook: issues and impacts" by Springer Water Resources Series*, 17 pages.
5. Strong C, Weech A, Brooks P, Wolfe M, Jameson L, Burian S, Lee S, Johnson R. (2019) Climate Vulnerability Assessment of Salt Lake City's Water Systems Year 2 Report, *prepared for Salt Lake City Department of Public Utilities as part of five-year climate vulnerability assessment project*, 34 pages.
6. Arens S, Jamison L, Brooks P, Weech A, Strong C. (2019) Weber River Basin Climate Vulnerability Assessment, *prepared for Weber Basin Water Conservancy District (WBWCD)*, 73 pages.

7. Dars G, Strong C, Kochanski A. (2019) Report: Improved hydro-meteorological forecasts under changing climate using robust modeling techniques, *prepared for U.S.-Pakistan Center for Advanced Studies in Water (US-PCASW)*, 21 pages.
8. Strong C, Weech A. (2018) Report: Background and guidance on appropriate use and communication of climate projections for water system climate vulnerability assessment, *prepared for Salt Lake City Department of Public Utilities as part of five-year climate vulnerability assessment project*, 20 pages.
9. Strong C, Golden K. (2017) Filling the sea ice data gap with harmonic functions: a mathematical model for the sea ice concentration field in regions unobserved by satellites, *SIAM News, the newsjournal of the Society for Industrial and Applied Mathematics*, April 2017 issue.
10. Strong C, Burian S, Scalzitti J. (2015) CHPC support of water resources research, *University of Utah Center for High Performance Computing Newsletter*, spring 2015.
11. Strong C. (2015) Research Highlights, *University of Utah College of Mines and Earth Sciences 2014 Annual Report*.

Pending funding

- 2024-2028 *Collaborative Research: The Outsized Footprint of Mountain Glaciers on Regional Hydroclimate*, National Science Foundation; Principal Investigator: Summer Rupper; Co-Investigators: Courtenay Strong and Simon Brewer; \$2,185,554.
- 2024-2027 *Collaborative Research: Climatic controls of West Antarctic Ice Sheet surface mass balance*, National Science Foundation; Principal Investigator: Courtenay Strong; Co-Investigators: Summer Rupper; \$727,695. [will be recommended for funding]
- 2024-2026 *Climate Modeling Component of Great Salt Lake Basin Integrated Plan*, Utah Department of Natural Resources and US Bureau of Reclamation; *Principal Investigator: Courtenay Strong*; \$150,000. [contract in negotiation]
- 2024-2028 *Advanced Guidance and predictive tools for Salt Lake City's water systems*, Salt Lake City Department of Public Utilities; *Principal Investigator: Courtenay Strong*; Co-Investigators: Paul Brooks, Steve Burian, Ryan Johnson; \$218,000 per year for five years. [contract in negotiation]

Awarded funding (\$35.7M; \$1.7M as PI)

- 2021-2026 *Western Water Assessment: Building resilience to compound hazards in the Intermountain West*, NOAA Regional Integrated Sciences and Assessments (RISA) Team Competition for the Intermountain West award NA21OAR4310309; Lead Principal Investigator: Ben Livneh, Benet Duncan; UU Principal Investigator: Courtenay Strong; UU Co-Investigator: Danya Rumore, \$4.3M (\$137,523 subaward).
- 2021-2024 *Partial Differential Equation Models for Sea Ice Processes*, grant from Office of Naval Research; Principal Investigator: Kenneth Golden; Co-Investigators: Elena Cherkaev, Courtenay Strong; \$772,074.
- 2021-2022 *Advanced gap-filling techniques for sea ice concentration climate data records*, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Ocean and Sea ice Satellite Application Facility (OSI SAF); Principal Investigator: Courtenay Strong; \$25,396.

- 2020-2023 *Historical and Future Climate and Glacier Changes Across High Mountain Asia*, grant from National Aeronautics and Space Administration; Principal Investigator: Summer Rupper; Co-Investigators: Jim Steenburgh, Courtenay Strong; \$951,463.
- 2020-2023 *Collaborative Research to Advance Probabilistic Forecasting and Hazard Assessment in Mountainous Regions*, National Oceanic and Atmospheric Administration (NOAA) and National Weather Service: Collaborative Science, Technology, and Applied Research (CSTAR) Award NA20NWS4680046; Principal Investigator: Jim Steenburgh; Co-Investigators: John Horel, Courtenay Strong, \$450,000.
- 2019-2023 *The influence of climatic dipoles on plant and animal populations at continental scales*; National Science Foundation Collaborative Macrosystems Research Award (NSF Award 1926221; Project 58502756); Principal Investigator: Benjamin Zuckerberg (University of Wisconsin, Madison); Co-Investigators: Jalene LaMontagne (DePaul University), Courtenay Strong (Institutional PI); University of Utah budget \$238,097.
- 2018-2022 *Climate vulnerability assessment of Salt Lake City's Water Systems*, Salt Lake City Department of Public Utilities (Contract No. 51-1-18-0396; Project 54000313), Principal Investigator: Courtenay Strong; Co-Investigators: Steve Burian and Paul Brooks; \$834,359.
- 2018-2021 *Multiscale homogenization for sea ice*, Office of Naval Research Applied and Computational Analysis Program (Grant N00014-18-1-2552); Principal Investigator: Kenneth Golden; Co-Investigators: Elena Cherkaev and Courtenay Strong; \$583,573.
- 2018-2020 *Impacts of cloud-lead coupling on the surface energy budget of the Arctic sea ice-atmosphere system*, National Aeronautics and Space Administration (NASA Award 17-CRYO17-0039; Project 56000269); Principal investigator: Courtenay Strong; Co-Investigators: Steve Krueger, Jay Mace, Hongjie Xie; \$471,010.
- 2018-2019 *Weber Basin Water Conservancy District Climate Change Vulnerability Assessment*; Principal investigator: Seth Arens; Co-Investigators: Paul Brooks, David Rosenberg (Utah State University), Courtenay Strong; \$117,843.
- 2018-2019 *Improved hydro-meteorological forecasts under changing climate using robust modeling techniques*, grant from U.S.-Pakistan Centers for Advanced Studies in Water (USPCAS-W); Principal Investigator Ghulam Hussain Dars; Co-Investigators: Adam Kochanski, Courtenay Strong; \$17,879 (2,760,000 Pakistani Rupee).
- 2017-2021 *CNH-L: Climate Change, Ecosystem Dynamics and Traditional Livelihoods in the Pinon-Juniper woodlands of Southern Utah*, National Science Foundation Dynamics of Coupled Natural and Human Systems (NSF Award 1714972; Project 58502468); Principal Investigator: Brian Coddling; Co-Investigators: Phil Dennison, Bill Anderegg, Ramesh Shrestha, Courtenay Strong; \$1,470,534.
- 2017-2020 *Collaborative research to advance analysis, forecast, and decision support services for high-impact weather events*, National Oceanic and Atmospheric Administration (NOAA) and National Weather Service: Collaborative Science, Technology, and Applied Research (CSTAR) Award NA17NWS4680001; Principal Investigator: Jim Steenburgh; Co-Investigators: John Horel, Courtenay Strong, \$450,000.
- 2017-2018 *Changing Climate in Pakistan: Food Security and Water Management Implications. Provide high resolution climate simulations for complex terrain: An action to*

- protect our asset*, grant from U.S.-Pakistan Centers for Advanced Studies in Water (USPCAS-W); Principal Investigator Ghulam Hussain Dars; Co-Investigators: Adam Kochanski, Courtenay Strong; \$19,407 (2,996,000 Pakistani Rupee).
- 2017 *Can we predict the next Syria: Quantifying the climate-agriculture-conflict nexus*, Society, Water, and Climate seed grant from University of Utah Global Change and Sustainability Center (GCSC); Principal Investigator Bill Anderegg; Co-Investigators: Brian Coddling, Courtenay Strong, Shane McFarlan, Adrian Bell; \$5,000.
- 2016-2019 *Partner Center for Advanced Studies in Water (PCASW) at the University of Utah*, U.S. Agency for International Development, (USAID Project 55000191); Principal Investigator: Courtenay Strong; Co-Investigator: Adam Kochanski; Hosted faculty: Ghulam Hussain Dars (Mehran University of Engineering and Technology, Jamshoro, Pakistan); \$145,976.
- 2016-2018 *Precipitation and Glacier Mass Balance in High Mountain Asia Over the Modern Era*, grant from National Aeronautics and Space Administration (NASA Award NNX16AQ61G; Project 56000251); Principal Investigator: Summer Rupper; Co-Investigators: Adam Kochanski, Jim Steenburgh, Courtenay Strong; \$737,000.
- 2014-2017 *Homogenization for sea ice*, grant from National Science Foundation (award DMS 1413454); Principal Investigator: Kenneth Golden; Co-Investigators: Elena Cherkayev, Courtenay Strong; \$320,000.
- 2014-2017 *Predicting CO₂ emissions associated with urban development in the western U.S.*, grant from National Aeronautics and Space Administration (NASA) and National Oceanic and Atmospheric Administration (NOAA); Principal investigator: John Lin; Co-Investigators: David Bowling, Martin Buchert, Jim Ehleringer, Diane Pataki, Courtenay Strong; \$1,004,358.
- 2013-2016 *Multiscale models of melting Arctic sea ice*, grant from Office of Naval Research (ONR Grant N00014-13-1029); Principal investigator: Kenneth Golden; Co-Investigators: Bacim Alali, Donald K. Perovich, Courtenay Strong; \$628,206.
- 2013 *A New Probabilistic Approach to Analyze Climate Variability Impacts on Eco-Hydrologic Response and Water Management System Reliability*, grant from University of Utah Funding Incentive Seed Grant Program; Principal Investigator: Courtenay Strong; Co-Investigator: Steven Burian; \$28,947.
- 2012-2017 *iUTAH-innovative Urban Transitions and Aridregion Hydro-sustainability*, grant from National Science Foundation (NSF Award 1208732; EPSCoR Research Infrastructure Improvement Program Track-1); Principal Investigator: Michelle Baker; Co-Investigators: Zach Aanderud, Jim Ehleringer, Douglas Jackson-Smith, Courtenay Strong; \$20,000,000.
- 2011-2014 *Collaborative Research: CI-WATER, Cyberinfrastructure to Advance High Performance Water Resource Modeling*, grant from National Science Foundation, (NSF Award 1135482, EPSCoR Research Infrastructure Improvement Program Track-2); Project Director: Norm Jones; Principal Investigator: Steven. C. Corbato; Co-Investigators: Steven Burian, Laura Hunter, Christine Pomeroy; Senior Personnel: Courtenay Strong; \$3,435,873.
- 2010-2014 *Negative sea ice-circulation feedback along Arctic marginal ice zones*, grant from National Science Foundation (NSF Award 1022485); Principal Investigator: Courtenay Strong; \$242,991

