

## Resume of S. N. Tripathi

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3. **Date of birth:** July 24, 1971

4. **Present designation:** Professor

5. **Name of the Institution:** Indian Institute of Technology Kanpur

6. **Postal address of the Institution:** Indian Institute of Technology Kanpur, Kanpur-208016.

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### 8. Academic Qualifications:

(i)	B.Tech.	1988-1992	Indian Institute of Technology-BHU Varanasi, India (formerly IT-BHU)	Civil Engg.	8.42/10
(ii)	M.E.	1993-1995	NIT, Allahabad, India (formerly Motilal Nehru Engineering College)	Environmental Engineering	74%
(ii)	Ph.D.	1996-2000	Department of Meteorology, The University of Reading, Reading, UK	Aerosol Modelling	

9. **Field of specialisation:** Atmospheric Science

### 10. Fellowships/Awards/Distinctions (International/National level):

1996-2000	FELIX award during Ph.D. (Fee waiver and maintenance allowance)
2000	Lech award in the final year of Ph.D.
2000	Aerosol society bursary to attend European Aerosol Conference
2002	Royal meteorological society grant to attend Int. aerosol conference in Taiwan
2002	Locky award to attend Sixth international aerosol conference in Taiwan
2002	Taiwan aerosol society award to attend the above conference
2003	AICTE Young Teacher Career Award
2004	Best Paper Award in IASTA Meeting and International Conference on "Aerosols, Clouds and Indian Monsoon", held in IIT Kanpur, India, November 15-17, 2004.

2005	Best Poster Award for the Poster 'Contrasting aerosol indirect effect on water and ice clouds over Indo-Gangetic plain' Presented in National Conference held in Pune.
2007	Second best paper award in IASTA national Conference held in NPL, Delhi, India November 14-16, 2007.
2009	Mention in IIT Kanpur academic senate minutes for outstanding performance as tutor in Mechanics of Solids course in 2008-09 First Semester.
2009	NASI-SCOPUS Young Scientist Award for highest citation in Earth Sciences.
2009-2010	NASA Senior Fellowship
2009-2012	Sir M. Visvesaraya Research Fellowship for excellence in teaching and Research
2010	First consolation poster prize in IASTA national conference held at Bose Institute Campus, Darjeeling, March 24-26, 2010.
2012	Mention in IIT Kanpur academic senate minutes for outstanding performance as tutor in Mechanics of Solids course in 2011-12 First Semester.

#### 11. Positions held earlier:

Dec 2000 - Dec 2001	Visiting Scientist, Environmental Assessment Division, Bhabha Atomic Research Centre, Mumbai.
Jan 2002-July 2003	Post Doctoral Research Assistant, Atmospheric, Oceanic and Planetary Physics, Oxford University, U.K.
June 2004	Visiting Researcher, NOAA Aeronomy Laboratory, Boulder, USA .
May-July 2006	Visiting Associate Professor, Centre for Climate System Research, The University of Tokyo, Japan.
July 2003 - Dec 2007	Assistant Professor, Department of Civil Engineering and Environmental Engineering and Management Programme, Indian Institute of Technology, Kanpur.
Aug 2009 - July 2010	Senior Fellow, NASA Goddard Space Flight Center, Greenbelt, US.
Jan 2008 – Feb 2012	Associate Professor, Department of Civil Engineering, IIT Kanpur.
Mar 2012 – till date	Professor, Department of Civil Engineering, IIT Kanpur.

#### 12. Paper published

##### *Papers Published in Journals*

1. Tripathi, S.N. and R.G. Harrison, Scavenging of electrified radioactive aerosols. *Atmospheric Environment*, 35, 5817-5821, 2001.
2. Tripathi, S.N. and R.G. Harrison, Enhancement of contact nucleation by scavenging of charged aerosol particles, *Atmospheric Research*, 62(1), 57-70, 2002.

