
Amit Kumar Mishra, PhD

Assistant Professor

School of Environmental Sciences

Jawaharlal Nehru University, New Delhi, India-110067

Sex: Male **DOB:** 05/11/1983 **Nationality:** Indian

Phone: +91-9205201653

E-mail: amit.mishra.jnu@gmail.com



Research Interests

- Chemical, Optical and Microphysical Properties of Aerosols/Cloud: Observations, Remote Sensing & Modelling
- Aerosol Radiative Forcing & Aerosol-Cloud-Climate Interaction
- Air Pollution & Meteorology, Environmental Chemistry, Climate Change & Environmental Policy

Professional Appointments

- 2017 (Oct)–current: Assistant Professor
School of Environmental Sciences,
Jawaharlal Nehru University (JNU), New Delhi, India.
- 2016 (May)–2017 (Oct): DST Inspire Faculty
Environmental Science and Biomedical Metrology Division,
CSIR-National Physical Laboratory, New Delhi, India.
- 2015 (Nov)–2016 (Mar): Post-Doctoral Fellow
Centre for Environmental Science and Engineering,
Indian Institute of Technology (IITK), Kanpur, India.
- 2012 (Nov)–2015 (Nov): Post-Doctoral Fellow
Department of Earth and Planetary Science,
Weizmann Institute of Science (WIS), Rehovot, Israel.

Education

- Ph.D. (2012): Environmental Science
Department of Earth and Environmental Science,
Nagoya University (NU), Nagoya, Japan.
- M.Phil. (2009): Environmental Science
School of Environmental Sciences,

Jawaharlal Nehru University (JNU), New Delhi, India.

NET/JRF (2007): Earth, Atmospheric, Ocean & Planetary Sciences
Joint CSIR-UGC,
CSIR, New Delhi, India.

M.Sc. (2007): Environmental Science
School of Environmental Sciences,
Jawaharlal Nehru University (JNU), New Delhi, India.

B.Sc. (2005): Mathematics, Physics & Chemistry (Hons.)
Faculty of Science,
Banaras Hindu University (BHU), Varanasi, India.

Awards and Achievements

Scholarships

- Inspire Faculty Award from Department of Science and Technology, Govt. of India (Feb 2016)
- International Scholarship of Japanese Monbukagakusho Scholarship from Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT), Govt. of Japan (Apr 2010 – Oct 2012).
- Senior Research Fellowship (SRF) of Council of Scientific and Industrial Research (CSIR), Government of India (Jul 2009 – Mar 2010).
- Junior Research Fellowship (JRF) of Council of Scientific and Industrial Research (CSIR), Government of India (Jul 2007– Jun 2009).
- National Eligibility Test (NET) for lectureship, CSIR, Government of India, 2007.

Distinction

- Batch topper in M.Phil. (2009) from School of Environmental Science, JNU, India.

Reviewer of International Journals

Atmospheric Environment, Journal of Geophysical Research-Atmosphere, Atmospheric Research, Aerosol and Air Quality Research, Environmental Pollution, QJRM, International Journal of Remote Sensing, Atmospheric Chemistry and Physics, Environmental Pollution etc.

Research Experiences

Number of Ph. D. supervised: PhD [Submitted (1) Ongoing (4)] & M.Phil. [Awarded (1)]

Supervised Dissertation at Master's Level: 11 (completed)

UPoE II Project (2018 – 2019: Completed) PI

- Study of the impact of aerosol size distribution on cloud microphysics over Indian Core Monsoon Region. **[Grant: 5 Lakhs INR]**

DST INSPIRE Project (2016 – 2021: Completed) PI

- Study of atmospheric brown clouds over the Indo-Gangetic Plain and their impact on monsoon and agro-ecosystem. **[Grant: 35 Lakhs INR]**

MoEF & CC Project (2022: Completed) Co-PI

- Green Skill Development Programme (Pollution Monitors: Air & Water). [Grant: 16 Lakhs INR]

Post Doc. Projects (2012 – 2016)

- Radiative signature of absorbing aerosols over the Mediterranean.
- Co-variability of fire and smoke in the Amazon Basin.
- Effect of aerosol layer height on direct aerosol radiative forcing.
- Evaluation of spatial boundaries of point measurements over the Mediterranean.
- Elevated aerosol layer and its radiative impacts.

