

Reshmi Das, PhD.

UGC Assistant Professor (2018 December to present)
 School of Environmental Studies, Jadavpur University, Kolkata, INDIA
 Visiting Scientist, Earth Observatory of Singapore, Nanyang Technological University, SINGAPORE
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Field of Specialization: Geochemistry

Research Interest: Air pollution, Isotope geochemistry, Metal biogeochemistry

Courses Taught: Introduction to Environmental Science; Environmental Pollution; Environmental Health and Toxicology (all are M.Tech courses)

Education:

- 2001-2006 PhD. Geology –Florida State University, Tallahassee, Florida. USA.
(PhD Advisor: Prof. Leroy A Odom.
Thesis Title: Geochemical and Geochronological Investigations in the Southern Appalachians, Southern Rocky Mountains and Deccan Traps).
- 1998-2000 M.Sc. Geology – University of Calcutta, Calcutta, India.
- 1995-1998 B.Sc. Geology – University of Calcutta, Calcutta, India.

Professional Experience

- 2013, March – 2018, November. Senior Research Fellow, Earth Observatory of Singapore, Nanyang Technological University.
- 2010, August – 2011 September. Research Associate, Department of Earth and Ocean Sciences, University of South Carolina, Columbia, South Carolina, USA.
- 2009, July – 2010, July. Scientist D, Geosciences Division, Physical Research Laboratory, Department of Space, Govt. of India.
- 2007, January – 2009, June. Post-Doctoral Fellow, National High Magnetic Field Laboratory, Tallahassee, Florida, USA.

Publications:***corresponding author**

1. Ray I, **Das R***, Chua SL, Wang X (2022). Seasonal variation of atmospheric Pb sources in Singapore-Elemental and lead isotopic compositions of PM10 as source tracer. **Chemosphere** 136029.
2. Samanta, S., Barraqueta, JLM, **Das, R.** and Roychoudhury, AN (2022). Source apportionment of the atmospheric Pb using a simulation-based inversion model: A case study from India uncovers bituminous road as the prime contributor of petroleum-derived Pb. **Applied Geochemistry**. 136, 105164.
3. Majumdar, A., Samanta, D., **Das, R.*** (2022). Chemical Characteristics and Trends of Indian Summer Monsoon Rainfall: A Review. **Aerosol Air Quality Research**. <https://doi.org/10.4209/aaqr.220019>
4. Sanwlani, N and **Das, R.** (2022). Understanding Haze: Modeling Size-Resolved Mineral Aerosol from Satellite Remote Sensing. **Remote Sensing**. 14 (3), 761.