3. Mayya, Y.S., S.N. Tripathi and A. Khan, Boundary conditions and growth of mean charges for radioactive aerosol particles near absorbing surfaces. *Journal of Aerosol Science*, 33, 781-795, 2002.
4. Dey, S., S.N. Tripathi, R.P. Singh and B. Holben, Influence of dust storm on the aerosol parameters over the Indo-Gangetic basin, *Journal of Geophysical Research*, D20211, doi:10.1029/2004JD004924, 2004.
5. Singh, R.P., S. Dey, S., S.N. Tripathi, V. Tare and B. Holben, Variability of aerosol parameters in Kanpur city, Northern India, *Journal of Geophysical Research*, 109, D23206, doi:10.1029/2004JD004966, 2004.
6. Tripathi S.N., S. Dey, V. Tare and S.K. Satheesh, Aerosol black carbon radiative forcing at an industrial city in Northern India, *Geophys. Res. Lett.*, 32(8), L08802, doi:10.1029/2005GL022515, 2005.
7. Tripathi, S.N., S. Dey, V. Tare, S.K. Satheesh, S. Lal and S. Venkataramni, Enhanced layer of black carbon in a North Indian industrial city, *Geophysical Research Letters*, 32(12), L12802, doi:10.1029/2005GL022564, 2005.
8. Tripathi, S.N., S. Dey, A. Chandel, S. Srivastava, R.P. Singh and B. Holben, Comparison of MODIS and AERONET derived aerosol optical depth over the Ganga basin, India, *Annales Geophysicae*, 23, 1093-1101, 2005.
9. Modgil, M.S., Sanjeev Kumar, S.N. Tripathi and E.R. Lovejoy, A parameterization of ion induced nucleation of sulphuric acid and water for atmospheric conditions, *Journal of Geophysical Research*, 110, No. D19, D19205, doi: 10.1029/2004JD005475, 2005.
10. Kanawade, V. and S.N. Tripathi, Evidence for the role of ion-induced particle formation during an atmospheric nucleation event observed in TOPSE, *Journal of Geophysical Research*, 111, D02209, doi:1029/2005JD006366, 2006.
11. Dey, S., S.N. Tripathi, R.P. Singh and B. Holben, Retrieval of black carbon and specific absorption over Kanpur city, Northern India during 2001-2003 using AERONET data, *Atmospheric Environment*, 40(3), 445-456, 2006.
12. Dey, S., S.N. Tripathi, R.P. Singh and B. Holben, Seasonal variability of the aerosol parameters over the Indo-Gangetic basin, *Advances in Space Research*, 36, 778-772, 2005.
13. Borucki, W.J., R.C. Whitten, E.L.O. Bakes, E. Barth and S.N. Tripathi, Predictions of the electrical conductivity and charging of the aerosols in the titan's atmosphere, *Icarus*, 181(2), 527-544, 2006.
14. Chinnam, M., S. Dey, S.N. Tripathi and M. Sharma, Dust events in Kanpur, Northern India chemical evidence for source and implications to radiative forcing, *Geophysical Research Letters*, 33, L08803, doi:10.1029/2005GL025278, 2006.
15. Tripathi, S.N., S. Vishnoi, S. Kumar and R.G. Harrison, Computationally efficient expression for the collision efficiency between electrically charged aerosol particles and cloud droplets, *Quarterly Journal of Royal Meteorological Society*, 132, 1717-1731, 2006.
16. Tare, V., S.N. Tripathi, N. Chinnam, A.K. Srivastava, Sagnik Dey, Manish Manar, Vijay Kanawade, A. Agarwal, S. Kishore, R.B. Lal and M. Sharma, Measurement of Atmospheric Parameters during ISRO-GBP Land Campaign II at a Typical Location in Ganga Basin: Part-II-Chemical Properties, *J. Geophys. Res.*, 111, D23210, doi:10.1029/2006JD007279, 2006.
17. Tripathi, S.N., Vinod Tare, N. Chinnam, A.K. Srivastava, Sagnik Dey, A. Agarwal, S. Kishore, R. B. Lal, Manish Manar, Vijay Kanawade, S.S.S. Chauhan and M. Sharma, Measurement of Atmospheric Parameters during ISRO-GBP Land Campaign II at a Typical Location in Ganga Basin: Part-I-Physical and Optical Properties, *J. Geophys. Res.*, 111, D23209, doi:10.1029/2006JD007278, 2006.
18. Dey, S. and S.N. Tripathi, Estimation of aerosol optical properties and radiative effects in the Ganga basin, northern India, during winter time, *Journal of Geophysical Research*, 112, D03203, doi:10.1029/2006JD007267, 2007.
19. Michael, M., M. Barani and S.N. Tripathi, Prediction of electrical conductivity and aerosol charging in the lower atmosphere of Mars, *Geophysical Research Letters*, 34, L04201, doi:10.1029/2006GL028434, 2007.