Ph.D. Thesis (2012)

- Spatio-temporal distribution of aerosols characteristics over the Indo-Gangetic Basin: synergetic analyses using multi space-borne and ground-based remote sensors. Under **Professor Takashi Shibata, Nagoya University, Nagoya, Japan.**

Teaching

Bachelor's course: ES-301 Introduction to Environmental Sciences

Master's course: ES-101 Remedial Mathematics; ES-203 Meteorology;

Ph.D.'s course: ES-601R Research Methodology; ES-692R Aerosol & Cloud Physics

Publications *Corresponding AuthorResearch paper: Journals

1. Sharma, S., Dass, A., ***Mishra, A. K.**, Singh, S., & Kumar, K. (2022). A decadal climatology of cloud vertical structure over the Indo-Gangetic Plain using radiosonde and radar observations. **Atmospheric Research**, 266, 105949.
2. Jangid, M., ***Mishra, A. K.**, Koren, I., Sarangi, C., Kumar, K., Singh, S., & Tripathi, S. (2021). Observation of aerosol induced 'lower tropospheric cooling' over Indian core monsoon region. **Environmental Research Letters**, 16(12), 124057.
3. Jose, S., **Mishra, A.K.**, Lodhi, N.K., Sharma, S.K., and Singh, S., (2021) Characteristics of Aerosol Size Distributions and New Particle Formation Events at Delhi: An Urban Location in the Indo-Gangetic Plains. **Frontiers in Earth Science**, 9, 750111.
4. ***Mishra, A. K.**, Rajput, P., Singh, A., Singh, C. K., & Mall, R. K. (2021). Effect of lockdown amid COVID-19 on ambient air quality in sixteen Indian Cities. **Frontiers in Sustainable Cities**, 101.
5. Jose, S., ***Mishra, A. K.**, & Singh, S. (2021). A correlational study on size differentiated aerosols on monsoonal and pre-monsoonal cloud properties over the Indo Gangetic Basin. **Atmospheric Research**, 262, 105796.

6. Wani, M. A., ***Mishra, A. K.**, Sharma, S., Mayer, I. A., & Ahmad, M. (2021). Source profiling of air pollution and its association with acute respiratory infections in the Himalayan-bound region of India. **Environmental Science and Pollution Research**, 1-15.
7. Bangar, V., ***Mishra, A. K.**, Jangid, M., & Rajput, P. (2021). Elemental characteristics and source-apportionment of PM_{2.5} during the post-monsoon season in Delhi, India. **Frontiers in Sustainable Cities**, 3, 18.
8. Kumar A*, Singh S, Kumar N, Singh N, Kumar K, **Mishra AK**, Chourasiya S, Kushwaha HS. (2021) Seasonal Abundance and Source Attribution of Carbonaceous Aerosols at Different Altitude of Mountainous Locations in Uttarakhand Himalaya, **Aerosol Science and Engineering**. 2021 Mar 15:1-4.
9. Mishra AK, **Mishra A.**, Singh A*. (2021) Geochemical characterization of bricks used in historical monuments of 14-18th century CE of Haryana region of the Indian subcontinent: Reference to raw materials and production technique. **Construction and Building Materials**. 2021 Feb 1;269:121802.
10. Kumar, A., Bali, K., *Singh, S., Naja, M., **Mishra, A.K.** (2019) Estimates of reactive trace gases (NMVOCs, CO and NO_x) and their ozone forming potentials during forest fire over Southern Himalayan region, **Atmospheric Research**, 2019, 227, 41-51.
11. Bali, K., ***Mishra, A.K.**, Singh, S., Chandra, S., Lehahn, Y., (2019) Impact of dust storm on phytoplankton bloom over the Arbaian Sea: a case study during March 2012, **Environmental Science and Pollution Research**, 2019, 26 (12), 11940-11950.
12. *Singh, S., Lodhi, N., ***Mishra, A.K.**, Jose, S., Kumar, S.N., Kotnala, R.K., (2018) Assessment of satellite-retrieved surface UVA and UVB radiation by comparison with ground-measurements and trends over Mega-city Delhi, **Atmospheric Environment**, 2018, 188, 60-70.
13. Chowdhary, S., Dey, S., *Tripathi, S.N., Beig, G., **Mishra, A.K.**, Sharma, S., (2017) "Traffic intervention" policy fails to mitigate air pollution in megacity Delhi, **Environmental Science and Policy**, 2017, 74, 8-13.
14. Pandey, A.K., **Mishra, A.K.**, Kumar, R., Berwal, S., Devadas, R., Huete, A., and *Kumar, K. (2017) CO variability and its association with household cooking fuels consumption over the Indo-Gangetic Plains. **Environmental Pollution**, 2017, 222, 83-93.
15. Bali, K., ***Mishra, A.K.**, *Singh, S., (2017) Impact of anomalous forest fire on aerosol radiative forcing and snow cover over Himalayan region, **Atmospheric Environment**, 2017, 150, 264-275.
16. Sarnagi, C., *Tripathi, S.N., **Mishra, A.K.**, Goel A., Welton, E.J., (2016) Elevated aerosol layers and their radiative impact over Kanpur during monsoon onset period, **Journal of Geophysical Research-Atmosphere**, 2016, 121, doi:10.1002/2015JD0247.
17. **Mishra, A.K.**, Rudich, Y., *Koren, I., (2016) Spatial boundaries of Aerosol Robotic Network observations over the Mediterranean basin, **Geophysical Research Letters**, 2016,43 doi: [10.1002/2015GL067630](https://doi.org/10.1002/2015GL067630).
18. Tiwari, S., **Mishra, A.K.**, *Singh, A.K., (2016) Aerosol climatology over the Bay of Bengal and Arabian Sea inferred from Space-borne Radiometers and Lidar Observations, **Aerosol and Air Quality Research**, 2016, 16, 2855–2868 doi:[10.4209/aaqr.2015.06.0406](https://doi.org/10.4209/aaqr.2015.06.0406).
19. **Mishra, A.K.**, Rudich, Y., *Koren, I., (2015) Effect of aerosol vertical distribution on aerosol-radiation interaction: a theoretical prospect. **Heliyon** 2015, 1(2), e00036.[doi:10.1016/j.heliyon.2015.e00036](https://doi.org/10.1016/j.heliyon.2015.e00036)

