

curriculum vitae of
ASIYA BADARUNNISA SAINUDEEN

🏠 Department of Geosciences, University of Arizona,
1040 E 4th St, Tucson, AZ 85719

asiya@arizona.edu, asiyaishal@gmail.com

EDUCATION

- 2021 - present PhD candidate
Advisor - Dr. Marcus Lofverstrom, Co-advisor - Dr. Diane Thompson
Major - Geosciences | Minor - Global Change
[Department of Geosciences, University of Arizona](#)
Expected graduation year : 2026
- 2015 - 2020 Bachelor of Science-Master of Science(BS-MS) in Earth Sciences,
[Indian Institute of Science Education and Research \(IISER\), Kolkata](#)

RESEARCH INTERESTS

Hydroclimate modeling, Global modes of climate variability, Extreme climate events

PUBLICATIONS

- **Sainudeen, A. B.**, Lofverstrom, M., Thompson, D. (2024). Characterizing South American summer hydroclimate using a new water tag-enabled variable-resolution CESM global simulation. [In preparation].
- **Sainudeen, A. B.**, Lofverstrom, M., Thompson, D., Bush, M., Rodbell, D., Cook, M., and Hlohowskyj, S. (2023). South American summer precipitation in CMIP6 Preindustrial Control Simulations. *The Journal of Applied Meteorology and Climatology* [Under review].
- Mishra, Saroj K., Pankaj Upadhyaya, John T. Fasullo, Narayan Prasad Keshri, Popat Salunke, Arunabha Ghosh, **Sainudeen, A. B.**, and In-Sik Kang. "A need for actionable climate projections across the Global South." *Nature Climate Change* 13, no. 9 (2023): 883-886.
- Dasgupta, B., **Asiya, B.S.**, Ajay, A., and Sanyal, P. (2022). Hydrometeorological progression of the Himalayan cryosphere: The Karakoram predicament. *Journal of Hydrology*, 613, 128348.

CONFERENCES

- AGU Conference 2023 [**Sainudeen, A. B.**, Lofverstrom, M., Thompson, D. M. (2023), "South American summer precipitation in CMIP6 models", GC22F-0665 presented at 2023 AGU Fall Meeting, 11-15 Dec, SFO, CA, USA.]
- AGU Conference 2022 [**Sainudeen, A. B.**, Lofverstrom, M., Thompson, D. M. (2022), "Impact of El Niño-Southern Oscillation on South American hydroclimate in CMIP6", GC22F-0665 presented at 2022 AGU Fall Meeting, 12-16 Dec, Chicago, IL, USA.]
- [Poster](#) presentation on 'Understanding the new norm of extreme events: Atmospheric rivers and climate change' at 50th University of Arizona Geosciences Symposium (*GeoDaze*), Tucson, AZ, March 2022.
- EGU Conference 2020 [Badarunnisa Sainudeen, A. and Sanyal, P.: Impact of surface warm-

ing over Equatorial Pacific ocean in western disturbances precipitation, EGU General Assembly 2020, Online, 4–8 May 2020. EGU2020-633, <https://doi.org/10.5194/egusphere-egu2020-633>, 2019].

→ Poster presentation on 'Influence of modes of climate variability on Western Disturbances precipitation'. Secured best poster award at 'Convergence 2020', the Earth Sciences department day program at IISER Kolkata.

TUTORIALS AND WORKSHOPS

→ ForceSMIP Hackathon, Aug 2023 - [In-person workshop](#), called the Forced Component Estimation Statistical Method Intercomparison Project (ForceSMIP), where we utilize climate model ensembles to develop and assess statistical methods for isolating the forced response from individual realizations of the climate system.

→ CESM Tutorial, July 2023 - [In-person modeling tutorial](#) at the NCAR Mesa Laboratory, in Boulder, Colorado, USA.

→ NCAR Python Tutorial, June 2022 - [Extensive Python tutorial](#), hosted by Julia Kent, a Software Engineer at NCAR.

TEACHING EXPERIENCE

→ Guest Lecturer - GEOS 437/537: Introduction to Earth-system modeling (2023 Fall semester, 1 class)

→ Teaching Assistant - Introduction to Oceanography with prof. Joellen Russell and Dr. Paul Goodman (2024 Spring semester, Department of Geosciences, University of Arizona).

→ Teaching Assistant - GEOS 212: Introduction to Oceanography with prof. Joellen Russell and Dr. Paul Goodman (2023 Fall semester, Department of Geosciences, University of Arizona).

→ Teaching Assistant - [Introduction to Computer Programming](#) for first year BS-MS students, IISER Kolkata (2019 Autumn semester).

→ Teaching Assistant - [Introduction to Environmental Science course](#) for second year BS-MS students, IISER Kolkata (2020 Spring semester).

SCHOLARSHIPS

→ Melange summer scholarship 2023, issued by the Department of Geosciences for outstanding grad students, University of Arizona (USD2000).

→ William and Clara Sulzer Scholarship, issued by the Department of Geosciences for Outstanding women graduate students in Dept. of Geosciences, University of Arizona (May 2022) (USD2000).

→ The University of Arizona GPSC travel award 2022 (\$1000).

→ Roland Schlich travel support Early Career Scientist's Travel Support, [European Geosciences Union 2020](#) for my [abstract](#) on Impact of surface warming over Equatorial Pacific ocean in western disturbances precipitation.

