



Chandan Sarangi, Ph.D.
*Assistant Professor,
Department of Civil Engineering,
Indian Institute of Technology, Madras
Chennai, Tamil Nadu
India*

*Adjunct visiting scientist,
Pacific Northwest National Laboratory,
Richland,
USA*

chandansarangi@iitm.ac.in
chandansarangi591@gmail.com

Phone1: +91 9337830346
044 2257 6326

Education

- 2010-2017 **Int. Ph.D.**, Indian Institute of Technology (I.I.T), Kanpur, U.P., India.
Civil Engineering (CGPA: 9/10)
- 2004-2008 **B.Tech.**, National Institute of Technology (N.I.T), Warangal, India.
Civil Engineering (CGPA: 8.1/10)

Professional Experience

- 2020-ongoing **Assistant Professor**,
Department of Civil Engineering,
IIT Madras, Chennai, India
- 2017-2020 **Post Doctorate Research Associate**,
Pacific Northwest National Laboratory (PNNL),
WA, USA
- 2010-2017 **Integrated M.Tech + Ph.D.** candidate in Civil
Engineering, Indian Institute of Technology (I.I.T),
Kanpur, India
- 2013 **Graduate Visitor Program Fellow**,
Atmospheric Chemistry Division (ACD),
National Centre for Atmospheric Research (NCAR),
Boulder, Colorado, U.S.A
- 2008-2010 **Construction Engineer**,

Shapoorji Pallonji Pvt. Limited, Hyderabad, India

Research Interests

- Aerosol Science and transport in atmosphere
- Air quality and air pollution-climate coupling in megacities
- Numerical simulations of aerosol movement and air quality
- Cloud vertical structure and cloud radiative forcing
- Impact of absorbing aerosols on Himalayan snow and glaciers
- Aerosol-Land-Atmosphere coupling
- Regional climatic impact of aerosols on hydrological processes

Research tools and Skills

- Ground-based monitoring and large data analysis
- Remote sensing data processing and application
- Numerical models of various spatial and temporal scale (WRF, WRF-Chem, CFD simulations)
- Computing software (Matlab, IDL, NCL, Fortran)

Awards and Achievements

- Awards
1. [Editorial board member](#) of the scientific journal “*Frontiers of Environmental Sciences*” in 2020
 2. [Editor's Award for outstanding reviewers](#) from *the scientific journal “Advances in Atmospheric Sciences”* in 2018.
 3. [Best Oral presentation award](#) in International conference on Aerosol Climate Change Connection (AC3), April, 2017, Bose Institute, Darjeeling, India (co-authored with Geet George and S.N. Tripathi).
 4. Many [Research Travel Grants](#) between 2011-2019 to attend and participate in International Conferences and workshops.
 5. [Graduate Visitor Program fellowship](#) in 2013 to pursue doctoral research at National Centre for Atmospheric Research (NCAR), Colorado, USA.
 6. [DAAD sandwich scholarship](#) to pursue research in Germany for academic year 2011-2012 (not availed).
 5. [Academic Excellence Award](#), IIT Kanpur for the year 2010-2011.

Research Grants

1. C. Sarangi as **PI**, “[Process level understanding of Aerosol Fog Urbanization coupling over IGP](#)”, 2020-2022, Department of Science and Technology SERB “SRG” grant, India. Funding: 33 Lakhs INR
2. C. Sarangi as **PI**, “[Modelling the impact of Biomass Burning on Near Surface PM2.5 Concentrations over India](#)”, 2020-2022, Centre for Industrial Consultancy and Scientific Research IIT Madras “NFIG” grant , India. Funding: 5 Lakhs INR
3. C. Sarangi as **Co-PI** (Jasmita Khadagi of KIAS is PI), “[Influence of Transboundary air pollutants into the atmosphere of Kathmandu](#)”, 2020-2022, Asia-Pacific Network for Global Change Research (APN) “CAPABLE” grant, Japan. Funding: 28000 USD
4. C. Sarangi as **Co-PI** (Sachin Gunthe of IITM is PI), “[Aerosol-Cryosphere interactions over Himalayas](#)”, 2020-2022, Centre of excellence in Atmospheric and climate sciences, Indian Institute of Technology, Madras “IoE” grant, India. Funding: 2 crore INR