20. Whitten, R.C., W.J. Borucki and S.N. Tripathi, Predictions of the electrical conductivity and charging of the aerosols in the Titan's night time atmosphere, *J. of Geophys. Res. (Planets)*, 112, E04001, doi:10.1029/2006JE002788, 2007.
21. Nair, V., K. Krishnamoorthy, D. Alappattu, P.Kunhikrishnan, S. George, P. Nair, S. Babu, B. Abish, S. K. Satheesh, S.N. Tripathi, K. Niranjan and K. Badrinath, Wintertime aerosol characteristics over the IndoGangetic Plain (IGP): Impacts of local boundary layer processes and long-range transport, *J. Geophys. Res.*, 112, D13205, doi:10.1029/2006JD008099, 2007.
22. Sharma, M., S. Kishore, S.N. Tripathi and S.N. Behera, Role of atmospheric ammonia in the formation of inorganic secondary particulate matter: A Study at Kanpur, India, *J. Atmos. Chem.*, 58, 1-17, 2007.
23. Tripathi, S.N., A.K. Srivastva, S. Dey, S.K. Satheesh and K. Krishnamoorthy, Atmospheric heating rate profile due to black carbon at Kanpur (Northern India), *Atmospheric Environment*, 41(32), 6909-6915, 2007.
24. Tripathi, S.N., A. Pattanaik and S. Dey, Aerosol indirect effect over Indo-Gangetic plain, *Atmospheric Environment*, 41(33), 7037-7047, 2007.
25. Dey, S., S.N. Tripathi and S.K. Mishra, Probable mixing state of aerosols in the Indo-Gangetic Basin, Northern India, *Geophys. Res. Lett.*, 35, L03808, doi:10.1029/2007GL032622, 2008.
26. Dey, S. and S.N. Tripathi, Aerosol direct radiative effects over Kanpur in the Indo-Gangetic basin, northern India: Long-term (2001-2005) observations and implications to regional climate, *J. Geophysical Research*, 113, D04212, doi:10.1029/2007JD009029, 2008.
27. Whitten, R.C., W.J. Borucki, K. O'Brien and S.N. Tripathi, Predictions of the electrical conductivity and charging of the cloud particles in Jupiter's atmosphere, *J. Geophys. Res.*, 113, E04001, doi:10.1029/2007JE002975, 2008.
28. Michael, M., S.N. Tripathi and S.K. Mishra, Dust charging and electrical conductivity in the day and night-time atmosphere of Mars, *J. Geophys. Res. (Planets)*, 113, E07010, doi:10.1029/2007JE003047, 2008.
29. Mishra, S.K. and S.N. Tripathi, Modeling optical properties of mineral dust over the Indian Desert, *J. Geophys. Res.*, 113, D23201, DOI:10.1029/2008JD010048, 2008.
30. Michael, M. and S.N. Tripathi, Effect of charging of aerosol in the lower atmosphere of Mars, *Planetary and Space Sciences*, DOI:10.1016/J.PSS-2513.07.030, 2008.
31. Tripathi, S.N., M. Michael and R.G. Harrison, Profiles of Ion and Aerosol Interactions in Planetary Atmospheres, *Space Science Review*, DOI 10.1007/s11214-008-9367-7, 2008.
32. Roy, A., S. Baxla, T. Gupta, R. Bandyopadhyaya, and S.N. Tripathi, Measurement of size distribution and chemical analysis of particulates emitted from indoor combustion sources, *Inhalation Toxicology*, DOI:10.1080/08958370802538050, 2009.
33. Mishra, S.K., S. Dey and S.N. Tripathi, Implication of particle composition and shape to dust radiative effect: A case study from the Great Indian Desert, *Geophys. Res. Lett.*, 35, L23814, doi: 10.1029/2008GLO36058, 2009.
34. Mehta B., C. Venkataraman, M. Bhushan and S.N. Tripathi, Identification of sources affecting fog formation using receptor modeling approaches and inventory estimates of sectoral emissions, *Atmos. Env.*, 43(6), 1288-1295, 2009.
35. Michael, M., S.N. Tripathi, W Borucki and R. C. Whitten, Highly charging of particles by ion attachment in the atmosphere of Venus, *J. Geophys. Res. - Planets*, 114, E04008, doi:10.1029/2008JE003258, 2009.
36. Jaidevi, J., T. Gupta, S.N. Tripathi and K. Ujinwal, Assessment of personal exposure to inhalable indoor and outdoor particulate matter for student residents of an academic campus (IIT-Kanpur), *Inhalation Toxicology*, DOI:10.3109/08958370902822875, 2009.
37. Ganguly, D., P. Ginoux, V. Ramaswamy, D.M. Winker, B.N. Holben and S.N. Tripathi, Retrieving the composition and concentration of aerosols over the Indo-Gangetic basin using CALIOP and AERONET data, *Geophys. Res. Lett.*, 36, L13806, doi: 10.1029/2009GL038315, 2009.

