

Garima Shukla

Ph.D. | CSIR-National Institute of Oceanography, India



About me

I have completed my Ph.D. thesis at the CSIR-National Institute of Oceanography, India, under the supervision of Dr. Ashwini Kumar. My doctoral research focuses on assessing the aerosol chemical composition over the North Indian Ocean, integrating observational datasets and regional-scale modeling to better understand the role of aerosol chemistry in marine biogeochemical processes. My work contributes to improving aerosol parameterizations in regional models and assessing their ecological impacts on oceanic systems.

Contact

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- [Research Gate: Garima Shukla](#)
- [Google Scholar: Garima Shukla](#)
- [ORCID: 0000-0002-6565-8749](#)

Languages

- English - Professional Knowledge
- Hindi - Native Language
- Sanskrit - Basic Knowledge

RESEARCH TOPIC

Analysis of aerosol chemical composition and properties using observations and model simulations over the North Indian Ocean

EDUCATION

2019-2026



Ph.D. Atmospheric Sciences
CSIR-National Institute of Oceanography
Geological Oceanography Division

Goa, India

2017-2018



PG Diploma RS and GIS
Banaras Hindu University
Faculty of Science

Varanasi, India

2015-2017



M.Sc. Environmental Science
Deen Dayal Upadhyaya Gorakhpur University
Faculty of Science

Gorakhpur, India

2011-2014



B.Sc. Chemistry
Deen Dayal Upadhyaya Gorakhpur University
Faculty of Science

Gorakhpur, India

WORK EXPERIENCE

2019 - Till
Now

Senior Research Fellow
CSIR-National Institute of Oceanography

Goa, India

I have been involved in aerosol sampling, its chemical analysis using Ion Chromatography, Q-ICP-MS instrument, TOC-TN analyser and OC-EC Aerosol analyser. I do also have worked with aerosol thermodynamic model ISORROPIA-II and Global reanalysis aerosol products being used worldwide for the spatial analysis of aerosol. A key aspect of my research has been the application of the WRF-Chem model to simulate aerosol chemical composition and transport over the North Indian Ocean.

2018 - Till
Now

Freelance GIS
Online

Goa, India

As a GIS freelancer, I leverage my expertise in Geographic Information Systems (GIS) to offer specialized services and solutions tailored to the unique needs of clients. With a passion for spatial analysis and cartography, I collaborate with projects, for mapping geographical data empowering personnel and organizations with valuable insights and enhanced decision-making capabilities through geospatial technologies.

PUBLICATIONS

Total peer-reviewed publications: 08 (First-author: 04)
Book Chapter: 02

Journal Article
2025

Long-term seasonal variability in the water-soluble inorganic composition of coarse and fine aerosols over the northeast Arabian sea., G Shukla, A Kumar, A Kaushik (2025), Atmospheric Pollution Research, 10.1016/j.apr.2025.102794

Journal Article
2025

Chemical composition of aerosols over the Bay of Bengal based on global reanalyses data and on-board ship measurements., G Shukla, A Kumar (2025), International Journal of Remote Sensing, 10.1080/01431161.2025.2577974

Core Skills and Strengths

Python

CDO

FERRET

Arc-GIS

Linux

R programing

Curiosity

Problem Solving

Ability to Plan and Organize

Adaptability

Team Work

Good Communication

Technical Expertise

WRF-Chem

Aerosol Sampling

Ion Chromatography

Q-ICP-MS instrument

EC-OC Aerosol Analyser

TOC-TN Analyser

RS & GIS

ISORROPIA-II

Professional Membership

- American Geophysical Union
- Associate Member of SCOR Working Group 167 Reducing Uncertainty in Soluble aerosol Trace Element Deposition (RUSTED)
- SOLAS Early Career Scientists (ECS) Committee Member
- American Chemical Society (ACS)
- Association for the Sciences of Limnology and Oceanography (ASLO)

Other Interests

- Swimming 🏊
 - Cycling 🚲
- Travelling 🌍
 - Reading 📖

Journal Article

2025

Chemical composition of aerosols over the Arabian Sea based on global reanalyses data and on-board ship measurements., *G Shukla, N Ojha, A Kumar, S Harithasree, I Girach, LK Sahu, (2025), Atmospheric Environment, doi 10.1016/j.atmosenv.2025.121085*

Journal Article

2024

Atmospheric deposition of mineral dust and associated nutrients over the Equatorial Indian Ocean., *PP Panda, G Shukla, A Kumar, MA Aswini, A Kaushik, G Nayak, VM Matta, (2024), Science of The Total Environment, doi 10.1016/j.scitotenv.2023.169779*

Journal Article

2024

Identification and physico-chemical characterization of microplastics in marine aerosols over the northeast Arabian Sea, *A Kaushik, P Gupta, A Kumar, M Saha, E Varghese, G Shukla, K Suresh, SS Gunthe, (2024), Science of The Total Environment, doi 10.1016/j.scitotenv.2023.168705*