20. **Mishra, A.K.**, Lehahn, Y., *Rudich, Y. and *Koren I. (2015) Co-variability of smoke and fire in the Amazon Basin, **Atmospheric Environment** 2015, 109, 97-104. doi:10.1016/j.atmosenv.2015.03.007.
21. Kumar, S., Kumar, S., Kaskaoutis, D.G., Singh, R.P., Singh, R.K., **Mishra, A.K.**, Srivastava, M.K., and *Singh, A.K. (2015) Meteorological, atmospheric and climatic perturbations during major dust storms over Indo-Gangetic Basin, **Aeolian Research** 2015, 17, 15-31, doi:10.1016/j.aeolia.2015.01.006.
22. **Mishra, A. K.**, Klingmueller, K., Fredj, E., Lelieveld, J., *Rudich, Y., and *Koren, I. (2014) Radiative signature of absorbing aerosol over the Eastern Mediterranean Basin, **Atmospheric Chemistry and Physics** 2014, 14, 7213-7231, doi:10.5194/acp-14-7213-2014.
23. ***Mishra, A.K.**, Shibata, T., and Srivastava, A.K. (2014) Synergistic approach for the aerosol monitoring and identification of types over Indo-Gangetic Basin in pre-monsoon season, **Aerosol and Air Quality Research** 2014, 14(3), 776-782, doi:10.4209/aaqr.2013.03.0083.
24. ***Mishra, A.K.**, Srivastava, A.K., and Jain, V.K (2013). Spectral dependency of aerosol optical depth and derived aerosol size distribution over Delhi: An implication to pollution source, **Sustainable Environment Research** 2013, 23(2), 113-128.
25. **Mishra, A.K.**, and *Shibata, T (2012). Climatological aspects of seasonal variation of aerosol vertical distribution over central Indo-Gangetic belt (IGB) inferred by the space-borne lidar CALIOP, **Atmospheric Environment** 2012, 46, 365-375, doi:10.1016/j.atmosenv.2011.09.052
26. **Mishra, A.K.**, and *Shibata, T (2012). Synergistic analyses of optical and microphysical properties of agricultural crop residue burning aerosols over the Indo-Gangetic Basin (IGB), **Atmospheric Environment** 2012, 57, 205-218. doi:10.1016/j.atmosenv.2012.04.025

Proceedings (International/National)

27. Jose, S., **Mishra, A. K.**, & Singh, S. (2022). Aerosol size resolved study on cloud radiative forcing over the indo gangetic plain. In 18th Annual Meeting of the Asia Oceania Geosciences Society: **Proceedings of the 18th Annual Meeting of the Asia Oceania Geosciences Society** (AOGS 2021) (pp. 43-45).
28. Sharma S, and **Mishra A.K.** (2020) A study of cloud vertical structure over Delhi using long-term radiosonde data. **Prodeedings of SPIE Remote Sensing**, September 2020, International Society for Optics and Photonics.
29. Singh, S., Jose, S., **Mishra, A.K.**, Lodhi, N.K. (2018) Effect of atmospheric aerosols on surface UV radiation, **Proceeding of IASTA-Aerosol Impacts: Human Health and Climate Change** by Indian Aerosol Science and Technology Association, IIT Delhi, New Delhi, India, 26 – 28 November, 2018.
30. Jose, S., Ghayas, H., **Mishra, A.K.**, Singh, S. (2018) Comparative study of aerosol particle size distribution and new particle formation events during summer and winter seasons at Delhi, **Proceeding of IASTA-Aerosol Impacts: Human Health and Climate Change** by Indian Aerosol Science and Technology Association, IIT Delhi, New Delhi, India, 26 – 28 November, 2018.
31. Jangid, M., Sharma, S., **Mishra, A.K.**, Singh, S., Kumar, K. (2018) Impact of direct radiative effect of atmospheric brown clouds on atmospheric stability over Indian core