38. Nakajima, T., T. Nakajima, K. Yoshimori, S.K. Mishra and S.N. Tripathi, Development of a light scattering solver applicable to particles of arbitrary shape on the basis of the surface integral equations method of Muller-type (SIEM/M): Part 1. Methodology, accuracy of calculation, and electromagnetic current on the particle surface, *Applied Optics*, 48(19), 3526-3536, 2009.
39. Baxla, S.P., A.A. Roy, Tarun Gupta, S.N. Tripathi and R. Bandyopadhyaya, Analysis of diurnal and seasonal variation of submicron outdoor aerosol mass and size distribution in a northern Indian city and its correlation to black carbon, *Aerosol and Air Quality Research*, 9, 458-469, 2009.
40. Kirpa Ram, M.M. Sarin and S.N. Tripathi, Inter-comparison of thermal and optical methods for determination of atmospheric black carbon and attenuation coefficient from an urban location in northern India, *Atmos. Res.*, 97(3), 335-342, 2010.
41. Eck, T., S.N. Tripathi et al., Climatological aspects of the optical properties of fine/coarse mode aerosol mixtures, *J. Geophys. Res.*, 115, D19205, doi:10.1029/2010JD014002, 2010.
42. Kirpa Ram, M.M. Sarin, and S.N. Tripathi, One year record of carbonaceous aerosols from an urban location (Kanpur) in the Indo-Gangetic Plain: Characterization, sources and temporal variability, *J. Geophys. Res.*, 115, D24313, doi:10.1029/2010JD014188, 2010.
43. Srivastva, A.K. and S.N. Tripathi, Numerical study for space charge within a stratiform cloud, *Journal of Earth System Science*, 119(5), 627-638, 2010.
44. Arola, A., G. Schuster, G. Myhre, S. Kazadzis, S. Dey and S.N. Tripathi, Inferring absorbing organic carbon content from AERONET data, *Atmos. Chem. Phys.*, 11, 215-225, 2011.
45. Mishra, S.K., S. N. Tripathi, S.G. Aggarwal and A. Arola, Effects of particle shape, hematite content and semi-external mixing of carbonaceous aerosols on the optical properties of accumulation mode mineral dust, *Atmos. Chem. Phys. Discuss.*, 10, 1–48, 2010.
46. Singh, V.P., T. Gupta, S.N. Tripathi, C. Jariwala and U. Das, Experimental Study of the Effects of Environmental and Fog Condensation Nuclei Parameters on the Rate of Fog Formation and Dissipation Using A New Laboratory Scale Fog Generation Facility, *Aerosol and Air Quality Research*, 11, 140-154, 2011.
47. Michael, M., S.N. Tripathi, P. Arya, A. Coates, A. Wellbrock and D.T. Young, High-Altitude Charged Aerosols in the atmosphere of Titan, *Planetary & Space Sciences*, doi:10.1016/j.pss. 2011.03.010, 2011.
48. Dumka, U.C., K. Krishna Moorthy, S.N. Tripathi, P. Hegde and Ram Sagar, Altitude variation of aerosol properties over the Himalayan range inferred from spatial measurements, *Journal of Atmospheric and Solar-Terrestrial Physics*, doi.org/10.1016/j.jastp.2011.04.002, 2011.
49. Fatima, H., S.N. Tripathi et al., On radiative forcing of sulphate aerosol produced from ion promoted nucleation mechanisms in an atmospheric global model, *Met. Atmos. Phys.*, DOI 10.1007/s00703-011-0138-8, 2011.
50. Kanawade, V.P., S.N. Tripathi et al., Isoprene suppression of new particle formation in mixed deciduous, *Atmos. Chem. Phys. Discuss.*, 11, 11039-11075, 2011.
51. Srivastava, A., S.N. Tripathi, Pre-monsoon aerosol characteristics over the Indo-Gangetic Basin: Implications to climatic impact, *Ann. Geophys.*, 29, 789-804, 2011.
52. Giles, D., B.H. Holben, S.N. Tripathi et al., Aerosol Properties over the Indo-Gangetic Plain: A Mesoscale Perspective from the TIGERZ Experiment, *J. Geophys. Res.*, 116, D18203, doi:10.1029/2011JD0158092011, 2011.
53. Kaul, D.S., Tarun Gupta, S.N. Tripathi, V. Tare, J.L. Collett Jr., Secondary organic aerosol: A comparison between foggy and nonfoggy days, *Environmental Science & Technology*, 45(17), 7307-7313, 2011.
54. Jaidevi, J. S.N. Tripathi et al., First observation-based 3-D view of aerosol radiative properties over Indian Continental Tropical Convergence Zone: Implications to regional climate, *Tellus*, 63B, DOI: 10.1111/j.1600-0889.2011.00580.x, 2011.

55. Kirpa Ram, M.M. Sarin and S.N. Tripathi, Temporal trends in atmospheric PM<sub>2.5</sub>, PM<sub>10</sub>, EC, OC, WSOC and optical properties: Impact of biomass burning emissions in the Indo-Gangetic Plain, *Environ. Sci. & Tech.*, 46, 686-695, 2012.
56. Srivastava, A.K., S.N. Tripathi, S. Dey; V.P. Kanawade and S. Tiwari, Inferring aerosol types over the Indo-Gangetic Basin from ground based Sunphotometer measurements, *Atmospheric Research*, doi: 10.1016/j.atmosres.2012.02.010, 2012.
57. Eck, T., S.N. Tripathi et al., Fog and Cloud Induced Aerosol Modification Observed by AERONET, *Journal of Geophysical Research-Atmospheres*, 117, D07206, doi:10.1029/2011JD016839, 2012.
58. Patidar, V. and S.N. Tripathi, Pawan Bharti and Tarun Gupta, First surface measurement of cloud condensation nuclei over Kanpur, IGP: role of long range transport and correlation with aerosol optical thickness, *Aerosol Science and Technology*, accepted, 2012.
59. Misra, A., S.N. Tripathi, D.S. Kaul and E.J. Welton, Study of MPLNET derived aerosol climatology over Kanpur, India, and validation of CALIPSO Level 2 Version 3 Backscatter and Extinction products, *Journal of Atmospheric and Oceanic Technology*, accepted 2012.
60. Mishra S.K., S.N. Tripathi, A. Aggarwal and A. Arola, Optical properties of accumulation mode polluted mineral dust: Effects of particle shape, hematite content and semi-external mixing with carbonaceous species, *Tellus*, accepted, 2012.
61. Kaskaoutis, D. G., R.P. Singh, R. Gautam, M. Sharma, P.G. Kosmopoulos and S.N. Tripathi, Variability and trends of aerosol properties over Kanpur, northern India using AERONET data (2001–10), *Environmental Research Letters*, 7, doi:10.1088/1748-9326/7/2/024003, 2012.
62. Mishra, S.K. and S.N. Tripathi, Estimating the optical properties of mineral dust over the global deserts, *J. Geophys. Res.*, under review, 2011.
63. Tare, V., S.N. Tripathi, and S. Sudip Chakraborty, Trend in certain meteorological parameters over IGP during winter: indication of climate change and plausible anthropogenic influences, *J. Geophys. Res.*, under review, 2011.
64. Jariwala, C. and S.N. Tripathi, High BC aerosols causing persisting winter fog in north Indian sub continent, *Atmos. Env.*, under review, 2011.
65. Huttunen, J, S. N. Tripathi et al., Aerosol direct radiative effect efficiency at surface determined at 24 stations in different continents, *Atmospheric Chemistry Physics Discussion*, under review, 2011.
66. Patidar, V., S.N. Tripathi et al, Airborne Measurement of Aerosol Parameters over Indian Continental Tropical Convergence Zone (CTCZ) during Monsoon: Cloud Condensation Nuclei and Size Distribution Properties, *J. Geophys. Res.*, under review, 2011.