2009-2015 *Think Globally, Learn Locally (TGLL): Neighborhood Ecology in a Global Perspective*, grant from National Science Foundation (NSF Award 0841233); Principal Investigator Donald Feener; Co-Investigators: M. Denise Dearing, Eric Rickart, Jon Seger, Courtenay Strong; \$2,687,578.

Teaching

University of Utah, Department of Atmospheric Sciences (*indicates new course I developed)

<u>Course Number</u>	<u>Course Title</u>	<u>Semester</u>	<u>Enrollment notes</u>
ATMOS 6030	Climate Dynamics	Spring 2024	Designed as part of graduate atmospheric science core sequence, and expanded to attract other majors including Mathematics, Engineering, and Environmental Sciences
		Spring 2021	
		Spring 2019	
		Spring 2018	
		Spring 2017	
		Spring 2016	
		Spring 2015	
		Spring 2014	
		Spring 2013	
		Spring 2012	
ATMOS 6040*	Environmental Statistics	Spring 2023	Course expanded to full semester
		Spring 2021	
ATMOS 5040/6040*	Environmental Statistics	Spring 2019	Featured undergraduate and graduate students combined for first half of semester
		Spring 2017	
		Spring 2015	
		Spring 2013	
ATMOS 5400*	The Climate System	Spring 2011	Designed for traditional students with (E) indicating additional section in the evening for professional teachers pursuing Master of Science in Secondary School Teaching (MSSST) degrees
		Fall 2023	
		Fall 2022	
		Fall 2021(E)	
		Fall 2020	
		Fall 2019	
		Fall 2018(E)	
		Fall 2017	
		Fall 2016	
		Fall 2015	
		Fall 2014(E)	
		Fall 2013	

Fall 2012(E)

Fall 2011

Fall 2010

ATMOS 7810	Graduate Seminar	Spring 2018	
ATMOS 5910*	Special Topics (Climate)	Spring 2010	Special offering course developed into ATMOS 5400
ATMOS 6910* / CVEEN 7920	Hydroinformatics	Fall 2012	Includes on-campus and remote-learning students
HONOR 3700	Praxis Lab: "Anthropocene Now"	Spring 2020 Fall 2019	In this nine-credit, two-semester course, students from multiple disciplines collaborate on innovative project-based solutions to climate change

University of Missouri, Department of Soil, Environmental, and Atmospheric Sciences

ATMOS 1050	Introduction to Meteorology	Fall 2006	More than 300 students
ATMOS 1110	Introduction to Atmospheric Science	Spring 2006	More than 200 students

Mentoring

Graduate advisees with completed degrees (9 M.S. and 5 Ph.D.)

- Bai, Husile, Ph.D. 2022
Served as advisor, 2020-2022
Dissertation "Arctic low-level clouds: sea ice lead impacts and radiative effects in winter"
- Bohne, Lucas, M.S. 2020
Served as major advisor, 2017-2020
Master's thesis "Climatology of orographic precipitation gradients and application to quantitative precipitation forecast downscaling over the western United States"
- DeMaria, Matthew, M.S. 2022
Served as major advisor 2020-2022
Master's thesis "The relationship between synoptic scale weather patterns and cool season orographic precipitation gradients in the Western US"
- Li, Xia, Ph.D. 2022
Served as co-advisor, 2018-2022
Dissertation "Arctic low-level clouds: sea ice lead impacts and radiative effects in winter"
- Liptak, Jessica, M.S. 2011 and Ph.D. 2014
Served as major advisor, 2009-2014

Master's thesis "An objective analysis of the propagating circulation features associated with Midwest precipitation variability"

Dissertation "An analysis of the Arctic sea ice-atmosphere feedback"

- Scalzitti, Jason, M.S. 2016
Served as major advisor, 2014-2016
Master's thesis "High-resolution dynamical downscaling of past and future climate of the Western United States: validation of performance and analysis of changing snowpack"
- Smith, Kimberly, M.S. 2014 and Ph.D. 2017
Served as major advisor, 2011-2014
Master's thesis "Assessing ability of CMIP5 models to capture connections between Great Basin precipitation and Pacific Ocean variability and applying the assessment into the future"
Dissertation "The stochastic harmonic autoregressive parametric (SHaRP) weather generator"
- Mitchell, Christopher, Ph.D. 2022
Served as major advisor 2019-2022
Dissertation "Atmospheric controls on surface mass balance variability of the West Antarctic Ice Sheet"
- Stone, Luke, M.S. 2022
Served as major advisor 2019-2022
Master's Thesis "Pacific and Atlantic drivers of winter precipitation over the continental United States"
- Stwertka, Carolyn, M.S. 2012
Served as major advisor 2009-2013
Master's thesis "Carbon dioxide variability within the urban Salt Lake Valley: an observational and modeling study"
- Weech, Alex, M.S. 2019
Served as major advisor 2017-2019
Master's thesis "Inerannual variability of Rossby wave breaking in the Pacific sector"
- Wolvin, Savanna, M.S. 2022
Served as major advisor 2020-2022
Master's thesis "Climatology of orographic precipitation gradients over High Mountain Asia"
- Yip, Jackson, M.S. 2022
Served as major advisor 2020-2022
Master's thesis "Development and preliminary evaluation of an ice cloud macrophysical model designed for mixed phase cloud regimes"
- Zhao, Bowen, M.S. 2016
Served as major advisor 2016
Master's thesis "Normal modes in North Atlantic atmosphere-ocean system and predicting North Atlantic SST"

Graduate advisees with degrees in progress

- Savanna Wolvin, Ph.D. candidate

Serving as major advisor 2022-present

Postdoctoral researchers

- Adam Kochanski, postdoctoral researcher (now faculty at San Jose State)
Mentored up to half of his postdoctoral research time, and continued this interaction as a faculty collaboration supported by NSF and USAID projects 2012-2020
- Krishna Khatri, postdoctoral research associate (now at Utah Division of Water Resources)
Served as mentor 2015-2017

Undergraduate mentoring

- Annabelle Warner, mentor for research supported by UROP, 2023-2024
- Zoe Exelbert, mentor for Wilkes Climate Center fellowship, 2022-2024
- Delaney Mosier, co-mentored REU project in Department of Mathematics, 2018
- Pierce Gardner, mentoring undergraduate research via ATMOS 5810 - 017 Experiential Learning II, 2024
- Zac Thayne, supervised Capstone project in Department of Atmospheric Sciences, 2019-2020
- Katie Winter, supervised Capstone project in Department of Atmospheric Sciences, supported by UROP, 2018-2019
- Alex Weech, supervised research funded in Department of Atmospheric Sciences, supported by NSF iUTAH project, 2017

International mentoring

- Muhammad Touseef, M.S. Candidate from Mehran University of Engineering & Technology, Jamshoro, Sindh, U.S.-Pakistan Centers for Advanced Studies in Water, Fall Exchange Program 2016
- Ghulam Hussain Dars, Assistant Professor from Mehran University of Engineering & Technology, Jamshoro, Sindh, U.S.-Pakistan Centers for Advanced Studies in Water, Exchange Program Fall 2016; Course Development Mentor Spring 2017 and Co-Supervisor of Ph.D. research.
- Fehmida Rafi, M.S. Candidate from Mehran University of Engineering & Technology, Jamshoro, Sindh, U.S.-Pakistan Centers for Advanced Studies in Water, Fall Exchange Program 2019
- Mehran Sattar, M.S. Candidate from Mehran University of Engineering & Technology, Jamshoro, Sindh, U.S.-Pakistan Centers for Advanced Studies in Water, Fall Exchange Program 2017