Journal Publications (* indicates corresponding author):

1. Tirthankar Chakraborty, **Sarangi C***, Xuhui Lee.: [Reduction in human activity can enhance the urban heat island: insights from the COVID-19 lockdown](#), Environmental Research Letters., 2021, <https://doi.org/10.1088/1748-9326/abef8e> (I.F. 6.2)
2. Thomas, A, Kanawade, V.P., **Sarangi, C.**, Srivastava, A.K., 2021. [Effect of COVID-19 shutdown on aerosol direct radiative forcing over the Indo-Gangetic Plain outflow region of the Bay of Bengal](#). *Sci. Total Environ.* 782, 146918 <https://doi.org/10.1016/j.scitotenv.2021.146918> (I.F. 6.5)
3. Mhawish, Alaa; Sorek-Hamer, M.; Chatfield, R.; Banerjee, T.; Bilal, M.; Kumar, M.; **Sarangi, C.**; Franklin, M.; Chau, K.; Garay, M., 2021. [Aerosol characteristics from earth observation systems: A comprehensive investigation over South Asia \(2000–2019\)](#), Remote Sensing of Environment. 259, 112410, 2021, <https://doi.org/10.1016/j.rse.2021.112410> (I.F. 9.05)
4. Choudhury, G., Tyagi, B., Vissa, N. K., Singh, J., **Sarangi, C.**, Tripathi, S. N., and Tesche, M.: [Aerosol-induced high precipitation events near the Himalayan foothills](#), Atmos. Chem. Phys., 20, 15389–15399, 2020, <https://doi.org/10.5194/acp-20-15389-2020> (I.F. = 5.6)
5. **Sarangi, C***, Y. Qian, K. Rittger, L. R. Leung, D. Chand, K. J. Bormann and T. H. Painter; [Dust dominates high-altitude snow darkening and melt over high-mountain Asia](#), Nature Climate Change, **10**, 1045–1051 (2020). <https://doi.org/10.1038/s41558-020-00909-3> (I.F. = 20.98)
6. Kant S, Panda J, Rao P, **Sarangi C**, Ghude SD, [Study of aerosol-cloud-precipitation-meteorology interaction during a distinct weather event over the](#)

Indian region using WRF-Chem, Atmos Res., 247,105144
(2020) <https://doi.org/10.1016/j.atmosres.2020.105144> (I.F. = 4.2)

7. Niu, H., S. Kang, W. Gao, **C. Sarangi**, L. Tripathi, D. Rupakheti, X. Yan and G. Zhang; Investigation of the spatio-temporal heterogeneity and optical property of water-soluble organic carbon in atmospheric aerosol and snow over the Yulong Snow Mountain, South eastern Tibetan Plateau, Environmental International, Volume 144, 2020,106045, ISSN 0160-4120, <https://doi.org/10.1016/j.envint.2020.106045>. (I.F. = 7.98)
8. Niu, H., S. Kang, Y. Wang, **C. Sarangi**, D. Rupakheti and Y. Qian, Measurements of light-absorbing impurities in snow over four glaciers on the Tibetan Plateau, Atmospheric Research, Volume 243, 2020, 105002, ISSN 0169-8095, <https://doi.org/10.1016/j.atmosres.2020.105002>. (I.F. = 4.1)
9. Turner, AG, Bhat, G. S., **C. Sarangi**, et al. Interaction of convective organization with monsoon precipitation, atmosphere, surface and sea: The 2016 INCOMPASS field campaign in India, Quarterly Journal of Royal Meteorol Soc. 2019; 125. <https://doi.org/10.1002/qj.3633> (I.F. = 3.8)
10. Chakraborty, T., **Sarangi, C.**, Krishnan, M. et al. (2019) Biases in Model-Simulated Surface Energy Fluxes During the Indian Monsoon Onset Period Boundary-Layer Meteorology, <https://doi.org/10.1007/s10546-018-0395> (I.F.=2.6)
11. Arun Nair, Siddarth S. Das, Abin Thomas, **Sarangi, C.**, Vijay P. Kanawade, Role of Cyclone “Ockhi” in the re-distribution of aerosols and its impact on the precipitation over the Arabian Sea, Atmospheric Research, Volume 235,2020,104797, ISSN 0169-8095. <https://doi.org/10.1016/j.atmosres.2019.104797> (I.F. = 4.1)
12. Thomas, A., **Sarangi, C***. and Kanawade, V.P. Recent Increase in Winter Hazy Days over Central India and the Arabian Sea, Nature Scientific Reports 9, 17406 (2019) doi:10.1038/s41598-019-53630-3 (I.F. = 4.2)
13. Goutam Choudhury, Bhishma Tyagi, Jyotsna Singh, **C. Sarangi**, and S.N. Tripathi, Aerosol-orography-precipitation – A critical assessment, Atmospheric Environment, Volume 214,2019,116831, ISSN 1352-2310,<https://doi.org/10.1016/j.atmosenv.2019.116831> (I.F. = 4.0)
14. **Sarangi, C.**, Qian, Y., Rittger, K., Bormann, K. J., Liu, Y., Wang, H., Wan, H., Lin, G., and Painter, T. H.: Impact of light-absorbing particles on snow albedo darkening and associated radiative forcing over high-mountain Asia: high-resolution WRF-Chem modeling and new satellite observations, Atmos. Chem. Phys., 19, 7105–7128, <https://doi.org/10.5194/acp-19-7105-2019>, 2019 (I.F. = 5.6)
15. V.P. Kanawade, A.K. Srivastava, K. Ram, E. Asmi, V. Vakkari, V.K. Soni, V. Varaprasad and **C. Sarangi**; What caused severe air pollution episode of

