Soumyajyoti Jana, Ph.D.

Personal Details:

Contact Address : Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram 695021, Kerala, India

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Working Experience:

Jan 2021 onwards:

DST-SERB National Post-Doctoral Fellow at Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO under the mentorship of **Dr. Mukunda M Gogoi**

2015-2021:

Research Scholar at the University of Calcutta under the guidance of Prof. Animesh Maitra

2011-2015:

Junior project assistant on the project, "**Studies on Aerosol Environment at Kolkata Located Near the Land-Ocean Boundary as a Part of ARFI network Under ISRO-GBP" under the supervision of Prof. Animesh Maitra**

Thesis:

"**Studies on Atmospheric Features Related to Convective Processes using Radio and Optical Techniques in Tropical Region**" under the guidance of **Prof. Animesh Maitra**

Research Status:

https://scholar.google.co.in/citations?user=U4xWFeQAAAAJ&hl=en

https://www.researchgate.net/profile/Soumyajyoti-Jana

Research Areas:

- Electric Field Variation in Clear and Convective Conditions at Tropical atmosphere.
- Nowcasting of lightning strikes using electric field measurements.
- Remote sensing of convective rain by ground-based micro rain radar, and microwave radiometer.
- Impacts of Reduced Anthropogenic Activities on Aerosol Environment and Related Atmospheric Parameters.
- Black carbon Characteristics at a Metropolitan city near the land-ocean boundary.
- Impact studies of pollutant aerosols on boundary layer temperature profile.
- Nowcasting of Rain events using Multi-frequency radiometric observations.
- Effects of air pollution on meteorological parameters over Indian urban metropolis.
- Effect of Boundary Layer Dynamics on the Profiles of Rain Drop Size Distribution.
- Gravity wave activities associated with convective phenomena and tropical cyclones near the land-sea boundary.

Educational Qualification:

Year of Passing	**Standard/Degree**	**Institution/School**	**Board/University**
2020	Ph.D. in Radio Physics and Electronics	Institute of Radio Physics and Electronics	University of Calcutta
2011	Master in Science in Physics	Presidency College	University of Calcutta
2009	Bachelor in Science in Physics (Honours)	Bijaygarh Jyotish Ray College	University of Calcutta
2006	12th (Science)	Birbhum Zilla School, Suri,Birbhum	WBCHSE
2004	10th	Birbhum Zilla School, Suri,Birbhum	WBBSE

Projects Involved:

1. Working as a **Principal Investigator** on the project**, "Investigation of Aerosol-Cloud-Precipitation interaction over India using remote sensing and in-situ data"** under **National Post-Doctoral Fellowship** scheme of **DST-SERB at Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO** under the mentorship of **Dr. Mukunda M Gogoi**

2. Working with the Indian Space Research Organisation (ISRO) project on, "**Studies on Aerosol Environment at Kolkata Located Near the Land-Ocean Boundary as a Part of ARFI network Under ISRO-GBP"** as Junior Project Assistant under the supervision of **Prof. Animesh Maitra** at the University of Calcutta.

Skills:

Atmospheric Physics, Aerosol Science, Air Pollution Studies, Radiative Forcing, Convection, Meteorology, Remote Sensing, Boundary Layer Meteorology, Monsoon, Precipitation.

Technical Skills:

During my research work, I have extensive experience in handling, operating, and maintenance of various atmospheric parameters measuring instruments such as **microwave radiometer, aethalometer, multi-wavelength radiometer (for aerosol optical depth measurement), nephelometer, sunphotometer, micro rain radar, laser precipitation monitor, disdrometer, optical rain gauge, electric field mill, and lightning detector**. I also have proficiency in **MATLAB** programming and am conversant with a large amount of data handling applications such as neural networks, multi-variant regression analysis, principal components analysis, wavelet analysis, and empirical mode decompositions. Additionally, I have experience with **FORTRAN, C++, and Python** platforms. I have familiarized myself with models like **SBDART, WRF**, and **RegCM** for the analysis of radiative transfer and atmospheric dynamics in recent times.

Awards:

1. National Post-Doctoral Fellowship, 2020 by DST-SERB, India
2. Selected to receive a student travel grant to attend the 2017 American Geophysical Union Fall Meeting, 11-15 December 2017 in New Orleans, Louisiana, U.S.A.
3. Selected in the International Travel Grant Scheme by SERB to attend the Symposium, International Union of Radio Science General Assembly & Scientific Symposium 2017.
4. Selected for Travel Support by the University of Calcutta, India to attend the International Union of Radio Science General Assembly & Scientific Symposium 2017.