Student advisory committee service

University of Utah, Department of Atmospheric Sciences

- Chris Ander, M.S. 2012: committee member, 2011-2012
- Daniel Baldassare, M.S. candidate: committee member, 2022-present
- Kimberly Bestul, M.S. candidate: committee member, 2021-present
- Corey Bois, M.S. 2023: committee member, 2022-2023
- Loren Brink, M.S. candidate: committee member, 2024-present
- Marcel Caron, M.S. 2019: committee member, 2017-2019

- Allison Charland, Ph.D. candidate: committee member, 2013-2014
- Zachary A. Cleveland, Ph.D. candidate: committee member, 2023-present
- Erik Crosman, Ph.D. 2010: committee member, 2009-2010
- Julie Cunningham, M.S. candidate: committee member, 2020-present
- Ian Glenn, M.S., 2013: committee member, 2013
- Ian Glenn, Ph.D 2017: committee member, 2015-2017
- Peter Gombert, M.S. candidate: committee member, 2022-present
- Tom Gowan, M.S. 2017: committee member, 2016-2017
- Tom Gowan, Ph.D. candidate: committee member, 2017-2020
- Hao-Jhe Hong, Ph.D. 2019: committee member, 2018-2019
- Matt Horan, M.S. candidate: committee member, 2015-2017
- Matt Jeglum, M.S. 2010: committee member, 2009-2010
- Maura Hahnenberger, Ph.D. 2013: committee member, 2012-2013
- Lewis Kunik, M.S. candidate: committee member, 2022-present
- Alexander Jacques, Ph.D. 2016: committee member, 2013-2016
- Andy Lambert, M.S. candidate: committee member, 2018-2019
- Matt Lammers, M.S. 2014: committee member, 2013-2014
- Neil Lareau, M.S. 2010: committee member, 2010
- Neil Lareau, Ph.D. 2014: committee member, 2010-2014
- John Lawson, M.S. 2013: committee member, 2012-2013
- Wyndam Lewis, M.S. 2016: committee member, 2015-2016
- Katherine Ansley Long, M.S. 2016: committee member, 2015-2016
- Taylor McCorkle, Ph.D. candidate: committee member, 2018-present
- Melissa Maestas, Ph.D. 2016: committee member, 2012-2016
- Ryan Oates, M.S. 2013: committee member, 2011-2013
- Crystal Painter, M.S. 2016: committee member, 2015-2016
- Michael Pletcher, Ph.D. candidate: committee member, 2022-presentS
- Karlie Rees, Ph.D. candidate: committee member, 2021-present
- Jonathan Rutz, M.S. 2010: committee member, 2009-2010
- Jonathan Rutz, Ph.D. 2014: committee member, 2010-2014
- Paul Staten, Ph.D., 2012: committee member, 2010-2012
- Pete Saunders, Ph.D. 2019: committee member, 2016-2019
- Dillon Ulrich, M.S. candidate: committee member, 2016-2017
- Peter Veals, M.S. 2014: committee member, 2013-2014
- Forrest Wrenn, M.S., 2012: committee member, 2011-2012
- Brittany Welch, M.S. candidate: committee member, 2018-2020
- Michael Wessler, M.S., 2018: committee member, 2016-2018
- Michael Wessler, Ph.D. candidate: committee member, 2019-2021
- Dien Wu, M.S. 2016: committee member, 2015-2016
- Dien Wu, Ph.D., 2019: committee member, 2017-2019
- Zheng Wu, Ph.D., 2019: committee member, 2017-2019
- Hailing Zhang, Ph.D., 2013: committee member, 2012-2013
- Lauren Zuromski, M.S. 2017: committee member, 2016-2017

University of Utah, Department of Biology

- Mark Blonquist, M.S., 2012: committee member, 2010-2012

University of Utah, Department of Civil and Environmental Engineering

- Erfan Goharian, Ph.D. 2015, committee member, 2012-2015
- Mohammad Hasan, Ph.D. candidate: committee member, 2017-present
- Mason Kreidler, Ph.D. candidate, committee member, 2019-present
- Shannon Reynolds, Ph.D. 2013: committee member, 2011-2013

University of Utah, Department of Geography

- Durban Keeler, Ph.D. candidate: committee member, 2017-present
- Dennis Krueger, M.S. 2019: committee member, 2018-2019

University of Utah, Department of Geology & Geophysics

- Andrew Gelderloos, M.S. 2017: committee member, 2016-2017
- Eric Humphrey, M.S. candidate: committee member, 2020-present
- Logan Jamison, M.S. candidate: committee member, 2019-present
- Crystal Tulley-Cordova, Ph.D. 2018: committee member, 2013-2018
- Annie Putman, Ph.D. 2019: committee member, 2016-2019

University of Utah, Department of Mathematics

- Huy Ba Dinh, Ph.D. candidate: committee member, 2017-present
- Rebecca Hardenbrook, Ph.D. candidate: committee member, 2021-present
- Delaney Mosier, Ph.D. candidate, committee member, 2020-present
- Christian Sampson, Ph.D. candidate: committee member, 2016-2017
- Julie Sherman, Ph.D. candidate: committee member, 2022-present
- Kyle Steffen, Ph.D. 2018: committee member, 2016-2018

Professional Master of Science and Technology (PMST) Program

- Christopher Haight, M.S. 2015: supervisory committee chair, 2015
- Alex Argyle, M.S. 2018: committee member, 2017-2018

Professional service and outreach

Outside the University of Utah

- Great Salt Lake Collaborative Team, member. Strike force focused on anthropogenic impacts on lake, 2022-present
- Proposal review panel member: National Science Foundation, virtualm 2024.
- Proposal review panel member: National Aeronautics and Space Administration (NASA), Washington D.C., 2020.
- Co-Organizer, Workshop on Multi-scale modelling of ice characteristics and behavior, Newton Institute, Cambridge, United Kingdom, 11-15 September 2017
- Panelist for The Humanists of Utah 10th Annual Darwin Day Celebration, Salt Lake City, Utah, 11 February 2017.
- Member of Mountain Accord Environmental Dashboard Technical Committee, invited by Salt Lake County Mayor Ben McAdams, 2016
- Panelist for “Beyond the Ivory Tower: University-Stakeholder Partnerships for Utah's Water Future,” Salt Lake County Watershed Symposium, Salt Lake City, Utah, 15-16 November 2016.
- Panelist for agriculture and climate discussion, Salt Lake Community College Earth Day, 22 April 2016

- Co-organizer of “Differential Equations, Probability and Sea Ice,” *American Mathematical Society Mathematics Research Community*, Snowbird, Utah, 21-27 June 2015
- University of Utah representative on the Board on Oceans, Atmosphere and Climate of the Association of Public and Land-Grant Universities, 2015-present
- Roundtable discussion on climate with Environmental Protection Agency Administrator Gina McCarthy and Salt Lake City Mayor Ralph Becker, 2014
- Member of Climate Team that developed “Summary of climate change understanding and projections for the Mountain Accord” included in *Mountain Accord Existing Conditions and Future Trendlines Report*, www.mountainaccord.com, 2014
- Panelist for Advancing Research Computing on Campuses: Best Practices Workshop, National Center for Supercomputing Applications, Urbana, Illinois, 2014
- Briefing of Salt Lake City Mayor Ralph Becker for his appointment to White House State, Local, and Tribal Leaders Climate Resiliency Task Force, 2013
- Invited member of USA National Phenology Network Working Group and participant in *Seasonal timing prediction workshop*, Milwaukee, 2013
- Invited expert reviewer for *Assessment of Climate Change in the Southwest United States: A Report Prepared for the 2013 National Climate Assessment*, 2013
- External advisory board member for Southwest Climate Science Center project “Influence of interannual North Pacific Jet variability on Sierra Nevada Fire regimes”, 2013-2014
- Proposal review panel member: National Aeronautics and Space Administration (NASA), Washington D.C., 2012
- University Corporation for Atmospheric Research Annual Meeting, Administrative Staff Representative for the University of Utah, 2011
- Reviewer of proposals: *Belmont Forum* (international), *Fondecyt Fondo Nacional de Desarrollo Científico y Tecnológico* (Chile), *Natural Sciences and Engineering Research Council* (Canada), *National Science Foundation* (United States)
- Reviewer of manuscripts: *Agricultural and Forest Meteorology*; *Arctic, Antarctic, and Alpine Research*; *Atmospheric Chemistry and Physics*; *Climate Dynamics*; *Climate Research*; *Environmental Research Letters*; *Eos Transactions*; *Geophysical Research Letters*; *International Journal of Climatology*; *Journal of Applied Meteorology and Climatology*; *Journal of the Atmospheric Sciences*; *Journal of Climate*; *Journal of Geophysical Research – Atmosphere*; *Journal of Geophysical Research – Oceans*; *Journal of Hydrometeorology*; *Monthly Weather Review*; *Mehran University Research Journal of Engineering and Technology*; *Nature*; *Nature Climate Change*; *Nature Geoscience*; *Physical Review E*; *Polar Science*; *Proceedings of the National Academy of Sciences*; *Pure and Applied Geophysics*; *Quarterly Journal of the Royal Meteorological Society*; *United States Geological Survey* (internal reviewer)
- Professional Societies: American Association for the Advancement of Science, American Mathematical Society, American Meteorological Society, American Geophysical Union, American Water Resources Association, Association of Polar Early Career Scientists

