



DR MUKUNDA M GOGOI

SCIENTIST-SF

PROFILE

My primary research interests encompass aerosol-radiation, aerosol-cloud and aerosol-cryosphere interactions, through the application of ground and satellite-based measurements and model simulations.

Currently, I am involved in evolving accurate regional characterization of aerosols over the SOUTH ASIAN & POLAR REGIONS to assess the impact on regional and global climate. Towards this, I am instrumental in operating a national network of Aerosol observatories (ARFINET) over India, generating primary aerosol data for research and societal applications.

I am also responsible for the commissioning and operationalization of aerosol laboratories in the pristine ARCTIC, ANTARCTIC & HIGH-ALTITUDE HIMALAYAS, for studying snow darkening and glacier melt due to aerosols.

I have DESIGNED & EXECUTED several MULTI-PLATFORM FIELD EXPERIMENTS on-board SHIP & AIRCRAFTS to study the impact of aerosols on radiations and clouds at distinct environments.

CONTACT

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PROJECTS

ARFI project of ISRO-GBP Co-Principal Investigator
Aims at the accurate estimates of aerosol radiative forcing over India. The ARFINET is designed to make comprehensive measurements of all the aerosol parameters needed for climate impact assessment.

ARCTIC Project Principal Investigator
Aims at characterizing the source processes and climate impacts of Polar aerosols based on continuous long-term observations and dedicated field experiments at Ny-Ålesund in Svalbard archipelago.

GOSAT-RA Project Principal Investigator
A joint effort for the generation of gridded aerosol data sets over India by utilizing improved data assimilation techniques based on GOSAT-2 retrievals and ARFINET measurements.

RAWEX Scientific Investigator
Focuses on the quantification of regional atmospheric warming by elevated absorbing aerosols over the Indian region.

ICARB Scientific Investigator
An integrated approach to quantify the spatio-temporal heterogeneity of aerosols over India and the adjoining oceans.

Integrated Polar research program of SPL
Extensive scientific observations on aerosol parameters and snow albedo measurements at the last frontiers.

WORK EXPERIENCE

SCIENTIFIC EXPEDITIONS TO ARCTIC

Representing India, participated in the Scientific Expeditions to Arctic during Spring-2012, Summer-2013, Autumn-2014 (Team Leader) and Autumn-2015; opened up new collaboration and scientific understanding on aerosol-cryosphere interaction.

SHIP BORNE EXPERIMENTS

Conducted ship-borne experiments in the northern Indian Ocean during Jan-Feb, 2018.

AIR BORNE EXPERIMENTS

Conducted extensive air-borne experiments of aerosols on-board instrumented-aircraft over distinct regions of India during 2012, 2013 and 2016.

HIMALAYAN EXPERIMENTS

Established a chain of aerosol observatories over the Himalayas for the continuous monitoring of free-tropospheric aerosols.

R&D IN SCIENCE AND TECHNOLOGY

RECOGNITIONS/ AWARDS

GOSAT-RA PI

- Selected for joint research collaboration with JAXA and NIES, Japan (2019-2021)

GOLD MEDAL FOR YOUNG SCIENTIST

- INTROMET-2014

BEST ARTICLE AWARD

- 'आर्कटिक मे भारत', गगन, Vol-47, 2019
- Terrestrial Atmospheric and Oceanic (TAO) Sciences, Vol-20, No 3, 2009

BEST PAPER AWARDS

- URSI-2020
- NCPS-2019
- NSSS-2016
- IATA-2016
- NSSS-2012

ACADEMIC

Ph.D. Supervision – 02
M. Phil. Projects – 03
M. Sc. Projects – 06

QUALIFICATION

2008 Post-Doctoral Fellow, SPL
2007 Ph.D., Dibrugarh University, Assam
2001 M.Sc., Dibrugarh University (DU)
1998 B.Sc., J.B. College, DU

2011 Hindi Praveen
1997 Diploma in Computer Tech.

POSITIONS

- Scientist**, SPL, VSSC
Since Sep 2008
- Research Associate**, SPL, VSSC
Dec 2007 – Sep 2008
- Research Fellow (ISRO-GBP)**
Sep 2002 – Aug 2006