→ DST-INSPIRE (Department of Science and Technology - Innovation in Science Pursuit for Inspired Research, Government of India) fellowship for 2015 - 2020 (INR 300000).

AWARDS AND ACHIEVEMENTS

→ Best poster award, Convergence 2019, the Earth Sciences annual conference at IISER Kolkata.

→ *Lectureship eligibility in Earth Sciences*. Cleared CSIR-NET (The Council of Scientific and

Industrial Research - National lectureship eligibility test) - 2018, December, organized by Human Resource Development Group, Govt. of India | **All India Rank - 76.**

→ District level winner of Sastra Pratibha Matsaram (both in 2013 and 2014), a unique science talent contest, supported by Vigyan Prasar and Govt. of India.

RESEARCH WORK AND EXPERIENCE

AUG 2021 - PRESENT	<i>PhD scholar</i> in the Department of Geosciences, University of Arizona . I study the hydroclimatic changes in South America through the Holocene and instrumental era using climate models.
JULY 2020 - JUNE 2021	<i>Research Assistantship</i> at the Indian Institute of Technology Delhi . Analyzed the improvements in CMIP projections for south Asian region over time in collaboration with Dr. Saroj Kanta Mishra .
MS- THESIS	At Indian Institute of Science Education and Research (IISER) Kolkata "Role of global oceans in driving Western Disturbances precipitation (WDP)." This research focuses on rainfall variability, air-sea interactions, change across different climate system components, and the resulting regional impacts. Deliberations were made to find possible causal relationships between WDP and some other well-studied global climatic parameters. This project was supervised by Dr. Prasanta Sanyal .
MAY - JULY 2019	<i>Summer internship</i> at the Indian Institute of Tropical Meteorology(IITM), Pune Topic - Atlantic Meridional Overturning Circulation (AMOC) as a climate driver, Supervisor - Dr. C Gnanaseelan .
MAY - JULY 2018	<i>Summer internship</i> at the Centre for Earth Sciences, Indian Institute of Science (IISc), Bangalore Topic - Change in lake isotopic composition with various hydrological processes, Supervisor - Dr. Sambudha Misra .
MAY - JULY 2017	<i>Summer internship</i> at the Indian Institute of Tropical Meteorology (IITM), Pune Topic - Rainfall variability over the north-east region of the Indian sub-continent, Supervisor - Dr. Hamza Varikoden .
MAY - JULY 2016	<i>Summer internship</i> at Department of Earth and Space Sciences, Indian Institute of Space Science and Technology, Trivandrum Topic - Simulation of HUD HUD cyclone using WRF-ARW, Supervisor - Dr. Govindan Kutty M.

POSITION OF RESPONSIBILITY AND EXTRA CURRICULAR ACTIVITIES

→ 2023 - 2024 | Vice President of the Southern Arizona chapter of [Association for Women Geoscientists \(AWG\)](#) .

→ 2022 - 2023 | Mentorship chair at Southern Arizona chapter of the [Association for Women](#)

Geoscientists (AWG) .

→ 2021 - 2022 | Mentor at Southern Arizona chapter of the [Association for Women Geoscientists \(AWG\)](#) .

→ 2022, 2023, 2024 | Member of organizing committee of [GeoDaze](#), the annual symposium organized by students in the Department of Geosciences, University of Arizona.

→ 2015 - 2020 | Volunteered for [Ek pehal](#), an initiative by IISER Kolkata students that provides free education for underprivileged students.

→ 2014 | Attended [igniting minds](#), a program that helps to connect students with scientists, technocrats, Nobel laureates and social leaders.

→ Organizer of THRUST, Hydraulic rocket launch event at IISER Kolkata's Science fest- IN-QUIVESTA 2018.

→ 2014 | National Service Scheme([NSS](#)) certificate holder. It is a government initiative that attempt in making campus relevant to the needs of the community.

→ 2012 - 2013 | School Head Girl of Santhigiri Vidya Bhavan Senior Secondary School(2012-2013).

→ 2019 | Silver medallist in Volleyball at Inter IISER sports meet Pune.

→ 2018 | Bronze medallist in Volleyball at Inter IISER sports meet Bhubaneswar.

COMPUTATIONAL SKILLS

Scripting language:	PYTHON, R, MATLAB, NCL
Climate Data Analysis, Visualization:	FERRET, CDO, NCO, IMAGEMAGICK
Markup language:	L ^A T _E X

Experience in working with supercomputing clusters for climate modeling and climate data analysis.

PROFESSIONAL ASSOCIATIONS

2021 - present: Member American Geophysical Union (AGU)

2021 - present: Member Association for Women Geoscientists (AWG)

2019 - 2020: Member European Geophysical Union (EGU)

CERTIFICATIONS

→ Responsible Conduct of Research (RCR) - Basic training certification (valid untill 19 Oct 2025)

→ TATO (Teaching assistant policy) training certificate, August 2023

→ Family Educational Rights and Privacy Act of 1974 (FERPA) training (2023)

→ Preventing Harassment and Discrimination training by Office of Institutional Equity, University of Arizona, 2023

→ Information Security Awareness Certification, University of Arizona, 2024

FIELDWORKS

→ Dec-2017 | Structural Geology Fieldwork at Ghatshila and Galudi to identify and interpret structural geometry of deformed rocks in a natural setting.

→ Dec-2018 | Sedimentology Fieldwork at Chandipur tidal front and Dagara beach to study both the natural settings and to identify the sedimentary facies and sedimentary structure.