

Kristen M. Whitney

Assistant Research Scientist

University of Maryland, College Park / NASA Goddard Space Flight Center
Greenbelt, Maryland, USA

Employment History

10/2024 – Present	Assistant Research Scientist <i>University of Maryland, College Park / NASA Goddard Space Flight Center</i>
03/2023 – 10/2024	NASA Postdoctoral Program Fellow <i>NASA Goddard Space Flight Center</i>
12/2022 – 03/2023	Postdoctoral Research Scholar <i>Arizona State University</i>
08/2016 – 12/2022	Graduate Research Associate (Ph.D.) <i>Arizona State University</i>
05/2016 – 08/2016	Research Technician <i>Arizona State University</i>
05/2013 – 08/2015	Graduate Research Associate (M.S.) <i>Arizona State University</i>

Degrees

12/2022	Ph.D., Geological Sciences, Arizona State University
08/2015	M.S., Geological Sciences, Arizona State University
11/2011	B.S., Environmental Geology (cum laude), University of California, Santa Cruz

Research Experience

I am an Earth system scientist who integrates satellite and other Earth observations with land surface models and climate data to study hydroclimate variability and support environmental decision-making. My research includes meteorological downscaling, snow hydrology, hydroclimate extremes, and resource-management applications. I contribute to development of NASA's North American Land Data Assimilation System Phase 3 (NLDAS-3) and lead research on dynamic meteorological downscaling and global hydroclimate whiplash. My earlier work examined climate and land-cover impacts on Colorado River hydrology and involved developing model products and tools with water-management partners. I work with government, academic, and private-sector partners and have represented NASA in applied research and stakeholder activities with organizations including the NOAA National Integrated Drought Information System and the United Nations Convention to Combat Desertification. I am also a member of the NASA Earth Action Western Water Initiative Design Team, helping develop a new agency program focused on western U.S. water resources. Within AGU, I serve as Newsletter Editor on the Hydrology Section Executive Committee and was elected Deputy Chair of the Hydrology Section Remote Sensing Technical Committee. I previously served as a member of the Technical Committee and have co-chaired sessions at the AGU Annual Meeting.

Select Publications

Whitney KM, Kumar SV, Mocko DM, Pflug JM, Bolten JD, Maina FZ, et al. 2025. Quantifying the impacts of dynamic lapse regimes on snow simulations over complex terrains. *Journal of Hydrometeorology*, 26, 1525–1560.

Whitney KM, Vivoni ER, Wang Z, Quay R, White DD, Mahmoud MI, et al. 2023. A stakeholder-engaged approach to anticipating forest disturbance impacts in the Colorado River Basin under climate change. *Journal of Water Resources Planning and Management*, 149(7), 04023020.

Whitney KM, Vivoni ER, Bohn TJ, Mascaro G, Wang Z, Xiao M, et al. 2023. Spatial attribution of declining Colorado River streamflow under future warming. *Journal of Hydrology*, 617, 129125.

Whitney KM, Vivoni ER, White DD. 2023. Enhancing the accessibility and interactions of regional hydrologic projections for water managers. *Environmental Modelling & Software*, 167, 105763.

Whitney KM, Vivoni ER, Duniway MC, Bradford JB, Reed SC, Belnap J. 2017. Ecohydrological role of biological soil crusts across a gradient in levels of development. *Ecohydrology*, 10(7), e1875.

Select Honors

2024	NASA HBG Peer Award for Scientific Achievement <i>NASA Hydrosphere, Biosphere, and Geophysics</i>
2024	NASA Special Act Award NASA Goddard Space Flight Center
2024	Award for Outstanding Early Career Presentation <i>9th Global Energy and Water Exchanges (GEWEX) Open Science Conference</i>
2022	Central Arizona Award for Water Research <i>Central Arizona Project</i>
2020	Hydrology Section – Remote Sensing Technical Committee Student Award <i>American Geophysical Union Annual Meeting</i>
2019	First Place Poster Award <i>American Meteorological Society 99th Annual Meeting</i>
2014 & 2018	Graduate Excellence Award <i>Arizona State University, College of Liberal Arts and Sciences</i>
2011	Holly Day Barnett Award <i>University of California, Santa Cruz</i>

Professional Society Memberships

American Geophysical Union
American Meteorological Society
European Geosciences Union
Global Energy and Water Exchanges
Women in GIS
Young Earth System Scientists (YESS) Community