5. Kayee, J., Bureekul, S., Sompongchaiyakul, P., Wang, X. and **Das, R***. (2021). Sources of Atmospheric Lead (Pb) after Quarter Century of Phasing Out of Leaded Gasoline in Bangkok, Thailand. **Atmospheric Environment**. 253, 118355.
6. Mandal, A., Dutta, A., Mukherjee, J., **Das, R***, (2021). Role of intertidal microbial communities in carbon dioxide sequestration and pollutant removal: A review. **Marine Pollution Bulletin** 170, 112626.
7. Bhowmick, T., Sen, G., Mukherjee, J., **Das, R***, (2021). Assessing the Effect of Herbicide Diuron on River Biofilm: A Statistical Model. **Chemosphere**. 131104.
8. Majumdar, A., Satpathy, J., Kayee, J., and **Das, R***. (2020). Trace metal composition of rainwater and aerosol from Kolkata, a megacity in eastern India. **SN Applied Sciences** 2, 2122.
9. Mitra, S., and **Das, R***. (2020). Health risk assessment of construction workers from trace metals in PM_{2.5} from Kolkata, India. **Archives of Environmental & Occupational Health** 1–16.
10. Kayee, J., Sompongchaiyakul, P., Sanwlani, N., Bureekul, S., Wang, X., and **Das, R***. (2020). Metal Concentrations and Source Apportionment of PM_{2.5} in Chiang Rai and Bangkok, Thailand during a Biomass Burning Season. **ACS Earth and Space Chemistry** 4, 1213–1226.
11. Chowdhury, N.R., Das, A., Joardar, M., De, A., Mridha, D., **Das, R.**, Rahman, M.M., and Roychowdhury, T. (2020). Flow of arsenic between rice grain and water: Its interaction, accumulation and distribution in different fractions of cooked rice. **Science of the Total Environment** 731, 138937.
12. George, S., Chua, M.L., ZheWei, D.Z., **Das, R.**, Bijn, V.A., Connolly, J.E., Lee, K.P., Yung, C.F., Teoh, O.H., and Thomas, B. (2020). Personal level exposure and hazard potential of particulate matter during haze and non-haze periods in Singapore. **Chemosphere** 243, 125401.
13. **Das, R***. Wang, X., Itoh, M., Shiodera, S., and Kuwata, M. (2019). Estimation of Metal Emissions from Tropical Peatland Burning in Indonesia by Controlled Laboratory Experiments. **Journal of Geophysical Research: Atmospheres** 124, 6583–6599.
14. Kumar, M., Goswami, R., Awasthi, N., and **Das, R.** (2019). Provenance and fate of trace and rare earth elements in the sediment-aquifers systems of Majuli River Island, India. **Chemosphere** 237, 124477.
15. Roy Chowdhury, N., **Das, R.**, Joardar, M., Ghosh, S., Bhowmick, S., Tarit Roychowdhury, T. (2018). Arsenic accumulation in paddy plants at different phases of pre-monsoon cultivation. **Chemosphere** 210, 987-997.
16. **Das, R***, Mohtar A. Taufiq Bin, Rakshit D., Shome D., & Wang X. (2018). Sources of atmospheric lead (Pb) in and around an Indian megacity. **Atmospheric Environment**. 193, 57-65.
17. **Das, R***, Wang X., Khezri B., Webster R.. D., Sikdar P.K., & Datta S. (2016). Mercury isotopes of atmospheric particle bound mercury for source apportionment study in urban Kolkata, India. **Elementa: Science of the Anthropocene**. 4
18. Diong, H. Ting, **Das R***, Khezri B., Srivastava B., Wang X., Sikdar P. K., et al. (2016). Anthropogenic platinum group element (Pt, Pd, Rh) concentrations in PM₁₀ and PM_{2.5} from Kolkata, India. **SpringerPlus**. 5.
19. **Das, R***, Khezri B., Srivastava B., Datta S., Sikdar P. K., & Webster R. D. (2015). Trace Element Composition of PM_{2.5} and PM₁₀ from Kolkata - A Heavily Polluted Indian Metropolis. **Atmospheric Pollution Research**. 742-750.
20. **Das, R***, Landing W., Bizimis M., Odom L., & Caffrey J. (2015). Mass Independent Fractionation of Mercury Isotopes as Source Tracers in Sediments. **Procedia Earth and Planetary Science**. 13, 151-157.
21. Chakraborti, D., Rahman M. Mahmudur, Murrill M., **Das R.**, Siddayya, Patil S.. G., et al. (2013). Environmental arsenic contamination and its health effects in a historic gold mining area of the Mangalur greenstone belt of Northeastern Karnataka, India. **Journal of Hazardous Materials**. 262, 1048-1055.

22. **Das, R.**, Bizimis M., & Wilson A. M. (2013). Tracing mercury seawater vs. atmospheric inputs in a pristine SE USA salt marsh system: Mercury isotope evidence. **Chemical Geology**. 336, 50-61.
23. Holm-Denoma, C. S., & **Das R.** (2010). Bimodal volcanism as evidence for Paleozoic extensional accretionary tectonism in the southern Appalachians. **Geological Society of America Bulletin**. 122, 1220-1234.
24. Sen, G., Bizimis M., **Das R.**, Paul D. K., Ray A., & Biswas S. (2009). Deccan plume, lithosphere rifting, and volcanism in Kutch, India. **Earth and Planetary Science Letters**. 277, 101-111.
25. **Das, R.**, Salters V. J. M., & Odom L. (2009). A case for in vivo mass-independent fractionation of mercury isotopes in fish. **Geochemistry, Geophysics, Geosystems**. 10, Q11012.