University of Utah

- Responsible Artificial Intelligence Initiative (RAI) Environment Working Group, Co-Chair 2024
- Reviewer for Undergraduate Research Opportunity Program (UROP), Fall 2023
- Expert panelist for Urban Ecology course, Department of Biology, 1 November 2023

- Chair of Internal Review Committee for the University of Utah Department of Civil and Environmental Engineering Graduate Council Review, 2022
- Presidential Climate Commitment Task Force (CCTF): member 2021-2023; steering committee member, 2019-2020
- USPCASW (United States Pakistan Center for Advanced Study in Water) Executive Committee: member, 2017-2019
- Search Committee for the Dean, College of Mines and Earth Sciences: member, 2015-2016
- Senate Advisory Committee on Library Policy: chair, June 2015-June 2016 and June 2017-June 2018
- Marriott Library De-selection Task Force: member, 2015
- University Research Committee: member, 2014-2015
- Center for High Performance Computing Allocation Committee: member, 2014-2017
- iUTAH (NSF grant) Executive Committee: member, 2012-2017
- CI-WATER (NSF grant) Climate Modeling Workshop for Professional Development Summer Institute (15 teachers from Utah and Wyoming): organizer, 2013
- TGLL (NSF grant) Steering Committee: member, 2011-2015
- Global Change and Sustainability Center (GCSC): founding faculty member and participant, Seminar Committee member 2011-2012, Fellowship Committee member 2011-2013, Faculty Recruitment Committee member 2011
- Senate Advisory Committee on Library Policy: member, June 2010- June 2015
- Natural Resources Law Forum, S.J. Quinney College of Law: invited panelist for discussion forum “Climate Change: Implications for Utah,” 2013
- Focus the U on Sustainability: faculty participant, presented invited lecture on climate science, S.J. Quinney College of Law, 2012
- Center for Quantitative Biology: affiliate, 2013-present

College of Mines and Earth Sciences

- College wide Liaison for faculty, staff, post docs, and students. College of Mines and Earth Sciences, 2020-present
- Outstanding Faculty Teaching Award Committee, chair, 2019
- Reader for convocation, 2019
- Teaching Award Committee member, 2014-2015
- College Safety and Emergency Preparedness Committee member, 2011-2012
- College McGregor Library Committee member, 2009-2015

Department of Atmospheric Sciences

- Graduate Student Affairs Committee, Chair, 2023-present
- Director of Graduate Studies, 2018-present
- Tenured Faculty Review Committee 2024
- Faculty Search Committee member, 2021-2022
- Compensation Committee member, 2009 – 2014
- Qualifying Exam Committee member, 2010 –2015
- Computer Committee member, 2012 – 2015

Participation in workshops and other professional development

- *Biomedical Research Investigators and Key Personnel*, completed training, 2014
- *Tree-ring reconstructions of streamflow and applications in Wasatch water management*, Salt Lake City, Utah, 2013

- *National Science Foundation: Becoming the Messenger Workshop*, Salt Lake City, Utah, 2012
- *University Corporation for Atmospheric Research Early Career Faculty Workshop: "Communicating science to the media and elected officials,"* Boulder, Colorado, 2011
- *National Science Foundation Early Career Geoscience Faculty Workshop: "Teaching, Research, and Managing Your Career,"* College of William and Mary, Virginia, 2010
- *Leverhulme Climate Symposium* (competitive selection), Cambridge University and London's Royal Society, 2008
- *National Center for Atmospheric Research Advanced Study Program Summer Colloquium* (competitive selection), Boulder, Colorado, 2003

Selected media coverage of research

- Millard County Chronicle Progress, "'Dismal' water year ends amid drought", 06 October 2021, <https://www.millardccp.com/featured-local-news/54-featured-news/5972-dismal-water-year-ends-amid-drought>
- Phys.org "Cracks in sea ice turn low clouds on and off", 10 January 2020 <https://phys.org/news/2020-01-arctic-sea-ice-clouds.html>
- EOS Science News by AGU "How Climate Science Is Expanding the Scale of Ecological Research, 31 March 2020, <https://doi.org/10.1029/2020EO142163>.
- 90.9 KRCL "RadioACTIVE" program spoke live about climate change with four undergraduate students from my course HONOR 3700 Praxis Lab "Anthropocene Now" <https://krcl.org/blog/radioactive-february-26-2020/>
- EOS Science News by AGU "A nearly 100-year-old physics model replicates modern Arctic ice melt," 02 august 2019, <https://doi.org/10.1029/2019EO129555>.
- WIRED "Magnetic materials help explain how Arctic ice melts," 05 July 2019.
- Scientific American "Magnet and Neuron Model Also Predicts Arctic Sea Ice Melt," 24 July 2019.
- EuroScientist "Applied mathematicians in the service of pressing global issues," 22 November 2018. www.euroscientist.com/applied-mathematics/
- FOX13 "Predictions in decade-old report come true as Utah sees bigger storms, warmer temperatures," aired 4 November 2016.
- KUER-FM (Utah NPR) "Study: Snowpack Shifts as Wasatch Warms" by Judy Fahys, 20 May 2016. Also covered on AGU Blogosphere, GeoSpace, ScienceDaily, Sensors & Systems, (e)Science News, Phys.org, Eurasia Review, Technology.org, Health Medicine Network, BrightSurf.com, NSF Science360, Equities.com, and Wasatch Magazine.
- KUER-FM (Utah NPR) "Scientists link odd bird migration to climate shift" by Judy Fahys, 14 May 2015. Also covered in *The Why Files*, *Conservation Magazine*, *The Wildlife Society*, *ClimateWire*, *Eureka Alert!* (AAAS), *ScienceDaily*, *Global News* (Toronto), *Nature World News*, *Tech Times*, *Science360* (National Science Foundation), and *Great Lakes Echo*.
- *The Daily Utah Chronicle*, "Greatest Snow on Earth? Maybe Not, After Climate Change" by Kylee Ehmann, 17 December 2015.

Invited talks and lectures

2024

- Arctic marginal ice zone dynamics captured by ocean-scale mushy layer model, *SIAM Conference on Mathematics of Planet Earth*, Portland, Oregon, 10-12 June 2024.

2023

- Atlantic-Pacific influence on western U.S. hydroclimate and water resources, *Colorado River Climate and Hydrology Work Group*, Salt Lake City, Utah, 28 November 2023.
- Emerging tools for prediction and management of water resources, *Boase Hydrologic Sciences and Water Resources Engineering Seminar Series*, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, 13 September 2023.

2022

- Introduction to climate system, *guest lecture for GEO 5675 Paleo Reconstruction*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 30 August 2022.
- Atmospheric circulation and global energy balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 6 September 2022.
- Global water balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 8 September 2022.
- Regional water managers climate vulnerability briefing, virtual, 23 February 2022.

2020

- Climate change in Utah: the science behind the impacts, *Climate Resilience Workshop*, University of Utah, Salt Lake City, Utah 11 August 2020.

2019

- The physics of climate change, *Department of Physics, Weber State University*, Ogden, Utah, 4 December 2019.
- Advocating for science and reaching a broader audience, *Career Development Training Series (CaDeTs) hosted by Bioscience Ph.D. Programs*, University of Utah, 25 October 2019.
- DNR Climate Change Briefing: Science of Climate Change and Future Climate Trends, *Utah Department of Natural Resources*, Salt Lake City, Utah, 24 October 2019.
- The Science of Climate Change, *guest lecture for ENVST 2100 Introduction to Environmental and Sustainability Studies*, University of Utah, Department of Environmental and Sustainability Studies, Salt Lake City, Utah, 22 October 2019.
- Atmospheric circulation and global energy balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 3 September 2019.
- Global water balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 5 September 2019.
- Future climate change for Utah, *Utah American Water Resources Association (AWRA) Annual Conference*, Salt Lake City, Utah, 14 May 2019.

2018

- The Science of Climate Change, *guest lecture for ENVST 2100 Introduction to Environmental and Sustainability Studies*, University of Utah, Department of Environmental and Sustainability Studies, Salt Lake City, Utah, 30 October 2018.
- Water supply versus demand in Utah's future, *Central Utah Water Symposium on Climate Variability*, Provo, Utah, 14 May 2018.

2017

- Filling the polar data gap with harmonic functions, *Workshop: Multiscale modeling of ice characteristics and behavior*, Isaac Newton Institute for Mathematical Science, Cambridge, United Kingdom, 11-15 September 2017.
- Atmospheric circulation and global energy balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 5 September 2017.
- Global water balance, *guest lecture for GEO 5650 Hydrology and Water Resources*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 7 September 2017.
- Curriculum and course development, *Faculty Development Workshop*, Pakistan Academy of Science, Islamabad, Pakistan, 10 August 2017.
- Research Project Management, *Faculty Development Workshop*, Pakistan Academy of Science, Islamabad, Pakistan, 11 August 2017.
- Coupling the human-natural water system: Five years of participatory modeling and innovative visualization, *2017 iUTAH Annual Symposium and Summer All-hands Meeting*, Logan, Utah, 13 July 2017.