Publications:

Journals

2022

1. Nimit Godhani, HP Joshi, **Soumyajyoti Jana**, Mukunda M Gogoi, S. Suresh Babu. **(2022)**. Columnar Aerosol Optical Depth, Water Vapor and Ozone over a semi-arid urban location of western India: Potential Sources and Direct Radiative Effects. Advances in Space Research. DOI: 10.1016/j.asr.2022.07.046 (**SCI Impact Factor:2.611)**

2. Gargi Rakshit, **Soumyajyoti Jana,** Animesh Maitra. **(2022)**. Long Term Impact of Continental and Maritime Airflow on Aerosol Environment and Rain Microstructure Near Land-Sea Boundary. *IEEE Geoscience and Remote Sensing Letters*. **DOI:** 10.1109/LGRS.2022.3158980 (**SCI Impact Factor:5.343)**

2021

3. **Soumyajyoti Jana**., Gargi Rakshit, AnimeshMaitra. (**2021**). Impacts of reduced anthropogenic activities on black carbon concentration and related atmospheric parameters at an urban metropolis near the land ocean boundary during COVID-19 pandemic. *Current Science*, *120*(2), 296. (**SCI Impact Factor: 1.102**)

4. Gargi Rakshit, **Soumyajyoti Jana**, Animesh Maitra. (**2021**). Multitechnique Observations on the Impacts of Declining Air Pollution on the Atmospheric Convective Processes During COVID-19 Pandemic at a Tropical Metropolis. *IEEE Geoscience and Remote Sensing Letters*. **DOI:** 10.1109/LGRS.2021.3049887 (**SCI Impact Factor: 5.343)**

5. Gargi Rakshit, **Soumyajyoti Jana**, Animesh Maitra. (**2021**). Influence of Reduced Anthropogenic Activities on Rain Microphysical Properties and Related Atmospheric Parameters Over an Urban Tropical Location. *IEEE Geoscience and Remote Sensing Letters*, 19, **DOI:** 10.1109/LGRS.2021.3093827 (**SCI Impact Factor: 5.343)**

2020

6. **Soumyajyoti Jana**., Gargi Rakshit, AnimeshMaitra. (**2020**). Gravity Wave Activities Associated with Convective Phenomena at a Tropical Location near Land-Sea Boundary. *Radio Science*. **55, e2019RS006952. https://doi.org/10.1029/2019RS006952** (**SCI Impact Factor: 1.68**).

2019

7. **Soumyajyoti Jana**, Animesh Maitra. (**2019**). Electric Field Variation in Clear and Convective Conditions at a Tropical Urban Location. *Journal of Geophysical Research: Atmospheres*, 124(4), 2068-2078. **https://doi.org/10.1029/2018JD028310**. (**SCI Impact Factor: 5.22**).

8. Animesh Maitra, Gargi Rakshit, **Soumyajyoti Jana**, Rohit Chakraborty, (**2019**). Effect of Boundary Layer Dynamics on the Profiles of Rain Drop Size Distribution During Convective Rain. *IEEE Geoscience and Remote Sensing Letters, 16(7), 1007-1011.*DOI: 10.1109/LGRS.2019.2891906 (**SCI Impact Factor: 5.343**)

2018

9. **Soumyajyoti Jana**., Gargi Rakshit, AnimeshMaitra. (**2018**). Aliasing effect due to convective rain in Doppler spectrum observed by micro rain radar at a tropical location. *Advances in Space Research*, *62*(9), 2443-2453.(**SCI Impact Factor: 2.611**)

10. Gargi Rakshit, **Soumyajyoti Jana**, Animesh Maitra. (**2018**). Gravity wave behavior in lower stratosphere during tropical cyclones over the bay of bengal. *Radio Science*, *53*(11), 1356-1367. (**SCI Impact Factor: 1.68**)

2017

11. Shamitaksha Talukdar, **Soumyajyoti Jana**, Animesh Maitra. (**2017**). Dominance of pollutant aerosols over an urban region and its impact on boundary layer temperature profile. *Journal of Geophysical Research: Atmospheres*, *122*(2), 1001-1014. (**SCI Impact Factor: 5.22**)

12. Rohit Chakraborty, Shamitaksha Talukdar, Upal Saha, **Soumyajyoti Jana**, Animesh Maitra. (**2017**). Anomalies in relative humidity profile in the boundary layer during convective rain. *Atmospheric research*, *191*, 74-83. (**SCI Impact Factor: 5.965**)

2015

13. Shamitaksha Talukdar, **Soumyajyoti Jana**, Animesh Maitra, Mukund M Gogoi. (**2015**). Characteristics of black carbon concentration at a metropolitan city located near land–ocean boundary in Eastern India. *Atmospheric Research*, *153*, 526-534. (**SCI Impact Factor: 5.965**)

2014

14. Shamitaksha Talukdar, **Soumyajyoti Jana,** Animesh Maitra. (**2014**). Variation of black carbon concentration associated with rain events at a tropical urban location. *Current Science*, 72-78. (**SCI Impact Factor: 1.102**)