*Citation Analysis: > 794 as per ISI Web of Science*

2 papers in Environmental Science and Technology (IF` 4.8), 30 Papers in AGU Journals with Impact Factor ~>3.2, 4 in Atmospheric Environment with Impact Factor >2.6 Others have impact factor >1.6.  
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### **Under Preparation**

1. Mishra, S.K. and S.N. Tripathi, Computational Scattering Methods: A Comparative Study, 2009.

### **Book Chapter**

1. Srivastava, A.K., Sagnik Dey and S.N. Tripathi, Aerosol characteristics over the Indo-Gangetic Basin: Implications to regional climate, In Hayder Abdul-Razzak (eds.), *Aerosol*, InTech, accepted, 2012.

2. Tripathi, S.N. and Marykitty Michael, Aerosols in the atmosphere of Mars, In Chapter 2, Chemistry and aerosols in the atmospheres of Earth and Mars, In S. A. Haider, V. Sheel, and S. Lal (eds.), Modeling of Planetary Atmospheres, McMillan Publishers India Ltd., pp. 128-143, 2010.
3. Tripathi, S.N., M. Michael and R.G. Harrison, Profiles of Ion and Aerosol Interactions in Planetary Atmospheres. In F. Leblane, K. L. Aplin, Y. Yair, R. G. Harrison, J. P. Lebreton, M. Blane (eds.), Planetary Atmospheric Electricity, Springer , pp. 193-212, 2008.

### **Lead Author**

Science Plan, Continental Tropical Convergence Zone Programme, Indian Climate Research Programme, Department of Science and Technology, Government of India.

### **Volume Edited**

1. IASTA Bulletin on International Conference on Aerosols, Clouds and Indian Monsoon, 2004.
2. Member, member of the Editorial Board of "Asia Oceania GeoSciences-Planetary Sciences-Newsletter.

### **Technical Reports**

1. Tripathi, S.N., S. Dayal, and N. Srivastva, A fast microphysical model for mixed phase clouds, Department of Civil Engineering, Indian Institute of Technology Kanpur.
2. Tripathi, S.N., X.P. Vancassel, R.G. Grainger, and H.L. Rogers, A Fast Stratospheric Aerosol Microphysical Model (SAMM): H<sub>2</sub>SO<sub>4</sub>-H<sub>2</sub>O Aerosol Development and Validation, AOPP Memorandum 2004.1, Department of Physics, University of Oxford, 2004. <http://www.atm.ox.ac.uk/main/research/technical.html>

### **Research Highlights**

#### **Media Highlight**

"Weather is changing due to thick carbon layer" article in Dainik jagran Kanpur on, April 22, 2012

Monsoon pattern changing? "Indo-UK Study to find if Climate Change Affecting Seasonal Rains" Times of India, Delhi Publication, March 1, 2012

"Thick layer of carbon in the sky, weather cycle will be affected" article in Dainik Jagran Kanpur on Sept. 16, 2011.

'Insights into Titan's Ionosphere', Nature India, doi:10.1038/nindia.2011.110

'Lifting the Veil from Jupiter Cloud, Biplab Das, Nature India, doi:10.1038/nimindia.2008.177.

'Biting Dust in Mars', Biplab Das, nature India, doi:10.1038/nimindia.2008.249.

Our paper 'Highly charged cloud particles in the atmosphere of Venus' was amongst the top-5 downloads from JGR-Planets.

Our work was extensively referred in the article 'Aerosol: The Earth's Sun Shield', N. Gopal Raj, The Hindu Survey of Environment, 2008.