2016

- The oceans: impacts on local climate, *guest lecture for GEO 3800 The Oceans*, University of Utah, Department of Geology and Geophysics, Salt Lake City, Utah, 22 November 2016.
- Climate data and resources for watershed modeling, *guest lecture for CVEEN 6410 Watershed Modeling*, University of Utah, Department of Civil and Environmental Engineering, Salt Lake City, Utah, 18 October 2016.
- The science of climate change, *evening course for elementary school teachers pursuing Science, Technology, Engineering, and Mathematics (STEM) certification*, Salt Lake County, Utah, 7 April 2016 and 12 April 2016.
- Influence of climate on irruption of North American boreal seed eating birds, invited by *US-Regional Association of the International Association for Landscape Ecology (US-IALE)*, Ashville, North Carolina, 3-7 April 2016.
- Modeling the coupled human-natural system, Utah Division of Water Resources, Salt Lake City, Utah, 10 February 2016.
- Regional Resiliency Assessment Program, Department of Homeland Security, Salt Lake City, Utah, 3 February 2016.
- Science of climate change. University of Utah Sustainability Office meeting for Sustainability Action Plan, University of Utah, Salt Lake City, Utah, 29 January 2016.
- A balanced view of climate change. Department of Chemical Engineering, University of Utah, Salt Lake City, Utah, 20 January 2016.

2015

- Climate Symposium, organized by Jordan Valley Water Conservancy District, West Jordan, Utah, 8 September 2015.
- Mathematical aspects of marginal ice zone width, *Mathematics of Sea Ice* conference, Vancouver, British Columbia, 24-26 September 2015.
- Utah Climate Variability and Health Symposium, organized by Salt Lake County Health Department, Salt Lake City, Utah, 3 June 2015.
- Fulbright Association Seminar, “Where Have All the Winters Gone? Local Consequences of Climate Change”, Westminster College, Salt Lake City, Utah, 16 April 2015.

2014

- Arctic atmosphere-sea ice interactions and feedback. Noble Seminar Series, *University of Toronto Atmospheric Physics Group*, Toronto, Canada, 2 March 2014.
- The balance and future of water for the Wasatch Range, *Watershed Sciences Department, Utah State University*, Logan, Utah, 25 February 2014.

2013

- Climate as a driver of continent-wide irruptions in boreal seed-eating birds. *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2013.
- The balance and future of water for the Wasatch Range, *Department of Plant & Wildlife Sciences, Brigham Young University*, Provo, Utah, 7 November 2013.
- Understanding and using climate models for teaching, *CI-WATER Professional Development Summer Institute*, Salt Lake City, Utah, 24-28 June 2013.
- Future precipitation and snowpack along the Wasatch Range, *American Water Resources Association Utah Section Annual Conference*, Salt Lake City, Utah, 14 May 2013.
- Global change and its local impacts, *Humanists of Utah*, Salt Lake City, Utah, 14 March 2013.
- The future balance of water along the Wasatch Range and Front, *Utah Geological Association*, Salt Lake City, Utah, 11 February 2013.

2012

- Current and future hydrologic cycle of the Wasatch Range and Front, *Department of Plants, Soils, and Climate, Utah State University*.
- Overview of the NCAR global climate model (CESM), *SC12 Student Cluster Competition planning meeting, University of Utah*.
- The basics of climate science, seminar and workshop, *S.J. Quinney College of Law, University of Utah*.
- Climate science and climate scientists, *East High School*, Salt Lake City, Utah.

2011

- The width of things non-convex: an application of Laplace’s equation, *Math Biology Seminar, Department of Mathematics, University of Utah*.
- Communicating science to the public, *Think Globally, Learn Locally (TGLL) seminar series for TGLL fellows*, University of Utah.
- Climate science and climate modeling, *East High School*, Salt Lake City, Utah.

2010

- Human and natural influences on carbon dioxide concentrations in Salt Lake City, *Global Change and Ecosystem Center (GCSC) seminar series, University of Utah*.
- Interactions between atmospheric circulation and sea ice over the North Atlantic, *Department of Geography, University of Utah*.
- Modeling climate change: classroom applications, *Think Globally, Learn Locally (TGLL) Summer Workshop for teachers and TGLL fellows, University of Utah*.
- Interactions between winter atmospheric circulation and Arctic sea ice, *NCAR Climate and Global Dynamics Division, Boulder, Colorado*.

2009 and earlier

- The role of tropospheric Rossby wave breaking in the Pacific Decadal Oscillation, *Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan, 2009*.
- The role of tropospheric Rossby wave breaking in the Pacific Decadal Oscillation, *Department of Atmospheric Sciences, University of Utah, 2008*.
- The role of tropospheric Rossby wave breaking in the Pacific Decadal Oscillation, *Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2008*.
- Dynamic climatology of jet streams, *Department of Earth System Science, University of California, Irvine, 2006*.
- Mathematical foundations of atmospheric partial differential equations. *Atmospheric Flow Seminar, Department of Mathematics, University of Missouri-Columbia, 2006*.
- Jet Streams and temperature-related climate variability over the Northern Hemisphere, *University of Missouri-Columbia chapter of the American Meteorological Society 2006*.

Contributed presentations

2023

- Lavergne T, Sorensen A, Tonboe R, Strong C, Kreiner M, Saldo R, Birkedal A, Baordo F, Aspenes T, Eastwood S, 2023. Version 3 of the ESA CCI and EUMETSAT OSI Sea Ice Concentration Climate Data Records, EC-ESA Joint Earth-System Science Initiative 2023 Workshop, Frascati, Italy, 22 November 2023.
- Lavergne T, Sorensen A, Tonboe R, Strong C, Kreiner M, Saldo R, Birkedal A, Baordo F, Aspenes T, Eastwood S, 2023. Monitoring of Sea Ice Concentration, Area, and Extent in the polar regions: 40+ years of data from EUMETSAT OSI SAF and ESA CCI. IAF Global Space Conference on Climate Change (GLOC 2023), Oslo, Norway, 23-25 May 2023. <https://zenodo.org/records/10014535>
- Johnson R, Burian SJ, Halgren J, Aziz D, Strong C, Stone L, Brooks P, Wolf M, Jamison L, Briefer L, Kirkham T, Stewart J, Prue Tamara, 2023. Research to Operations Stakeholder Engagement to Mitigate Water System Climate Vulnerabilities, American Meteorological Society Annual Meeting, Denver, CO, 9 January 2023.

2022

- Brooks PD, Strong C, Wolf M, Johnson RC, Aziz D, Steward J, Burian SJ, Jamison LR, Stone L, Kirkham T, Briefer L, 2022. Climate, Hydrologic, and Systems Modeling to Assess Water

Supply Changes to Climate Change, *American Geophysical Union Fall Meeting*, Chicago, Illinois, 12-16 December 2022.

- Wolf M, Jamison LR, Strong C, Brooks P, Perturbations of groundwater storage in headwater catchments of the Upper Colorado River Basin: Improving our understanding of why runoff in mountain environments is so variable, *American Geophysical Union Fall Meeting*, Chicago, Illinois, 12-16 December 2022.
- Bai H, Strong C, LaMontagne JM, Zuckerberg B, 2022. Summer North American Dipole Driven by Stationary Rossby Waves Associated with Tropical and Monsoonal Convection, *American Geophysical Union Fall Meeting*, Chicago, Illinois, 12-16 December 2022.
- Widick I, Bai H, Strong C, LaMontagne JM, Zuckerberg B, 2022. Climate Dipoles Entrain Ecological Dipoles: Irruption Dynamics of Boreal Finches, *American Geophysical Union Fall Meeting*, Chicago, Illinois, 12-16 December 2022.
- Yip J, Krueger S, Strong C, Li X, 2022. An LES-based approach to deriving more physically representative ice cloud microphysics parameterizations, *American Meteorological Society 16th Conference on Cloud Physics*, Madison, Wisconsin, 8-12 August 2022.
- Krueger S, Li X, Yip J, Mace G, Strong C, 2022. Parameterizing the effects of winter-time Arctic leads upon the atmosphere, *American Meteorological Society 16th Conference on Cloud Physics*, Madison, Wisconsin, 8-12 August 2022.
- Li X, Mace G, Strong C, Krueger S, 2022. Low-level clouds cool the Arctic climate system in winter, *American Meteorological Society 16th Conference on Cloud Physics*, Madison, Wisconsin, 8-12 August 2022.
- Rivera AS, Barton J, Strong C, Zuckerberg B, LaMontagne J, 2022. Ticks and tick-borne diseases dynamics across contiguous United States, *Ecological Society of America Annual Meeting*, Montreal, Quebec, Canada, 14-19 August 2022.
- Barton J, Zuckerberg B, Strong C, Jarzyna M, Widick I, LaMontagne J, 2022. Local-to continental-scale small mammal population dynamics in North America, *Ecological Society of America Annual Meeting*, Montreal, Quebec, Canada, 14-19 August 2022.
- Lavergne T, Sorensen A, Tonboe RT, Saldo R, Pedersen LT, Kreiner MB, Strong C, Cherkaev E, Golden K, 2022. Version 3 of the ESA CCI and EUMETSAT OSI SAF Sea Ice Concentration Climate Data Records, European Space Agency, Living Planet Symposium, Bonn, Germany, 23-27 May 2022.
- Rivera AS, Barton J, Strong C, Zuckerberg B, LaMontagne JM, Ticks & tik-borne disease dynamics across NEON sites, *The Midwest Ecology and Evolution Conference (MEEC)*, 5-6 March 2022.
- Ivy, *USIALE*