Book Chapters:

1. **Das, R*** and Mukherjee, M. (2021) Earth Science in Environmental Management in Sikdar, P.K. (ed.) *Environmental Management: Issues and Concerns in Developing Countries*. Capital Publishing Company Co-published by Springer, pp. 23-41
2. **Das, R***. (in press). Sources of Atmospheric Lead (Pb) over Indian Cities and Health Impact in Singh, R.P. (ed) *Asian Atmospheric Pollution*. Elsevier, chapter 21.

Conference Proceedings:

1. Statistical Models to Evaluate the Impact of the Herbicide Diuron on Riverine Biofilms T Bhowmick, G Sen, J Mukherjee, **R DAS**. American Geophysical Union, Fall Meeting 2021, New Orleans, USA.
2. Potential of Intertidal Biofilms for Heavy Metal Bioremediation. A Dutta, A Mandal, J Mukherjee, **R DAS**. American Geophysical Union, Fall Meeting 2021, New Orleans, USA.
3. Chemical Characteristics and Trends of Indian Summer Monsoon Rainfall. A Majumdar, D Samanta, **R DAS**. American Geophysical Union, Fall Meeting 2021, New Orleans, USA.
4. Mineral Dust Entrainment during Wildfires –Lead (Pb) Isotopes as Fingerprints. **R DAS**. ATBM Mohtar, X Wang, B Khezri, RD Webster, M Itoh and M Kuwata. Goldschmidt 2019, Barcelona, Spain.
5. Metal Release during Indonesian Forest Fires. **R DAS**, S Shiodera, M Itoh, M Kuwata, X Wang. Tenth International Workshop on the Fluvial Sediment Supply to the South China Sea, 2017, Jakarta, Indonesia.
6. Lead Isotopic Fingerprinting of Indian Aerosols and Possible End Members. **R DAS**, ATBM Mohtar, X Wang, D Rakshit. Ninth International Workshop on the Fluvial Sediment Supply to the South China Sea, 2016, Bangkok, Thailand.
7. Mercury Isotopes for Source Apportionment Study of Atmospheric Particle Bound Mercury (PBM) In an Urban Setting. **R. DAS**, X Wang, B Khezri, B Srivastava, S Datta, PK Sikdar, RD Webster. ICMGP International Conference on Mercury as Global Pollutant, 2015, Jeju, Korea.
8. Fractionated mercury isotope in sediments: A quest for processes. **R DAS** and AL Odom. Goldschmidt 2008, Vancouver, Canada.
9. Fractionated Mercury Isotopes in Fish: The Effects of Nuclear Mass, Spin, and Volume. **R DAS** and AL Odom. American Geophysical Union, Fall Meeting, 2007, San Francisco, USA.
10. Age, Geochemistry and Tectonic Setting of the Most Inboard Accreted Paleozoic Arc Related Terrane in the Southern Appalachians. **R DAS** and C Holm. Geological Society of America, Annual Meeting 2005, Salt lake City, USA.
11. The Age of the Tres Piedras Granite, New Mexico, USA: A Case of Large Scale Isotopic Homogenization. **R DAS**, C Holm and AL Odom. American Geophysical Union, Fall Meeting 2004, San Francisco, USA.
12. Sinistral Shear Zone as a Terrain Boundary in South Indian Craton. **R DAS**. Geological Society of America, Annual Meeting 2002, Denver, USA.