Gopal Raj, N., Pollution, aerosols, and the climate change, Leader Page article, The Hindu, 2006.

## **12. Lectures delivered (Outside IITK)**

1. Invited seminar given at Aeronomy Laboratory National Oceanographic and Atmospheric Administration, Boulder, US, June 2004.
2. Academic Staff College, Banaras Hindu University, March, 2004.
3. Five invited lectures in the 4th PG course on Space and Atmospheric Science of CSSTEAP (Center for Space and Technology Education in Asia and Pacific).
4. Invited lecture in local chapter of Institution of Engineers, January, 2004.
5. Invited lecture at Center for Atmospheric and Oceanic Sciences, IISc, Bangalore, September, 2005.
6. Invited talk in workshop on Nanoparticle Aerosol Science and Technology (NAST): Emerging Trends and Priorities held in IIT Mumbai, December 2005.
7. Invited seminar at Center for Climate System Modeling, The University of Tokyo, July 2006.
8. Five lectures delivered at the Winter School on Modeling of Planetary Atmospheres organised by Physical Research Laboratory, Ahmadabad.
9. Invited talk in Dept. of Chemical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.
10. Lecture at Air Force Administrative College, Coimbatore, December, 2007.
11. Invited Lecture at Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, October, 2008.
12. Lead Speaker, Third Indo-US Frontier of Science held in Agra, 1- 4 March, 2009.
13. Invited Colloquium, Physical Research Laboratory, Ahemdabad, May 2009.
14. Invited lecture, Planetary Exploration Program of ISRO, Physical Research Laboratory, Ahemdabad, May, 2009.
15. Invited talk, Geophysical Fluid Dynamical Laboratory, Princeton University, June 2010.
16. Invited talk, National Atmospheric Research Laboratory, Deptt. of Space, Gadanki, February, 2011.
17. Invited Lecture, Colloquium, National Physical Laboratory, New Delhi, March 2011.
18. Invited lecture in Brain Storming Session on Mars, Physical Research Laboratory, Ahmedabad, March 2011.
19. Invited talk in Brain Storming Session on Technology Vision 2035, IT-BHU, Varanasi, May 2011.
20. Invited talk, QIP Course, IIT Delhi, May 2011.
21. Invited talk at Bhabha Atomic Research Center, Mumbai, June 09, 2011.
22. Lead Speaker in Indo-German Frontier of Engineering, Khandala, June 2011.
23. Invited talk in US - India Workshop on Air Quality and Climate in Administrative Staff College of India, Hyderabad, Sept. 12-14, 2011.
24. Invited lecture in national seminar on Interdisciplinary application of weather and climate-Computational Perspective, C-DAC, Pune, January 25, 2012.
25. Invited talk titled 'Climate impacts of aerosols' in a conference jointly organized by Department of HSS, IITK and Liberty Institute, Delhi on 'Climate Change: Science and Society' during March 30-31, 2012 at IITK.
26. Invited talk in a workshop organised by International Center for Integrated Mountain Development (ICIMOD), Kathmandu, April 2-3, 2012.

### 13 A. Courses taught

1. Earth and Environment (Two times, Post Graduate Level, Class Size 15)
2. Atmospheric Physics and Chemistry (Three times, PG Level, Class Size 25)
3. Fate and Transport of Contaminants in Natural Systems (Twice, PG Level, Class Size 10-50)
4. Environmental Quality and Pollution (Three times, Under Graduate Level, Class Size 60-80)
5. Computational Methods in Engineering (Three times, Under Graduate Level, Class Size 160-180)
6. Advanced Mathematics for Civil Engineers (Three times, Numerical Methods Module, Class Size 55-70)

### B. Tutored

1. Computational Methods in Engineering (Five Times)
2. Mechanics of solid (Three times)

### C. Outreach

An invited DST Training School on Aerosol-Cloud Interaction was held at IIT Kanpur from 7<sup>th</sup>-15<sup>th</sup> March, 2009. The school was attended by more than 25 students and scientists from various IITs, Universities and research laboratories such as NPL, SPL, IITM, IMD etc.

### D. Workshops/Symposia Organised

Co-Convener of Tiger-z (Indo-NASA Joint Field Experiment) workshop held at I. I. T. Delhi during January, 2009.

### 14. Thesis supervision

#### Phd. Students

Name	Year	Thesis Title
Sagnik Dey	2008	Aerosol radiative effects in Kanpur in the Indo-Gangetic basin, northern India ( <i>Mr. Dey received INSA Young Scientist Award in 2008 for his work done under my supervision at IITK. This was probably the first INSA Young Award to the CE department</i> )
Sumit K. Mishra	2011	Optical properties of non-spherical particles in the atmosphere. <i>At present Scientist, NPL, New Delhi</i>
J. Jai Devi (joint with Tarun Gupta)	Submitted 2012	Effects of fine particulate matter on human health and climate
D. S. Kaul (joint with Tarun Gupta)	cont.	Understanding the formation of secondary organic aerosol in urban sheds: Measurement and modeling study
Deepika Bhattu	cont.	
Chandan Sarangi	cont.	
Chiranjib Chaudhuri (joint with Rajesh Srivastava)	cont.	
Shamjad P.M.	cont.	