2021

- DeMaria M, Strong C, Steenburgh J, 2021. Synoptic-Scale Predictors of Cool-Season Orographic Precipitation Gradients in the Contiguous Western US, *Midwest Student Conference on Atmospheric Research*, virtual, 25-26 September 2021.
- Wolf MA, Jamison LR, Solomon DK, Strong C, Brooks PD, 2021. A 12-Catchment Comparison of How Multi-year Climate Controls Catchment Recharge, Storage, and Streamflow Using Over a Century of Data in Northern Utah, *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, 13-17 December 2021.
- Brooks PD, Gelderloos A, Wolf MA, Jamison LR, Strong C, Solomon DK, Bowen GJ, Briefer L, 2021. Predicting snowmelt-derived water resources in a changing climate: Warming and

multi-year droughts reduce runoff efficiency by depleting groundwater storage and slowing melt, *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, 13-17 December 2021.

- Bai H, Strong C, LaMontagne JM, Zuckerberg B, 2021. Continental-scale climate dipoles driven by pan-Pacific waves, *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, 13-17 December 2021.
- Barton J, Zuckerberg B, Strong C, Jarzyna M, LaMontagne J, 2021. Uncovering ecological dipoles of small mammals in North America, *Canadian Society for Ecology and Evolution (CSEE) Annual Meeting*, virtual, 15-20 August 2021.
- Barton J, Zuckerberg B, Strong C, LaMontagne J, 2021. Uncovering ecological dipoles of small mammals in North America, *2021 Midwest Environmental Education Conference*, Decorah, Iowa, 26-29 July 2021.
- Li X, Mace G, Krueger S, Strong C, 2021: Towards a better low-level cloud retrieval in the Arctic Ocean, *American Meteorological Society 16th Conference on Polar Meteorology and Oceanography*, virtual, 1-4 June 2021.
- Yip J, Krueger S, Strong C, 2021: Simulation of Arctic lead-generated cloud fluxes and evaluation of assumed PDF boundary layer cloud models, *American Meteorological Society 16th Conference on Polar Meteorology and Oceanography*, virtual, 1-4 June 2021.
- Li J, Burian S, Strong C, 2021: Evaluating Impacts of Urban Redevelopment and Climate Change on Future Flooding Resilience, *2021 World Environmental & Water Resources Congress*, virtual, 23-26 May 2021.
- Zuckerberg B, LaMontagne J, Strong C, Widick I, Bai H, 2021: The influence of climate dipoles on plant and animal populations at continental scales, *National Science Foundation Macrosystems PI Meeting*, virtual, 13-14 January 2021.
- Bai H, Strong C, 2021: Climate drivers of east-west Pine Siskin irruption mode, *National Science Foundation Macrosystems PI Meeting*, virtual, 13-14 January 2021.
- LaMontagne J, Barton JH, Rivera AS, Strong C, Zuckerberg Z, 2021: Ecological dipoles: mast seeding and continental scale population dynamics, *National Science Foundation Macrosystems PI Meeting*, virtual, 13-14 January 2021.
- Widick, I.V., C. Strong, J.M. LaMontagne, and B. Zuckerberg. Influence of climate dipoles on avian irruption at continental scales. NSF Macrosystems PI Meeting, Virtual, 14 January 2021.
- Rivera, A.S., C. Strong, B. Zuckerberg, and J.M. LaMontagne. Spatiotemporal patterns of ticks and tick-borne disease at NEON sites. Midwest Ecology & Evolution Conference at Northern Illinois University. Virtual, March 2021.
- Barton, J., C. Strong, B. Zuckerberg, and J.M. LaMontagne. Uncovering ecological dipoles of small mammals in North America. Midwest Ecology & Evolution Conference at Northern Illinois University. Virtual, March 2021.

2020

- Yip J, Krueger S, Strong C, Li X, Mace G, 2020: A LES-based analysis of assumed PDF methods for diagnosing lead-generated boundary layer cloud fractions in the Arctic, *American Geophysical Union Fall Meeting*, virtual, 1-17 December 2020.
- Li X, Krueger S, Mace G, Strong C, Berry B, 2020: Low-level clouds in wintertime Arctic: Lead impacts and radiative forcing, *American Geophysical Union Fall Meeting*, virtual, 1-17 December 2020

- Rupper S, Olson M, Johnson E, Skiles M, Strong C, Steenburgh J, 2020. Climate-driven glacier and snowpack changes in the water towers of Asia, *American Geophysical Union Fall Meeting*, virtual, 1-17 December 2020
- Li X, Krueger S, Strong C, Mace G, Benson S, 2020: Arctic wintertime leads form and dissipate low clouds, *24th Symposium on Boundary Layers and Turbulence*, Sibenik, Croatia, 13-17 July, 2020.
- Golden K, Bowen B, Ma Y, Moore R, Strong C, Sudakov I, 2020: Modeling the geometry of melt ponds on Arctic sea ice, *European Geophysical Union General Assembly*, Vienna, Austria 3-8 May 2020.
- Bohne, L, C Strong, and WJ Steenburgh, 2020: Potential for downscaling precipitation forecasts using orographic precipitation gradients in the western United States. *30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction*, American Meteorological Society, Boston, Massachusetts, 12-16 January 2020 .

2019

- Brooks P, Gelderloos A, Wolf M, Jamison L, Solomon K, Strong C, Burian S, Tai X. When ΔS does not equal 0: A multi-year climate signal, mediated through groundwater, controls annual water yield in seasonally snow-covered mountain headwaters, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Brooks P, Ehleringer J, Bowen B, Bowen G, Bowling D, Briefer L, Follstad-Shah J, Hinners S, Lin J, Pataki D, Strong C, Mackenzie Skiles S, Solomon DP, Steenburgh J. Red Butte Creek and the Wasatch Environmental Observatory: A mountain to urban research facility in the semi-arid Western US, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Jamison L, Brooks PD, Strong C, Arens S. Water Resource Response to Climate in the Weber River Watershed, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Li X, Krueger S, Strong C, Mace G. Relationships between Wintertime Leads and Low Clouds in the Pan-Arctic, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Rupper S, Krueger J, Strong C, Keeler D. Topical Forcing of West Antarctic Ice Sheet Surface Mass Balance Variability, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Rupper S, Riley C, Steenburgh JS, Strong C, Johnson ES, Kochanski A. Rethinking Monsoon- and Westerly Disturbance-Dominated Precipitation Dynamics and Impacts on the Cryosphere in High Mountain Asia, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Wolf M, Gelderloos A, Strong C, Jamison L, Brooks P, Solomon K. Snowmelt runoff efficiency mediated through multi-year climatic controls on groundwater recharge in the Wasatch Mountains, Utah, USA, *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2019.
- Rafi F, Strong C, Dars GH, Kochanski A. Flood forecasting in Kabul River Basin (KRB) using WRF-Hydro model, *Water in the World Symposium*, Salt Lake City Utah, 18 November 2019.

- Dars GH, Strong C, Kochanski A. Precipitation trends over the Upper Indus Basin, *Pak Water Expo (PWE)*, Karachi, Pakistan, 6 November 2019.
- Uqaili M, Dars GH, Strong C, Ansari K. Drought analysis for Baluchistan using statistical climate downscaling, *3rd Young Researchers Water & Environment National Conference*, Mehran University of Engineering and Technology, Jamshoro, Pakistan, 22 August 2019.
- Krueger S, Li X, Mace G, Strong C, Xie H. Parameterizing the effects of wintertime leads upon the atmosphere, *American Meteorological Society 15th Conference on Polar Meteorology and Oceanography*, Boulder, Colorado, 22 May 2019.
- Li X, Krueger S, Strong C, Mace G. Effects of midwinter Arctic leads on boundary layer clouds, *American Meteorological Society 15th Conference on Polar Meteorology and Oceanography*, Boulder, Colorado, 21 May 2019.
- Strong C, Cherkaev E, Golden K. Seasonal Cycle of Arctic Marginal Ice Zone Location and Width, *American Meteorological Society 15th Conference on Polar Meteorology and Oceanography*, Boulder, Colorado, 21 May 2019.
- Krueger S, Li X, Strong C, Mace J. Effects of Midwinter Arctic Leads on Boundary Layer Clouds, *seminar presented at Colorado State University*, Fort Collins, CO, 7 Feb 2019.
- Riley C, Rupper S, Steenburgh J, Strong C, Kochanski A. Characteristics of Extreme Precipitation Events in High Mountain Asia as Inferred from High Resolution Regional Climate Modeling, *American Meteorological Society 99th Annual Meeting*, Phoenix, Arizona, 6-10 January 2019.

