Samar Minallah

Advanced Study Program (ASP) Postdoctoral Fellow
National Center for Atmospheric Research, Boulder US
minallah@umich.edu minallah@ucar.edu

Research interests

- Atmosphere – Cryosphere – Hydrosphere interactions
- Regional hydroclimates
- Land surface hydrology
- River systems and inland water bodies
- Hydrometeorology
- High-altitude climates
- Climate extremes
- Glacier dynamics and glacial hydrology
- Earth system modeling
- CMIP assessments

Education

Ph.D. Climate and Space Sciences, University of Michigan Ann Arbor (UMich) 2018 – 2022

M.S.E. Civil and Environmental Engineering (Hydrology & Hydraulics), UMich 2014 – 2016

B.E. Civil Engineering (Geotechnical Engineering elective) 2008 – 2012
National University of Sciences & Technology Islamabad, Pakistan

Research experience

Postdoctoral Fellow
Climate & Global Dynamics Lab (CGD), NCAR 2022 – 2024
Mentors: *William H. Lipscomb* and *Andrew W. Wood*

Graduate Researcher (PhD)
Department of Climate & Space Sciences and Engineering, UMich 2018 – 2022
Advisor: *Allison L. Steiner*

Research Associate (telework)
Department of Civil & Environmental Engineering, UMich 2016 – 2018
Advisor: *Valeriy Y. Ivanov*

Research Affiliate
Department of Civil & Environmental Engineering, Colorado State University 2015
Supervisor: *Jorge A. Ramirez*

Programming and modeling experience

- CESM (CAM-CLM-CISM)
- Open Global Glacier Model
- WRF
- WRF-Hydro, NOAH-MP
- Python, Jupyter Notebooks
- ArcGIS
- MATLAB
- NCL-NCO-CDO

Teaching experience

Graduate Student Instructor, Our Changing Atmosphere (CLIMATE 105), UMich 2021

Relevant professional experience

Focal Person Water Programme
Leadership for Environment and Development (LEAD) Pakistan
Project Manager: USAID-PEER project on the Transboundary Kabul River Basin
Researcher and Deputy Project Manager: ODI project on Understanding the Effects of Water Insecurity in Faisalabad 2016 – 2018
GIS Officer: FAO project on Disaster Risk Management Operational Plans for Sindh and Punjab, Pakistan

Infrastructure Engineer
Mott MacDonald Pakistan
Satpara Development Project: Preparing Irrigation Master Plan for Satpara Dam Command Area in Skardu 2013

Service

Reviewer:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Geophysical Research Letters, Monthly Weather Review
Journal of Hydrometeorology, Journal of Hydrology

Primary convener and session chair:
"Lakes and Inland Water Bodies" at AGU Fall Meeting (2020, 2021, 2022, 2023)

Selection and hiring committee/interview panel/judge:
ASP postdoctoral fellowship (2023 – 2024)
NCAR Earth System Science Internship (2023)
AGU Outstanding Student Presentation Awards (2021, 2022)
Global Undergraduate Exchange Program, Pakistan (2017, 2018)
Fulbright Program, Pakistan (2017)
Commonwealth Youth Awards, Asia region (2012, 2013)

Institutional committees:
NCAR ASP research review committee (2022 – present)
NCAR ASP seminar series committee (2023 – present)
West Asia and North Africa (WANA) Affinity Group organizing team (2023 – present)

International organizations:
Country Ambassador and Asia Region Representative, Commonwealth Youth Programme (2010 – 2013)

Fellowships and awards

NCAR ASP Postdoctoral Fellowship 2022 – 2024

Rackham Predoctoral Fellowship in Physical Sciences and Engineering 2021 – 2022

UCAR Next Generation Fellowship in Earth System Sciences	2020 – 2022
Outstanding Student Paper Award, American Geophysical Union Fall Meeting	2019
Rackham Graduate Student Research Grant	2019
Michigan Institute for Computational Discovery and Engineering Fellowship	2018 – 2019
Fulbright Scholarship	2014 – 2016
National University of Sciences & Technology Undergraduate Merit Scholarship	2010 – 2012

Peer-reviewed publications

Minallah, S., Steiner, A. L., Ivanov, V. Y., & Wood, A. W. (2023). Controls of variability in the Laurentian Great Lakes terrestrial water budget. *Water Resources Research*, 10.1029/2022WR033759

Fry L. M., Gronewold A. D., Seglenieks F., **Minallah S.**, Apps D., & Ferguson J. (2022). Navigating Great Lakes Hydroclimate Data. *Frontiers in Water*, 10.3389/frwa.2022.803869

Minallah, S. and Steiner, A. L. (2021): The Effects of Lake Representation on the Regional Hydroclimate in the ECMWF Reanalyses, *Monthly Weather Review*, 10.1175/MWR-D-20-0421.1

Minallah, S. and Steiner, A. L. (2021): Analysis of the Atmospheric Water Cycle for the Laurentian Great Lakes Region Using CMIP6 Models, *Journal of Climate*, 10.1175/JCLI-D-20-0751.1

Minallah, S. and Steiner, A. L. (2020): Role of the Atmospheric Moisture Budget in Defining the Precipitation Seasonality of the Great Lakes Region, *Journal of Climate*, 10.1175/JCLI-D-19-0952.1

Minallah, S. and Ivanov, V. Y. (2019): Interannual Variability and Seasonality of Precipitation in the Indus River Basin, *Journal of Hydrometeorology*, 10.1175/JHM-D-18-0084.1

Doctoral Dissertation

Minallah, S. (2022). A Study on the Atmospheric, Cryospheric, and Hydrologic Processes Governing the Evolution of Regional Hydroclimates (University of Michigan Ann Arbor). 10.7302/6223

Committee: *Allison L. Steiner*, *Jeremy N. Bassis*, *Valeriy Y. Ivanov*, *Mark G. Flanner*, *William H. Lipscomb*

Seminars and oral presentations (select)

Minallah, S., W. Lipscomb, G. Leguy, H. Zekollari, and F. Maussion (2023): "Simulating mountain glacier dynamics with the Community Ice Sheet Model". 28th General Assembly of the International Union of Geodesy and Geophysics (IUGG), Berlin, Germany.

Minallah, S. (2023, **invited**): "2022 Floods in Pakistan" and "The High-Mountain Asia Glaciology". CGD Seminar, NCAR

Minallah, S., A. Steiner, and V. Ivanov (2022): "Modeling the Land Surface Water Balance for the Laurentian Great Lakes Watershed". AGU Frontiers in Hydrology Meeting, Puerto Rico.

Minallah, S., J. Bassis, W. Lipscomb, and the Open Global Glacier Model team (2022): "Modeling the Evolution of Himalaya-Karakoram-Hindukush Glaciers". 2022 CESM Land Ice Working Group Meeting.

Minallah, S. (2021, **invited**): "Impact of the Atmospheric Moisture Budget on the Seasonality of Great Lakes Precipitation". 2021 Great Lakes Climate Modeling Workshop.

Minallah, S. and A. Steiner (2020, **invited**): "Understanding the Hydroclimatic Drivers of Harmful Algal Blooms in the Laurentian Great Lakes Region". 2020 AGU Fall Meeting, San Francisco, Calif.