#### M. Tech. Students

Name	Year	Thesis Title
Nagesh Chinnam	2005	Analysis of ambient particles by high volume sampler and PM10

Shyam Kishore	2005	Investigation into seasonal and diurnal formation of Atmospheric Nitrate
Tanveer Ahmad	2005	Charging of radioactive aerosols containment wall of pressurized water reactor
Sudip Chakraborty	2006	Long term changes in surface and columnar water vapor over North India
Abani Patnaik	2006	Climatology of cloud and aerosol over the Indian subcontinent and adjoining oceans
Parul Sharma	2006	Study of aerosol chemical composition over Kanpur region
Roma Srivastava	2006	Study of trace gas concentration over Kanpur region
Anilkumar D. Vanga	2007	A numerical study of new particle formation in Cirrus Cloud
Sanjay P. Baxla	2008	A study of ambient ultra fine aerosols using SMPS
Anirban Roy	2008	Measurement and simulation of particulate aerosols
Vivek Pratap Singh	2008	An Experimental Investigation of the Effects of Environmental and Fog Condensation Nuclei Parameters on Rate of fog Dissipation
Jariwala Chinmay G.	2009	An Observational and Laboratory Study on the Effects of Cloud Condensation Nuclei and Black Carbon Aerosols on Fog Persistence
Vishnu Patidar	2009	First Surface, Spatial and Vertical Measurements of Cloud Condensation Nuclei (CCN) over Indian CTCZ region
Pawan K. Bharti	2010	A Study of Inter and Intra Variation Seasonal of Surface Cloud Condensation Nuclei and Chemical Closure in Kanpur
Priya Choudhry	2011	Validation of MODIS-retrieved AOD over Indo-Gangetic Plain
Monika Srivastava	2011	Aircraft-Based CCN Closure
P.M. Shamjad	2011	Hygroscopicity, Mixing State and Enhanced Absorption of Aerosols
Anubhav Dwivedi	cont.	
Roaslin Dalai	cont.	

#### Dual Degree M. Tech. Students

Name	Year	Thesis Title
Arun Yadav	cont.	Regional modeling of aerosol direct radiative effect using WRF-Chem.
Akhilesh Rawal	cont.	Development of global electrical circuit model
Alabhya K. Mishra	cont.	

#### Undergraduate Projects

Name	Year	Thesis Title
Abhishek Chandel	2002-2004	Comparison of satellite derived aerosol parameters with

and Shashank Srivastva		ground measured data over gangetic basin
Ashwini Turkey and Sandeep Singh	2004-2005	Numerical investigation of Atmospheric Fogs
Sameer Vishnoi and Shiwesh	2005-2006	Parameterization of collision efficiency between of electrically charged aerosol particles and cloud of droplets
Nikhil Tripathi and Gaurav	2006-2007	Retrieval of aerosol organic carbon
Praveen and Naveen	2007-2008	A study of effects of black carbon on cloud microphysical properties using a two-dimensional cloud model

## 15. Administrative experience

1. Member, DUGC, 2003-2004
2. Organiser, Almuni Seminar Series, Department of Civil Engineering, 2003-2004
3. Convener, DPGC (EEM), 2004-2005, 2005-2006
4. Warden, Hall V, March 2005- February 2008
5. Warden-in Charge, Hall V, March 2008-June 2008.
6. Faculty In charge, Computer Laboratory, Department of Civil Engineering, 2008-2009
7. Member, Institute Research Development Committee, 2010-2012
8. Convener, DPGC, Environmental Engineering & Management Programme, 2011-2012
9. Member, Advisory Committee of CESE, 2011-2012

## 16. Project

### Running Projects

1. Indo-UK Ministry of Earth Sciences and Natural Environmental Earth Sciences: Rs 46.0 Lakhs  
South Asian Precipitation: A Seamless Assessment SAPRISE  
2011-2014
2. Ministry of Earth Sciences: Rs: 59.0 Lakhs  
Cosmic Rays-Cloud-Climate Conundrum: Can Ion-Aerosol Near-Cloud Mechanism Explain  
the Observed Correlations?  
2011-2014
3. Indo-US Science and Technology Forum: Rs. 6.90 Lakhs  
Atmospheric Haze: Adverse impacts on Glaciers and Cultural Heritage in Indian  
2009-2011
4. Board of Research in Nuclear Sciences (BRNS): Rs. 5.00 Crores  
Development of a Test Facility for Fire Propagation and Associated Thermal Hydraulic Aspects in  
Multiple Compartments  
2009-2012
5. Board of Research in Nuclear Sciences (BRNS): Rs. 52.56  
Measurement of aerosol and liquid droplet size distributions and validation of aerosol and droplet  
microphysical models
6. Indo-French Centre for the Promotion of Advanced Research (IFCPAR): Rs. 7.18 Lakhs  
Development of a Non-Hydrostatic Finite-Volume Icosahedral Model for Regional/ Global Climate  
Simulation and Weather Forecast  
2009-2012
7. Indian Space Research Organization-Geosphere Biosphere program (ISRO - GBP): Rs. 68.49 Lakhs  
Long term variation of Aerosol black carbon over Kanpur region  
2005-08
8. National Aeronautic and Space Administration: Rs. 15.82 Lakhs  
TIGERZ  
2008-2012