15. Rohit Chakraborty, Saurabh Das, **Soumyajyoti Jana,** Animesh Maitra. (**2014**). Nowcasting of rain events using multi-frequency radiometric observations. *Journal of Hydrology*, *513*, 467-474. (**SCI Impact Factor: 6.708**)

16. UpalSaha, Shamitaksha Talukdar, **Soumyajyoti Jana**, Animesh Maitra. (**2014**). Effects of air pollution on meteorological parameters during Deepawali festival over an Indian urban metropolis. *Atmospheric Environment*, *98*, 530-539. (**SCI Impact Factor: 5.755**)

Acknowledgement in publication

1. Chakraborty, R., Guha, B. K., Talukdar, S., Ratnam, M. V., & Maitra, A. (**2019**). Growth in mid-monsoon dry phases over the Indian region: prevailing influence of anthropogenic aerosols. *Atmospheric Chemistry & Physics*, *19*(19).*12325–12341.* (**SCI Impact Factor: 7.197**)

Communicated Journals

1. **Soumyajyoti Jana,** Rohit Chakraborty, Animesh Maitra. **(2022)**. Lightning Prediction using Electric Field Measurements Associated with Convective Events at a Tropical Location. *Pure and Applied Geophysics* (Under review) (**SCI Impact Factor: 2.641)**

2. **Soumyajyoti Jana,** Gargi Rakshit, Animesh Maitra. **(2022)**. Influence of Aerosols on Atmospheric Gravity Waves at an Urban Tropical Location. *Atmospheric Research.* (Submitted). Pre-print: 10.21203/rs.3.rs-1121047/v1 (**SCI Impact Factor: 5.965)**

3. Animesh Maitra, Gargi Rakshit, **Soumyajyoti Jana**. **(2021)**. Three-parameter Rain Drop Size Distributions from GPM Dual-Frequency Precipitation Radar Measurements: Techniques and Validation with Ground-Based Observations. *IEEE Trans. on Geoscience and Remote Sensing* (Under review) (**SCI Impact Factor: 8.125)**

Conferences

1. **Soumyajyoti Jana**, Animesh maitra, "Impacts of Reduced Anthropogenic Aerosols on The Atmospheric Parameters and Radiative Forcing Around a Highly Pollutant Metropolis", URSI GASS **2021,** 28 August-4 September, Rome, Italy.

2. Animesh Maitra, **Soumyajyoti Jana** and Gargi Rakshit "Remote Sensing of Tropical Precipitation with Radar and Radiometric Measurements", 14th European Conference on Antennas and Propagation, Copenhagen, Denmark, March 15-20, **2020** (EuCAP 2020).

3. **Soumyajyoti Jana**, Animseh Maitra. "Influence of Aerosols on Atmospheric Gravity Waves and Mid-level Cloud coverage at an Urban Tropical Location", URSI RCRS 2020, IIT (BHU), Varanasi, India, 12 - 14 February, **2020**.

4. Gargi Rakshit, **Soumyajyoti Jana**, Animesh Maitra. "Comparison between DSD parameters from GPM and Ground Based Disdrometer at Kolkata" URSI AP-RASC, 09-15 March 2019, New Delhi, India.

5. **Soumyajyoti Jana**, Animesh Maitra. 'Gravity Wave Behavior Associated With Strong Convective Activities During Tropical Cyclone Aila' URSI AP-RASC, 09-15 March **2019**, New Delhi, India.

6. **Soumyajyoti Jana**, Gargi Rakshit and Animesh Maitra, "Pollutant and Dust Aerosol Identification Using *k*-Means Clustering at Kolkata" National Space Science Symposium (NSSS 2019), At Pune, **2019**.

7. Gargi Rakshit, Rohit Chakraborty, **Soumyajyoti Jana**, and Animesh Maitra, "Anomalous radar reflectivity during intense convection in the boundary layer", iRAD2018, NARL Gadanki 8-11 January **2018**.

8. **Soumyajyoti Jana**, Gargi Rakshit and Animesh Maitra, "Aliasing Effects due to Convective Rain on Micro Rain Radar Reflectivity Profile at a Tropical Location", iRAD2018, NARL Gadanki 8-11 January **2018**.

9. Animesh Maitra, **Soumyajyoti Jana** and Gargi Rakshit, 'Rain Radar Studies of Boundary Layer Dynamics at a Tropical Location' IGARSS 2018, Valencia, Spain, 22-27 July **2018**.

10. Animesh Maitra, Gargi Rakshit and, **Soumyajyoti Jana**, "Atmospheric Gravity Wave Features Related to Stratospheric Moistening During Tropical Cyclones" IGARSS 2018, Valencia, Spain, 22-27 July **2018**.