Journal Article

2024

Detection of biogenic volatile organic compounds emitted from common tropical plant species in the Western Ghats region of India: chamber-based experiments, *TG Malik, M Gupta, G Shukla, A Kumar, LK Sahu, (2024), CURRENT SCIENCE, doi 10.18520/cs/v126/i1/59-66*

Journal Article

2023

Seasonal variability in fine particulate matter water content and estimated pH over a coastal region in the Northeast Arabian Sea., *G Shukla, A.K. Sudheer, Sachin S. Gunthe, Gufran Beig, Ashwini Kumar, (2023), Atmosphere, doi 10.3390/atmos14020259*

Journal Article

2021

Seasonal variation in chemical composition of size-segregated aerosols over the Northeastern Arabian Sea., *A Kaushik, A Kumar, MA Aswini, PP Panda, G Shukla, NC Gupta, (2021), Frontiers in Environmental Science, doi 10.3389/fenvs.2020.619174*

Book Chapter

2022

Long Range transport and Characterization of Dust., *A Kumar, G Shukla, A Singh, (2023), Asian Atmospheric Pollution, Elsevier, doi 10.1016/B978-0-12-816693-2.00012-3*

Book Chapter

2021

Estimation of evapotranspiration using surface energy balance system and satellite datasets., *G Shukla, P Tiwari, V Dugesar, PK Srivastava, (2021), Agricultural Water Management, doi 10.1016/B978-0-12-812362-1.00009-6*

🖥️ CONFERENCES AND WORKSHOPS

- Best Poster Award** – Presented the poster “*Towards the development of an aerosol sampling network for the Indian Ocean*” at the International Indian Ocean Science Conference 2025, held at INCOIS, Hyderabad, India.
- Best Poster Award** – Presented the poster “*Long-term seasonal variability in the chemical composition of coarse and fine aerosols over the northeastern Arabian Sea*” at the SOLAS Open Science Conference 2024, held at CSIR-National Institute of Oceanography, Goa, India.
- Local Organising Committee Member, SOLAS OSC 2024** – Collaborated in logistical planning and coordination to ensure the successful delivery of a global scientific conference attended by researchers worldwide.
- Chaired, Early Career Scientist Day, SOLAS OSC 2024** – Led the planning and execution of the Early Career Scientist Day.
- Participated in European Aerosol Conference 2025 and delivered a poster presentation on “*Wintertime aerosol chemical composition over the Arabian Sea based on shipboard collected aerosols: Implication to surface water biogeochemical processes*”, held in Lecce, Italy.



- Participated in Atmospheric Composition and the Asian Monsoon Training School and Workshop 2025 and delivered a poster presentation on ***"Distribution and chemical composition of aerosols over the Bay of Bengal: Ship-borne measurements and global reanalysis products"***, held in Bali, Indonesia.
- Participated in Indian Aerosol Science and Technology Association – National Conference 2023 and delivered an oral presentation and poster on ***"Aerosol distribution over the Northern Indian Ocean through ship-borne measurements and model-derived outcomes"***, held in Navi Mumbai, Maharashtra.
- Participated in the national workshop on ***"Atmospheric Aerosol Measurements and Modeling over India: Past decade, Current status and Challenges ahead"***, 2023, and delivered an oral presentation on ***"Estimation of aerosol water content and pH at a coastal location in the Eastern Arabian Sea"***, held in Munnar, Kerala.
- Participated in the SOLAS Summer School 2023 at Mindelo, São Vicente, Cabo Verde, and presented a poster and an oral presentation on aerosol composition over the North Indian Ocean.
- Poster presented – ***"Distribution and composition of aerosols over the Northern Indian Ocean based on ship-borne measurements and model results"*** at SOLAS Open Science Conference 2022, Cape Town, South Africa.
- Participated in the SOLAS 2022 Early Career Scientist (ECS) Day and workshops on Grant Proposal Writing and Equity, Diversity, and Inclusion, Cape Town, South Africa.

AWARDS AND FELLOWSHIPS

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| 2017 | | Gold Medal : Secured 1 st rank in M.Sc Environmental Science. |
| 2019 | | UGC-NET : Qualified UGC-NET "Environmental Sciences" in both June and Dec, 2019. |
| 2022 | | 1st Rank : Secured 1 st rank in the GZA global essay competition held in Goa. Topic: "A Future Society Run By Internet Of Things And Artificial Intelligence" . |
| 2024 | | CSIR SRF : Qualified CSIR-SRF "Environmental Sciences" in 2024. |

REFERENCES

- **Dr. Ashwini Kumar**
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CSIR-National Institute of Oceanography, Dona Paula, Goa, India, 403004
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- **Prof. Lokesh Kumar Sahu**
(Professor)
Space and Atmospheric Sciences Division,
Physical Research Laboratory, Ahmedabad, Gujarat, India, 380009
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(Professor)
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- **Dr. Manuela van Pinxteren**
(Scientist)
Atmospheric Chemistry Department
Leibniz Institute for Tropospheric Research, Permoserstraße 15 04318 Leipzig
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