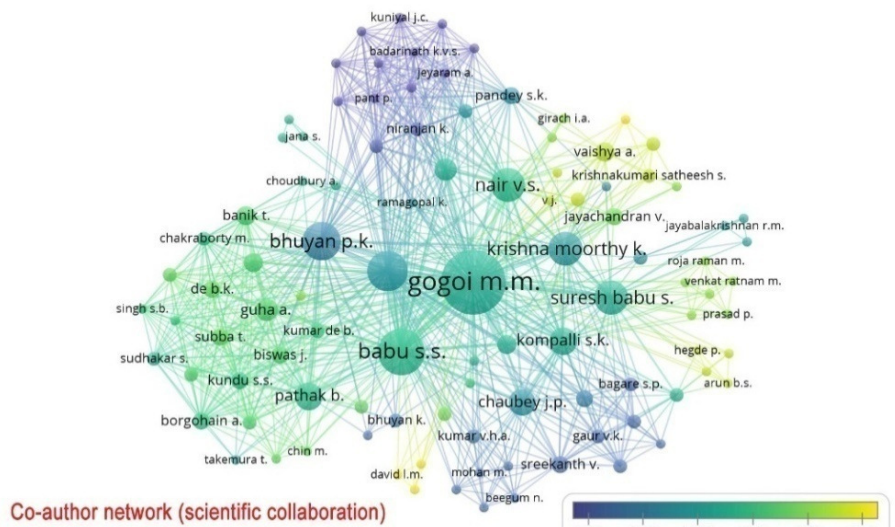
MEMBERSHIP

European Geophysical Union
Indian Society of Remote Sensing
Indian Meteorological Society
Indian Aerosol Science & Technology Association



Being a multi-parameter problem with large heterogeneities in space, time, and spectral domain aerosol characterization needs a sustained, region specific and synergistic approach. In this context, my scientific research is inclined to the integration of multi-platform measurements with satellite remote sensing and model simulations to address specific science problems pertinent to (i) regional aerosol direct radiative forcing, (ii) snow darkening due to light absorbing aerosols and snow albedo forcing and (iii) continental impact of aerosols on far oceanic and polar regions, in addition to understanding aerosol microphysics, life cycles and CCN characteristics.

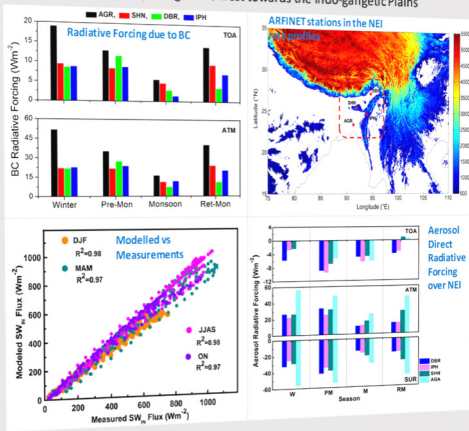
SCIENTIFIC COLLABORATION



Co-author network (scientific collaboration)

RESEARCH HIGHLIGHTS

The NEI is surrounded by high hills and mountain ranges in its north, east and south with a single opening to the west towards the Indo-gangetic Plains



Over **north-eastern India (NEI)**, for the first time, regional synthesis of spectral aerosol absorption, supplemented with fire count and fire radiative power from MODIS, UV-aerosol index and aerosol layer height from OMI reveals higher radiative impact due to fossil fuel-based BC over the western part against the biomass burning dominance in the eastern part.

The abundant BC (10-15%) in the region is responsible for surface dimming by $-26.14 \text{ Wm}^{-2}\tau^{-1}$ (nearly $\frac{3}{4}$ of the radiation absorption in the atmosphere) having a potential atmospheric forcing of $+43.04 \text{ Wm}^{-2}\tau^{-1}$.

Satellite retrieved direct radiative forcing highlights the west to east gradient of aerosol distribution within the NEI.

<https://doi.org/10.1029/2008JD010765>

<https://doi.org/10.1002/2016JD025592>

<https://doi.org/10.1016/j.atmosres.2018.01.012>

PUBLICATIONS (PEER-REVIEWED INTERNATIONAL JOURNALS)

- Gogoi, Mukunda M.**, S Suresh Babu, Arun B S, K Krishna Moorthy, Ajay A., Ajay P, Arun Suryavanshi, Arup Borgohain, Anirban Guha, Atiba Shaikh, Binita Pathak, Biswadip Gharai, Boopathy Ramaswamy, Harilal B Menon, Jagdish Chandra Kuniyal, Jayabala Krishnan, K Rama Gopal, M Maheshwari, Manish Naja, Parminder Kaur, Pradip K Bhuyan, Pratima Gupta, Prayagraj Singh, Priyanka Srivastava, R S Singh, Ranjit Kumar, Shantanu Rastogi, Shyam Sundar Kundu, Sobhan Kumar Kompalli, Subhasmita Panda, Trupti Das, Yogesh Kant, Response of ambient BC concentration across the Indian region to the nation-wide lockdown: Results from the ARFINET measurements of ISRO-GBP, *Current Science*, 120, 2, 341-351, doi: 10.18520/cs/v120/i2/341-351, 2021.
- Vyas, B M, **M.M. Gogoi** and Subin Jose. Multi-year characterization of Aerosol Black Carbon concentrations over a semiarid tropical site Udaipur, *Environmental Science and Pollution Research*, doi:10.1007/s11356-020-12300-y, 2021.
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- Nair, V.S., Jayachandran V., S.K. Kompalli, **M.M. Gogoi**, and S.S. Babu, Cloud Condensation Nuclei properties of South Asian outflow over the northern Indian Ocean during winter, *Atmospheric Chemistry and Physics*, 20, 3135-3149, doi:10.5194/acp-20-3135-2020, 2020.
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- Kompalli, S. K., V. S. Nair, V. Jayachandran, **M.M. Gogoi** and S. Suresh Babu, Particle number size distributions and new particle formation events over the northern Indian Ocean during continental outflow, *Atmospheric Environment*, 238, 117719, doi:10.1016/j.atmosenv.2020.117719, 2020.
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13. Arun, B.S., A.R. Aswini, **M.M. Gogoi**, P. Hegde, S.K. Kompalli, P. Sharma, S.S. Babu, Physico-chemical and optical properties of aerosols at a background site (~ 4 km a.s.l.) in the western Himalayas, *Atmospheric Environment*, 218, 117017, doi: 10.1016/j.atmosenv.2019.117017, 2019.