9. Indian Space Research Organization (ISRO-GBP): Rs. 35.04 Lakhs  
Environmental Observatory  
2007-2012

### **Completed Projects**

1. Department of Science & Technology: Rs. 1.63 Crores  
Impact of anthropogenic aerosols on cloud microphysics  
2007-2010
2. Indian Space and Research Organization (ISRO)  
Understanding the Role of Cosmic Ray Induced of Total Solar Eclipse in 2009-10  
2009-2010
3. Indian Space Research Organisation: Rs. 39.50 Lakhs  
Modeling and parameterization of microphysical and optical properties of mixed-phase clouds over Indian subcontinent  
2007-2009
4. Indian Railways (MHRD): 20 Lakhs  
Laboratory Investigations of Fog Microphysical Properties  
2005-2008
5. Indian Space Research Organization (ISRO)-RESPOND Program, Government of India: Rs. 11.14 Lakhs  
Effects of Ionization Rate Variation on Aerosol and Cloud Microphysical properties  
2003-2006
6. Department of Science & Technology: Rs. 7.98 Lakhs  
Aerosol Optical Properties over Kanpur Region  
2003-2006
7. Indian Space Research Organization (ISRO)-Geosphere Biosphere Program, Government of India: Rs. 1.0 Lakhs  
Integrated Campaign for Aerosols, Gases and Radiation Budget (ICARB)  
2006-2007
8. Indian Space Research Organization-Planetary Science and Exploration Program (ISRO-PLANEX), Government of India: Rs. 5.65 Lakhs  
Aerosol Charging and Electrical Conductivity in the Lower Atmosphere of Mars  
2004-2007
9. Indian Space Research Organization (ISRO): Rs. 2.50 Lakhs  
Atmospheric Pollution (North India Land Campaign)  
2004-2007

### **17. Service to community**

1. Convener, Technical (Indian Aerosol Science and Technology Association- IASTA Aerosol, Clouds and Indian Monsoon International Conference), November 2004, Kanpur.
2. Member, Technical committee, Asian Aerosol Conference, Mumbai, December, 2005.
3. Panelist, Workshop on Nanoparticles: Science and Technology, organized by IIT Bombay under the auspices of Indo-US Forum.
4. Executed four projects of Indian Space Research Organisation (ISRO), DST and AICTE; three projects, sponsored by DST and ISRO are ongoing. Total research funding till date: 500 Lakhs.
5. Reviewer for Journal of Geophysical Research, International Journal of Remote Sensing, Atmospheric Sciences, Atmospheric Environment, Geophysical Research Letters, Atmospheric Research, Atmospheric and Terrestrial Physics. Current Science, Aerosol Science and Technology, Tellus B, Space Science Review, Journal of Applied Meteorology, United Nations Environment Programme, Planetary and Space Science, Advances in Space Research.

6. Member, American Geophysical Union.
7. Member, Indian Association for Aerosol, Science and Technology.
8. Member, Steering Committee (Cloud Studies), CTCZ experiment Department of Science and Technology, Govt. of India.
9. Member, Steering Committee, ISRO Space Borne Lidar Project.
10. Center for Advanced Studies Fellow, Institute of Technology, Banaras Hindu University.
11. Participated in campaigns of national importance organized by ISRO; Land Campaign II over North India and Integrated Aerosol, Gases and Radiation Budget (ICARB) that covered land, sea and air segment.
12. Reviewer for DST and CSIR project proposals submitted for funding.
13. Participated in Indo-US Frontier of Science and Technology Meeting held in New Delhi, India. October 2006.
14. Convener, Session on Climate effects of the atmospheric particle system: aerosols and clouds, Asia Oceania GeoScience Meeting, Bangkok, 2007.
15. Member, Core Science Team, Mars Orbiter Mission, ISRO Planex Programme.
16. Member, Executive Committee, Indian Aerosol Science and Technology Association.
17. Member, Editorial Board, Indian Journal of Aerosol Science and Technology.
18. Member, Publications Committee, American Geophysical Union.
19. Expert Member, DST Fast Track Scientist Committee.
20. Member, National Steering Committee, Cloud, Aerosol and Precipitation Enhancement Experiment, Largest Project Ever Taken by Ministry of Earth Sciences.
21. Member, Geophysical Research Letter Editor Search Committee.
22. Member, National Fire Facility at IIT Kanpur.
23. Member, High Level Working Group, Aerosol and Cloud Nucleation, India Meteorological Department, Ministry of Earth Sciences.
24. Alternate Member, Nanotechnologies Sectional Committee, MTD 33, 2011.

Certified that the information given above is correct to my knowledge.

Sachchida Nand Tripathi