2018

- Banzon V, Smith T, Steele M, Zhang H, Huang B, Strong C, Golden K, Biard JC. Validation and Improvement of a blended sea surface temperature analysis using recent buoy observations in the Arctic, *American Geophysical Union Fall Meeting*, Washington, D.C., 10-14 December 2018.
- Riley C, Rupper S, Steenburgh J, Strong C, Kochanski A. Characteristics of Extreme Precipitation Events in High Mountain Asia as Inferred from High Resolution Regional Climate Modeling, *American Geophysical Union Fall Meeting*, Washington, D.C., 10-14 December 2018.
- Li X, Krueger SK, Strong C, Mace G. Effects of Midwinter Arctic Leads on Clouds and the Surface Energy Budget, *American Geophysical Union Fall Meeting*, Washington, D.C., 10-14 December 2018.
- Li X, Krueger SK, Strong C, Mace G. Effects of Midwinter Arctic Leads on Clouds and the Surface Energy Budget, *webinar invited by Interagency Arctic Research Policy Committee Atmosphere Collaboration Team*, 4 December 2018.
- Li X, Krueger SK, Strong C, Mace G. Effects of Midwinter Arctic Leads on Clouds and the Surface Energy Budget, *CFMIP Meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity*, 16-19 October in Boulder, Colorado.
- Li X, Krueger SK, Strong C, Mace G. Effects of Midwinter Arctic Leads on Clouds and the Surface Energy Budget, *15th Conference on Cloud Physics*, 9 July 2018, Vancouver, Canada.
- Tulley-Cordova C, Strong C, Brady I, Bekis J, Bowen, GJ. Navajo Nation, USA, Precipitation Variability from 2002 to 2015, *Emerging Voices of Tribal Perspectives in Water Resources*, Universities Council on Water Resources webinar, 23 May 2018

2017

- Dars GH, Touseef M, Strong C, Najafi MR. Climate change impacts on precipitation patterns in Pakistan, *International Science Policy Conference on Climate Change (SP3C)*, Karachi, Pakistan, 18-20 December 2017.
- Fiorella RP, Bares R, Lin JC, Strong C, Bowen GJ. Variability in the combustion-derived fraction of urban humidity in Salt Lake City winter estimated from stable water vapor isotopes and its relationship to atmospheric stability and inversion structure, *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, 11-16 December 2017.
- Johnson E, Rupper S, Steenburgh J, Strong C, Kochanski A. Sensitivity of Glacier Mass Balance Estimates to the Selection of WRF Cloud Microphysics Parameterization in the Indus River Watershed, *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, 11-16 December 2017.
- Strong C, Null S. Coupling the human-natural water system: five years of participatory modeling and innovative visualization, *11th Annual Salt Lake County Watershed Symposium*, 15 November 2017.
- Khatri K, Strong C, von Stackelberg N, Buchert M, Kochanski A. Estimation of Future Sediment Load in the Jordan River, *11th Annual Salt Lake County Watershed Symposium*, 15 November 2017.
- Lin JC, Mitchell L, Mendoza D, Buchert M, Bowling D, Pataki D, Bares R, Fasoli B, Catharine D, Strong C, Mallia D, Ehleringer J. Estimating carbon emissions in the “Smart City” age: new approaches, measurement systems, and data streams, 21-25 August 2017 Interlaken, Switzerland.
- Khatri K, Strong C. Coupled modeling of the hydrological system to the social and natural systems: Findings and lessons learned from Utah’s water resources analysis, *2017 iUTAH Annual Symposium and Summer All-hands Meeting*, 13-14 July 2017, Logan, Utah.
- Khatri K, Strong C, von Stackelberg N, Buchert M, Kochanski A. Modeling Coupled Human and Natural Systems: Hydrologic and Water Quality Analysis in Jordan River Watershed, Utah, *2017 American Water Resources Association Spring Specialty Conference*, Snowbird, Utah, 30 April - 3 May, 2017.
- Lin JC, Mendoza D, Mitchell L, Buchert M, Gurney K, Patarasuk R, Bowling D, Pataki D, Bares R, Fasoli B, Catharine D, Strong C, Crosman E, Horel J, Ehleringer J. Anthropogenic carbon emissions and stakeholder engagement in the Salt Lake City urban testbed. Oral presentation at *North American Carbon Program Meeting*, North Bethesda, Maryland, 27-30 March 2017.
- Smith K, Strong C, Rassoul-Agha F. A Novel Method for Simulating Stochastic Simulations of Daily Precipitation and Air Temperature at Multiple Sites, *Global Change and Sustainability Center Research Symposium*, Salt Lake City, Utah, 8 February 2017.

2016

- Catharine D, Strong C, Lin J. Evaluating Anthropogenic Carbon Emissions in the Urban Salt Lake Valley through Inverse Modeling: Combining Long-term CO₂ Observations and an Emission Inventory using a Multiple-box Atmospheric Model, *American Geophysical Union Fall Meeting*, San Francisco, California, 12-16 December 2016.

- Smith K, Strong C, Rassoul-Agha F. A Novel Method for Simulating Stochastic Simulations of Daily Precipitation and Air Temperature at Multiple Sites, *American Geophysical Union Fall Meeting*, San Francisco, California, 12-16 December 2016.
- Touseef M, Strong C, Dars GH. Predicting climate change impacts on future precipitation trends over Pakistan using CMIP5 climate scenarios. Poster presented at *US-Pakistan Center for Advanced Studies in Water (USPCAS-W) Fall Research Symposium*, Salt Lake City, Utah, 29 November 2016.
- Khatri K, Strong C, Buchert M, von Stackelberg N. Jordan River Valley & Water Resources Status in 2040s & 2090s. *Salt Lake County Watershed Symposium*, Salt Lake City, Utah, 15-16 November 2016.
- Zuckerberg B, Strong C, Bonter D, Betancourt J, Koenig W. Searching for home: Boreal birds seek out familiar landscapes during irruptions, *North American Ornithological Conference*, Washington, D.C., 16-20 August 2016.
- Foster D, Strong C, Cherkaev E, Eisenman I, Golden K. On the definition and analysis of marginal ice zone width: applying insights from analysis of eccentric annuli, *30th Anniversary National Conference on Undergraduate Research (NCUR)*, University of North Carolina, Asheville, North Carolina, 7-9 April 2016.
- Smith K, Strong C, Rassoul-Agha. Nonstationary Daily Stochastic Weather Generator for the Great Basin Region, *American Meteorological Society Annual Meeting*, New Orleans, Louisiana, 10-16 January 2016.

2015

- Scalzitti J, Strong C, Kochanski A. High-resolution dynamical downscaling of Wasatch precipitation, *American Geophysical Union Fall Meeting*, San Francisco, California, 14-18 December 2015.
- Strong C, Zuckerberg B, Betancourt J, Koenig W. Climatic dipoles drive North American boreal bird irruption, *Patuxent Wildlife Research Center*, Laurel, Maryland, 16 June 2015.
- Mitchell LE, Lin JC, Bowling DR, Pataki D, Strong C, Shauer AJ, Bares R, Bush S, Holland L, Mallia D, Ehleringer JR. Long Term Trends in Carbon Dioxide Enhancements in an Urban Region, *NOAA ESRL Global Monitoring Annual Conference*, Boulder, Colorado, 19-20 May 2015.
- Smith K, Strong C, Wang S. Skill of Global Climate Models in Capturing Dependence of Great Basin Precipitation on Pacific Modes of Variability. Poster presentation at *Great Basin Consortium Conference "Climate programs, water limitations, and geospaces in the Great Basin"*, Boise, Idaho, 17-19 February 2015.

2014

- Hale R and coauthors. Integrating Water, Actors, and Structure to Study Socio-Hydro-Ecological Systems. Poster presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 15-19 December 2014.
- McCabe-Glynn S, Johnson KR, Yu J-Y, Zou Y, Welker JM, Strong C, Rutz J, Yoshimura K, Sellars S, Payne A. Arctic and Tropical Influence on Extreme Precipitation Events and Isotopic Values in the Western U.S. Poster presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 15-19 December 2014.

- Smith K, Strong C, Wang S. Skill of Global Climate Models in Capturing Dependence of Great Basin Precipitation on Pacific Modes of Variability. Poster presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 15-19 December 2014.
- Mitchell LE, Ehleringer J, Lin JC, Bowling D, Pataki D, Strong C, Schauer AJ, Bares R, Bush S. Long term trends in carbon dioxide enhancements in an urban region. Oral presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 15-19 December 2014.
- Smith K, Strong C, Wang S. Historical connections between Great Basin precipitation and Pacific Ocean variability, poster presented at *National Weather Association 39th Annual Meeting*, Salt Lake City, Utah, 18-23 October 2014.
- Ehleringer J, Lin J, Strong C, Mendoza D, Mitchell L, Bush S, Mahlia D, Barnette J, Bowling D, Bares R, Stephens B, Pataki D. A Utah framework for investigating carbon fluxes and air quality at urban to regional scales. *Argonne National Labs seminar series*, Argonne, Illinois, 19 August 2014.