M.Tech. Thesis Supervisor

1. **Shoumick Mitra (Completed 2020)** – Pursuing PhD in IIT Madras
2. **Jaydeep Satpathy (Completed 2020)** – Employed at Zifo RnD Solutions
3. **Aditi Majumdar (Completed 2021)** - Pursuing PhD in BIT Mesra
4. **Ahana Dutta (Completed 2021)** - Pursuing PhD in IIT Guwahati
5. **Avijit Mohanta(Completed 2022)** -
6. **Susmita Maity (Ongoing)** -
7. **Shreyasee Tudu (Ongoing)** -

M.Tech. Thesis Co supervisor

1. **Abhishek Mandal (Completed 2021)** - Pursuing PhD in IISER Kolkata
2. **Somnath Poddar (Completed 2022)** - Employed at Infosys
3. **Divyangana Lahiri (Ongoing)** -

PhD Students

1. **Jariya Kayee** – Chulalongkorn University, Bangkok, Thailand. Graduated- July 2021. Now SASEA Fellow at Nanyang Technological University, Singapore.
2. **Tanaya Bhowmick (SRF)** - CSIR Fellow. Jadavpur University. Ongoing
3. **Iravati Ray (JRF)** - AICTE Doctoral Fellow. Jadavpur University. Ongoing
4. **Kazi Hamidul Islam** - Jadavpur University, Ongoing

Professional Activities:

- 2007-present: Member of ACS (American Chemical Society)
- Topic Editor, Special Issue on Natural and Anthropogenic Disasters and Their Impacts on Drinking Water Sources, Frontiers in Water
- **Referee for journals:** Science of Total Environment (Elsevier), Atmospheric Environment (Elsevier), Journal of Hazardous Material (Elsevier), Atmospheric Pollution Research (Elsevier), Urban Climate (Elsevier), ACS Earth and Space Chemistry(American Chemical Society)

Honours and Awards:

- Certificate of *Outstanding Contribution in Reviewing* from Atmospheric Environment, Elsevier.
- Teaching and research assistantship at Florida State University from 2001-2006
- Dissertation writing grant from Florida State University 2006
- Nominated for “Outstanding Teaching Assistance Award” by Florida State University- 2005.
- Travel Grant from “Ridge 2000 Distinguished Lecturer Series” to host Prof. Ken Macdonald as colloquium speaker in 2005.
- Travel Grants from COGS (Congress of Graduate Studies) to present at Geological Society of America (GSA) conferences in 2002, 2004, 2005.
- Travel Grant from GSA (Geological Society of America) to attend GSA annual meeting in 2002 and 2005.
- State scholarship from West Bengal Govt., India, 1998-2000 (during MSc).

Funded Research Projects:

Project title	Budget / Sponsoring agency/Period of Operation	Country
Following the trails of India's Atmospheric Lead (Pb): Source Identification, Apportionment, Bioavailability and Remediation	₹ 29,73,696/- SERB, DST. 2022 September - 2025 August	India

Designing a Botanical Biofilter for Bioremediation of Atmospheric Particulate Matter and Heavy Metals (Pb, Ni and As)	₹ 6,60,000/- Department of Environment, Govt. of West Bengal. 2022 February - 2023 March	India.
Chemical Composition and Source Apportionment of Thai Aerosols.	₹ 2,30,000/- ASEAN-India STI Cooperation Scheme, DST. 2019 November-2020 February	India
Sources Of Species Specific Mercury (Hg) In Urban Atmosphere	₹ 4,30,000 INR/ RUSA 2.0. 2019 June – 2020 March	India
Metal Biogeochemistry in the Environment	₹ 10,00,000 INR/UGC Start Up Grant. 2019 April-2021 March	India
Anthropogenic Lead In The Atmosphere - Isotopes For Source Apportionment	\$125,000 SGD/ Singapore Ministry of Education, Academic Research Fund, Tier 1. 2017 March – 2019 December	Singapore
Mercury Isotopes of Atmospheric Particle Bound Mercury	\$60,000 SGD/Earth Observatory of Singapore. 2014 April – 2016 March.	Singapore
Assessing the Role of Submarine Groundwater Discharge as a Major Source of Mercury in Coastal Waters	\$19,499 USD/University of South Carolina. 2009 August – 2010 July.	USA