November 2016 in New Delhi?, Atmospheric Environment, 2020,117125, ISSN 1352-2310, <https://doi.org/10.1016/j.atmosenv.2019.117125>. (I.F. = 4.1)

16. Rutz, J. J., Shields, C. **Sarangi, C.**, et al (2019). [The Atmospheric River Tracking Method Inter-comparison Project \(ARTMIP\): Quantifying Uncertainties in Atmospheric River Climatology](#), Journal of Geophysical Research: Atmospheres,124. <https://doi.org/10.1029/2019JD030936> (I.F. = 3.8)
17. **Sarangi, C.**, Kanawade V.P., Tripathi S.N., Thomas A. and D. Ganguly (2018), [Aerosol-induced intensification of cooling effect of clouds during Indian summer Monsoon](#), Nature Communication, <https://doi.org/10.1038/s41467-018-06015> (**I.F. 12.4**)
18. Zhong, S., Qian, Y., **Sarangi, C.**, Zhao, C., Leung, R., Wang, H., et al (2018). [Urbanization effect on winter haze in the Yangtze River Delta region of China](#), Geophysical Research Letters. <https://doi.org/10.1029/2018GL077239>.(I.F. = 4.25)
19. **Sarangi, C.**, Tripathi, S. N., Qian, Y., Kumar, S., & Ruby Leung, L. (2018). [Aerosol and urban land use effect on rainfall around cities in Indo-Gangetic Basin from observations and cloud resolving model simulations](#), Journal of Geophysical Research: Atmospheres, 123, 3645– 3667. <https://doi.org/10.1002/2017JD028004> (I.F. = 3.5)
20. George, G., **Sarangi, C.**, Tripathi, S. N., Chakraborty, T., & Turner, A. (2018). [Vertical structure and radiative forcing of monsoon clouds over Kanpur during the 2016 INCOMPASS field campaign](#), Journal of Geophysical Research: Atmospheres, 123, 2152–2174. <https://doi.org/10.1002/2017JD027759> (I.F. = 3.5)
21. Shields, C. A., Rutz, J. J., Leung, L.-Y., Ralph, F. M., Wehner, M., Kawzenuk, B., Lora, J. M., McClenny, E., Osborne, T., Payne, A. E., Ullrich, P., Gershunov, A., Goldenson, N., Guan, B., Qian, Y., Ramos, A. M., **Sarangi, C.**, et al., (2018): [Atmospheric River Tracking Method Intercomparison Project \(ARTMIP\): Project Goals and Experimental Design](#), Geosci. Model Dev, <https://doi.org/10.5194/gmd-2017-295>. (I.F. = 3.5)
22. **Sarangi, C.**, Tripathi, S.N., Kanawade, V. P., Koren, I., and D. S. Pai (2017): [Investigation of aerosol-cloud-rainfall association over Indian Summer Monsoon region](#), Atmospheric Chemistry and Physics, 17, 5185–5204, <https://doi.org/10.5194/acp-17-5185-2017>. (I.F. = 5.3)
23. Chakraborty, T., **Sarangi, C.** and S.N. Tripathi (2017); [Understanding diurnal and inter seasonality of a sub-tropical urban heat-island](#), Boundary-Layer Meteorology, doi: 10.1007/s10546-016-0223-0. (I.F. = 2.6)
24. **Sarangi, C.**, Tripathi S.N., Mishra, A., Goel, A. and E. J. Welton (2016); [Elevated aerosol layers and radiative impact over Kanpur during monsoon](#)