- monsoon region, **Proceeding of IASTA-Aerosol Impacts: Human Health and Climate Change** by Indian Aerosol Science and Technology Association, IIT Delhi, New Delhi, India, 26 – 28 November, 2018.
32. **Mishra, A.K.**, Singh, S., Kumar, A., Chandra, S., Jose, S., Rudich, Y. and Koren I. (2016) Addressing the gaps between ground- and satellite-derived aerosol properties, **Proceeding of IASTA-Aerosols and Climate Change: Insights and Challenges** by Indian Aerosol Science and Technology Association, Physical Research Laboratory, Ahmedabad, India, 6 – 8 December, 2016.
 33. **Mishra, A.K.**, Singh, S., Kumar, A., Chandra, S., Jose, S. (2016) Forest fires and aerosol radiative forcing over Himalayan region, **Proceeding of IASTA-Aerosols and Climate Change: Insights and Challenges** by Indian Aerosol Science and Technology Association, Physical Research Laboratory, Ahmedabad, India, 6 – 8 December, 2016.
 34. **Mishra, A.K.**, and Shibata, T. (2011) Seasonal variation of aerosol optical and microphysical properties with altitude over central Indo-Gangetic belt (IGB) inferred from CALIPSO, **Proceedings of International Nagoya – Workshop on Asian Dust** (3-4 March, 2011), pp. 11-14.

Book Chapters

35. Sharma, R., & ***Mishra, A. K.** (2022). Role of essential climate variables and black carbon in climate change: Possible mitigation strategies. In Biomass, Biofuels, Biochemicals (pp. 31-53). Elsevier.
36. *Singh, S., **Mishra, A. K.**, Jose, S., & Lodhi, N. K. (2021). Atmospheric pollution and solar ultraviolet radiation in Asia. In Asian Atmospheric Pollution (pp. 129-146). Elsevier.
37. Jangid, M., Chaubey, S., ***Mishra, A.K.** (2019) 'A study of optical and microphysical properties of atmospheric brown clouds over the Indo-Gangetic Plains', In: Gupta et al., "Measurement, Analysis, Remediation of Environmental Pollutants", **Springer Nature**, Singapore Pte Ltd.
38. *Avtar, R., Thakur, J., **Mishra, A.K.**, Kumar, P. (2011) Geospatial Technique to Study Forest Cover Using ALOS/PALSAR Data. In: Geospatial Techniques for Managing Environmental Resources (2011), **Springer publication**, ISBN: 978-94-007-1857-9, pp.139-151.

Selected International Conferences

1. Jose, S. Singh, Mishra A.K.: Aerosol Size Resolved Study on Cloud Radiative Forcing Over the Indo Gangetic Plain, AOGS2021 Virtual, 18th Annual Meeting, 1- 6 August, 2021.
2. Jangid, M. and **Mishra, AK.** (2021) Radiative forcing of atmospheric brown clouds over the Indo-Gangetic Plain, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-16481, <https://doi.org/10.5194/egusphere-egu21-16481>, 2021.
3. Jangid M. & **Mishra A.K.** (2019) Dynamics of widespread atmospheric brown clouds over the Indo-Gangetic Plains. Abstract, Poster presented AGU (American Geophysical Union) fall meeting 2019, Moscon center, Sanfrancisco, USA, 9th to 14th December.
4. Rudich, Y., **Mishra, A.K.**, Lehahn, Y., Koren I. (2014) Fire and smoke in the Amazon Basin: a combined statistic, presented at 2014 **Joint 13th Quadrennial iCACGP**

Symposium and 13thIGAC Science Conference, Natal, Brazil, 22 – 26 September, 2014.

5. **Mishra, A.K.**, Yinon Rudich and Ilan Koren, (2014) Observed absorbing signature of summer-time aerosol over the Eastern Mediterranean, Abstract EGU2014-1476 presented at 2014 **European Geophysical Union (EGU) Meeting**, Vienna, Austria, 27 April – 2 May, 2014.
6. **Mishra A.K.** and Shibata T., (2011) Vertical distribution of agriculture crop residue burning aerosol observed by Space borne lidar CALIOP – A case study over Indo-Gangetic Basin(IGB).Abstract A13E-0401 Poster presented at 2011 **American Geophysical Union (AGU) Fall Meeting**, San Francisco, California, USA, 5-9 December.
7. **Mishra A.K.** and Shibata T. (2011) Seasonal variation of aerosol optical and microphysical properties with altitude over central Indo-Gangetic belt (IGB) inferred from CALIPSO, **Proceedings of International Nagoya – Workshop on Asian Dust**, Nagoya, Japan, 3-4 March, 2011.