11. **Soumyajyoti Jana**, Animesh Maitra. “Atmospheric Electric Field Observations at a Tropical Location” 3rd Indian URSI regional conference on radio science, 1-4 March **2017**, Tirupati, India.

12. Gargi Rakshit, **Soumyajyoti Jana**, Animesh Maitra. “Effect of Convection on Gravity Wave Generation at a Tropical Location” 12th International Conference on Microwaves Antenna Propagation & Remote Sensing (ICMARS-2017), **2017**.

13. **Soumyajyoti Jana**, Rohit Chakraborty, Animesh Maitra, “Prediction of Lightning strikes using Electric Field at a Tropical Location”, 12th International Conference on Microwaves, Antennae, Propagation and Remote Sensing (ICMARS-2017), Jodhpur, India, February **2017**.

14. Animesh Maitra, **Soumyajyoti Jana**, Rohit Chaktaborty, "Convective rain study with radiometer, radar and electric field observations at a tropical location." International Symposium on Antennas and Propagation (ISAP), 2016. IEEE, **2016**.

15. **Soumyajyoti Jana,** ArpitaAdhikari, Rohit Chaktaborty, Animesh Maitra, “Behaviour of Atmospheric Electric Field at a Tropical Location”, National Space Science Symposium (NSSS 2016), At Thiruvananthapuram, **2016**.

16. Animesh Maitra,**Soumyajyoti Jana**, Rohit Chakraborty, “Convective rain study with radiometer, radar and electric field observations at a tropical location”, **2016** International Symposium on Antennas and Propagation (ISAP), Okinawa, Japan.

17. Animesh Maitra,Rohit Chakraborty, **Soumyajyoti Jana**, “Prediction of convective rainfall using multi-technique observations”, **2016** URSI Asia-Pacific Radio Science Conference (URSI AP-RASC), Seoul, South Korea.

18. Thumree Sarkar, **Soumyajyoti Jana**, and Animesh Maitra. "Dependence of rain integral parameters on measured rain drop velocities at a tropical location." *2016 URSI Asia-Pacific Radio Science Conference (URSI AP-RASC)*. IEEE, **2016**.

19. **Soumyajyoti Jana**, Animesh Maitra. “Observation of atmospheric electric field associated with convective rain at a tropical location” 2nd Indian URSI regional conference on radio science, 16-19 November **2015**.

20. RohitChakraborty, **Soumyajyoti Jana**, Thumree Sarkar, and Animesh Maitra. "Multi-technique observations of a hailstorm event at a tropical location."*6th International Conference on Computers and Devices for Communication,* Kolkata, December 16-18, **2015**.

21. **Soumyajyoti Jana**, Saurabh Das, Animesh Maitra. “Multi-technique observations of convective phenomena associated with Indian summer monsoon” 1st Indian URSI regional conference on radio science, 2-5 January **2014**, Pune, India.

22. Upal Saha, Animesh Maitra, Shamitaksha Talukdar, and **Soumyajyoti Jana**. "Aerosol indirect effects on lightning in the generation of induced NOx and tropospheric ozone over an Indian urban metropolis." In *40th COSPAR Scientific Assembly*, vol. 40. **2014**.

23. Animesh Maitra, **Soumyajyoti Jana**, Rohit Chakraborty, SouvikMajumder, (2014, August). Multi-technique observations of convective rain events at a tropical location. In *2014 XXXIth URSI General Assembly and Scientific Symposium (URSI GASS)* (pp. 1-4). IEEE. **2014**.

24. Rohit Chakraborty, **Soumyajyoti Jana**, Saurabh Das, Animesh Maitra, "Prediction of Convective activities using Radiometric observations at Kolkata", ICMARS 2013, Jodhpur, 11-14 December **2013**, p. 73.

Workshops and Schools:

1. Workshop on "Data Analysis & Machine Learning" organised jointly by the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune and Indian Institute of Science Education and Research (IISER), Tirupati held at IISER Tirupati from May 24 to May 28, **2019**.

2. Course on "Climate Change Impact Analysis" under Global Initiative of Academic Networks at Indian Institute of Engineering Science And Technology (IIEST), Shibpur during May 23 to June 3, **2016**.

3. The "Winter School on Remote Sensing of the Earth's Atmosphere and Space Weather ReMatSpace-2013)", at Institute of Radio Physics and Electronics, University of Calcutta, March 4-22, **2013**.

4. "International Day of Light" programme organized by the IEEE Photonics Society Calcutta Chapter and IEEE Calcutta University Student Branch held on the 16th May, **2018** at University College of Science and Technology, Kolkata.

I do hereby declare that the statements made here are true and correct to the best of my belief and knowledge.

Date: 11 November 2022 **Soumyajyoti Jana**