onset period, Journal of Geophysical Research: Atmospheres, 121, 7936-7957, Doi:10.1002/2015JD024711. (I.F. = 3.5)

25. Sarangi, C., Tripathi, S.N., Tripathi S. and M. C. Barth (2015); Aerosol-cloud associations over Gangetic Basin during a typical monsoon depression event using WRF-Chem simulation, Journal of Geophysical Research: Atmospheres, 120(20), 10974-10995 (I.F. = 3.5)



CHANDAN SARANGI | ASSISTANT PROFESSOR

+91-44-2257 4326
chandansarangi@civil.iitm.ac.in

EDUCATION

- Int. Ph. D., IIT Kanpur, 2017
- M.Tech. IIT Kanpur, 2017
- B. Tech., NIT Warangal, 2008

EXPERIENCE

- Asst. Professor, IIT Madras, 2020–present
- Post Doc. Research Asso., Pacific Northwest National Lab., USA, 2017–2020
- Graduate Fellow, National Centre for Atmospheric Research, USA, 2013

RESEARCH INTERESTS

- Aerosol-cloud-climate interactions
- Impact of climate change on Cloud and Rainfall systems
- Impact of aerosols on Evapotranspiration
- Effect of dust deposition on snow darkening and Himalayan glaciers
- Urban heat island effect and air quality over megacities
- Extreme rainfall and coupling with aerosols, urbanization, land-atmosphere interactions
- Cloud seeding research

RECOGNITIONS

- Editor's Award for outstanding reviewers, "Advances in Atmospheric Sciences", 2018
- Best Oral presentation award, Intl. conf., Aerosol Climate Change Connection, 2017
- Graduate Visitor Program fellowship to pursue doc. research at NCAR, USA, 2013

RECENT PUBLICATIONS

Sarangi C., Qian Y., Rittger K. et al., "Dust dominates high-altitude snow darkening and melt over high-mountain Asia", *Nat. Clim. Chang.* 10, (2020), 1045–1051.

Sarangi C., Qian Y., Rittger K., Bormann K. J., Liu Y., Wang H., Wan H., Lin G., Painter T. H., "Impact of light-absorbing particles on snow albedo darkening and associated radiative forcing over high-mountain Asia: high-resolution WRF-Chem modeling and new satellite observations", *Atmos. Chem. Phys.*, 19, (2019), 7105–7128.

Thomas A., Sarangi C., Kanawade V.P., "Recent Increase in Winter Hazy Days over Central India and the Arabian Sea", *Nature Scientific Reports*, 9, (2019), 17406.

Sarangi C., Kanawade V. P., Tripathi S. N., Thomas A., D. Ganguly, "Aerosol-induced intensification of cooling effect of clouds during Indian summer Monsoon", *Nature Communications*, (2018).

Sarangi C., Tripathi S. N., Qian Y., Kumar S., Ruby Leung L., "Aerosol and urban land use effect on rainfall around cities in Indo-Gangetic Basin from observations and cloud resolving model simulations", *Journal of Geophysical Research: Atmospheres*, 123, (2018), 3645–3667.

Sarangi C., Tripathi S. N., Kanawade V. P., Koren I., D. S. Pai, "Investigation of aerosol-cloud-rainfall association over Indian Summer Monsoon region", *Atmospheric Chemistry and Physics*, 17, (2017), 5185–5204.

Sarangi C., Tripathi S. N., Mishra A., Goel A., E. J. Welton, "Elevated aerosol layers and radiative impact over Kanpur during monsoon onset period", *Journal of Geophysical Research: Atmospheres*, 121, (2016), 7936–7957.



“ Future never manifests as we plan, but almost always it bestows more than our efforts. ”