2013

- Strong C. Contrasting drivers of Arctic marginal ice zone width. Oral presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2013.
- Liptak J, Strong C. The Modeled Winter Sea Ice-Atmosphere Feedback over the Barents Sea. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2013.
- Smith K, Strong C, Wang S. Coherence between Great Basin precipitation and low frequency Pacific Ocean variability in CMIP5. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 9-13 December 2013.
- Ehleringer J, Lin J, Pataki D, Strong C, Gurney K, McKain K, Stephens B. Urban greenhouse gas observations. Oral presentation at *International Conference "Towards a Global Carbon Observing System: Progresses and Challenges,"* 1-2 October 2013, Geneva, Switzerland.
- Burian S, Horsburgh J, Rosenberg D, Rosenberg D, Ames D, Hunter LG, Strong C. Using Interactive Video Conferencing for Multi-Institution, Team-Teaching. Oral presentation and peer reviewed conference proceeding, *120th American Society for Engineering Education Annual Conference and Exposition*, Atlanta, Georgia, 24 June 2013.
- Stwertka C, Strong C, Kochanski A. The water balance of the urban Salt Lake Valley. Poster presented at *CI-WATER Symposium and 2nd Annual Conference*, Salt Lake City, UT, 29-30 May 2013.
- Burian S, Strong C, Pomeroy C, Kochanski A, Goharian E. *Climate data access and urban water system modeling*. Oral presentation at *CI-WATER Symposium and 2nd Annual Conference*, Salt Lake City, Utah, 29-30 May 2013.
- Strong C, Rigor I. Rapid widening of Arctic marginal ice zone over satellite record. Oral presentation at *American Meteorological Society 12th Conference on Polar Meteorology and Oceanography*, Seattle, Washington, 1 May 2013.
<https://ams.confex.com/ams/12POLAR/webprogram/meeting.html>
- Strong C. High-resolution climate projections for the Great Basin made accessible to diverse stakeholders and research communities. Oral presentation at *11th Annual Climate Prediction Applications Science Workshop (CPASW)*, Logan, Utah, 23-25 April 2013.
<http://climate.usurf.usu.edu/CPASW/index.php>

- Bardsley T, Burian S, Strong C, Goharian E, Livneh B, Wood A, Kirkham T, Breifer L, Miller P. Assessing climate change risks to a municipal water supply: A pilot project incorporating downscaled climate projections, operational hydrologic modeling, and a systems planning model. Oral presentation at *11th Annual Climate Prediction Applications Science Workshop (CPASW)*, Logan, Utah, 23-25 April 2013.
- Bardsley T, Burian S, Strong C, Goharian E, Kirkham T, Briefer L, Kivneh B, Wood A, Miller P. Assessing climate change risks to a municipal water supply: A pilot project incorporating downscaled climate projections, operational hydrologic modeling, and a systems planning model. Poster at *2013 Spring Runoff Conference*, Logan, Utah, 9-10 April 2013.
- McCabe S, Johnson K, Strong C, Berkelhammer M. Assessing modern climatic controls on Southern Sierra Nevada precipitation and speleothem $\delta^{18}\text{O}$, *Pacific Climate Workshops (PACCLIM) 26th Meeting*, Pacific Grove, California, 3-6 March 2013.
- Liptak J, Strong C. The Winter Sea Ice-Atmosphere Feedback over the Barents Sea. Oral presentation at *Community Earth System Model (CESM) Polar Climate Working Group Meeting*, Boulder, Colorado, 11 - 13 February 2013.
- Smith K, Strong C. The hydrologic balance of the Wasatch Front: projected changes in climate and water availability. Poster presented at *Global Change and Sustainability Center Research Symposium*, Salt Lake City, Utah, 29 January 2013.

2012

- Liptak J, Strong C. Investigation of the Winter Surface Wind Stress-Sea Ice Feedback Over the Barents Sea. Poster *American Geophysical Union Fall Meeting*, San Francisco, California, 3-7 December 2012.
- Strong C, Liptak J. Trend in width of summer Arctic marginal ice zone. Oral presentation at *American Geophysical Union Fall Meeting*, San Francisco, California, 3-7 December 2012.
- McCabe-Glynn S, Johnson KR, Strong C, Berkelhammer MB. Assessing Modern Climatic Controls on Southern Sierra Nevada Precipitation and Speleothem $\delta^{18}\text{O}$. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 3-7 December 2012.
- Stwertka C, Strong C. Using a multiple-box model validated by observations to study water vapor balance and its sensitivity to projected climate variability in the Salt Lake Valley. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 3-7 December 2012.
- Strong C, Steenburgh J, Stwertka C, Smith K. Snow and water resources of the Great Salt Lake Basin: historical perspective and projections for the future. Oral presentation at *2012 Salt Lake Countywide Watershed Symposium*, 27 September 2012.
- Burian S, Strong C, Pomeroy C. Cyberinfrastructure to Advance Linked Climate and Urban Water Management Research. Oral presentation at *CI-WATER Symposium 2012*, Salt Lake City, Utah, 6 September 2012.
- Strong C, Burian S, Pomeroy C, Kochanski A, Stwertka C. Building on climate-urban water-sustainability modeling: human agents and vegetation needed. Oral presentation at *iUtah Focus 3 Introductory Workshop*, Logan, Utah, 31 July 2012.
- Ehleringer J, Bowling D, Strong C. Atmospheric CO_2 and urban processes. Oral presentation at *Department of Biology, University of Utah*, 24 April 2012.

- Strong C, Burian S, Pomeroy C. Climate Modeling to Support Urban Water Management in the Wasatch Range. Oral presentation at *2012 Spring Runoff Conference*, Logan, Utah, 3-4 April 2012.
- Liptak J, Strong C. Propagating Atmospheric Patterns Associated with Sea Ice Motion through the Fram Strait. Poster at *42nd International Arctic Workshop*, Boulder, Colorado, 7-9 March 2012.
- Strong C, Rasmussen R, Ikeda K. Dynamical downscaling of historical and projected winter precipitation along the Wasatch Range for the CI-WATER project. Oral presentation at *NCAR Orographic Precipitation Workshop*, Boulder, Colorado, 14 March 2012.
- Strong C, Changes in Greenland's coastal marginal ice zone: 1979-2011. Poster presented at *TOS/ASLO/AGU Ocean Sciences Meeting*, Salt Lake City, Utah, 23 February 2012.

2011

- McCabe-Glynn SE, Johnson KR, Strong C, Berkelhammer MB, Sinha A, Cheng H, Edwards RL. A Multi-proxy Reconstruction of Hydrologic Variability over the Last Millennium from a Sierra Nevada Mountain Stalagmite. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 9 December 2011.
- Strong C. North Atlantic winter marginal ice zone narrowing under retreat: 1979-2011. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 6 December 2011.
- Strong C. Atmospheric influences on the position and width of the Arctic marginal ice zone: 1979-2011. University of Utah Department of Atmospheric Sciences Graduate Seminar, 17 November 2011.

2010

- Stwertka C, Strong C. Human and natural influences on carbon dioxide in Salt Lake City: investigating observed concentrations with a multiple box model. Poster presented at *American Geophysical Union Fall Meeting*, San Francisco, California, 13-17 December 2010.
- Strong C. Atmosphere-cryosphere interactions and feedback, University of Utah Department of Atmospheric Sciences Graduate Seminar, 21 April 2010.

2009 and earlier

- Strong C, Magnusdottir G. Winter sea ice projected to decrease but remain sensitive to the North Atlantic Oscillation. Poster presented at the *U.S. Climate Variability and Predictability Research Program (CLIVAR) Science Symposium*, Irvine, California, 14 July 2008.
- Strong C, Magnusdottir G. Winter sea ice variability and the North Atlantic Oscillation in a warming environment. Poster presented at the *13th Annual Community Climate System Model Workshop*, Breckenridge, Colorado, 17 June 2008.
- Strong C, Magnusdottir G. The role of tropospheric Rossby wave breaking in the transient atmospheric response to North Atlantic boundary forcing. Poster presented at *Leverhulme Climate Symposium*, Cambridge University and the Royal Society of London, 10-13 March 2008.

- Strong C, Magnusdottir G. A new view of tropospheric Rossby wave breaking variability and effects. Oral presentation at *16th Conference on Atmospheric and Oceanic Fluid Dynamics*, Santa Fe, New Mexico, 25 June 2007.
- Hussain A, Lupo AR, Strong C, Dostoglou S. A diagnostic study of atmospheric blocking using Lyapunov exponents over a 50-year period. Oral presentation at *19th Conference on Climate Variability and Change / 23rd Conference on IIPS / 5th Conference On Artificial Intelligence and Applications to Environmental Science*, San Antonio, Texas, 14-18 January 2007.
- Strong C, Davis RE. Trends in the speed of fast upper tropospheric winds over the Northern Hemisphere: 1958-2004. Oral presentation at *101st Annual Meeting of the Association of American Geographers*, Denver, Colorado, 5-11 April 2005.
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