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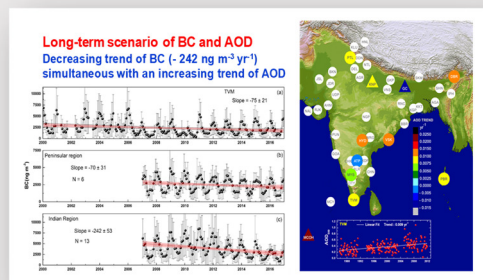
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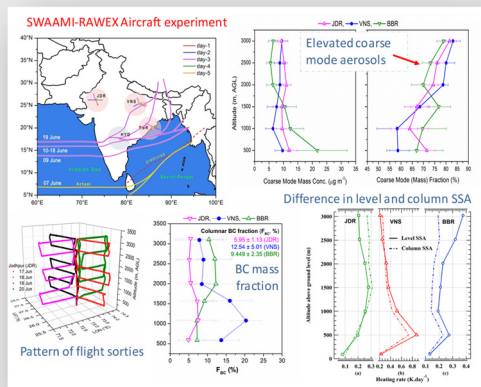
23. **Gogoi, Mukunda M.**, S.S. Babu, K.K. Moorthy, R.C. Thakur, J.P. Chaubey and V.S. Nair, Aerosol black carbon over Svalbard regions of Arctic, *Polar Science*, 10, 60-70, doi:10.1016/j.polar.2015.11.001, 2016.



Statistically significant and consistent increasing trend in aerosol optical depth over India has been revealed from the analysis of long-term data (back to ~ 25 years at some stations) from the ARFINET, indicating a faster increase in the sub-micron anthropogenic component of the total aerosol system.

First time regional synthesis of Black Carbon aerosols revealed surprising observation of decreasing trend in the near surface BC concentration. This finding contrasts with the generally increasing trend in the columnar AOD, and the steadily increasing trend in anthropogenic activities over this region. These observations imply possible long-term climate consequences.

<https://doi.org/10.1029/2018GL081666>
<https://doi.org/10.1002/2013jd020507>



Just prior to the onset of monsoon, **vertical profiles of aerosol size distribution and BC** absorption shows region specific characteristics over India, leading to a decreasing trend in the vertical structure of single scattering albedo (SSA) from west to east of IGP.

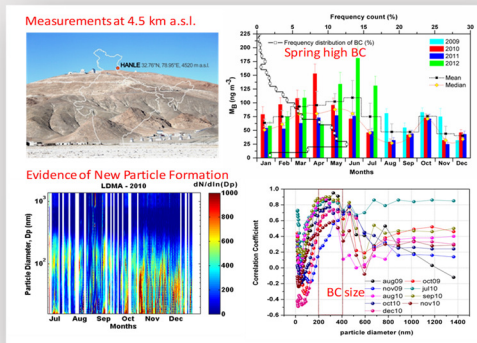
Biomass burning and dust aerosols contribute up to lower free tropospheric altitude in spring and a decrease in aerosol concentration from winter to spring within ABL. Columnar AAOD shows weak seasonal variations despite being prominent in case of BC mass concentrations.

<https://doi.org/10.5194/acp-20-8593-2020>
<https://doi.org/10.1007/s12040-019-1246-y>

Vertical distributions of the microscopic **morphological characteristics** and elemental composition of aerosols over India reveals the dominance of non-spherical coarse mode particles (> 90%) in the lower free tropospheric regions of the Indo-Gangetic Plains. These particles could be responsible for enhanced aerosol absorption in the elevated region of the atmosphere during spring.

<https://doi.org/10.1007/s10874-020-09406-5>

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Over the **Himalayas**, highest values of BC in the trans-Himalayan site Hanle (4.5 km asl) highlighted the influence of advection. Size range of BC have been estimated in the typical range of 200-400 nm.

The region also depicted strong signatures of **new particle formation** with a strong solar control on the processes.

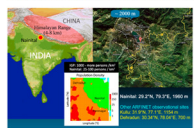
Dominance of mineral dust aerosols (~67%), along with BC (~4% to total aerosol mass) is quantified over the western Himalayas, inferring far reaching implications on regional radiative balance and impact on snow/glacier coverage.

<https://doi.org/10.1016/j.atmosenv.2013.11.029>

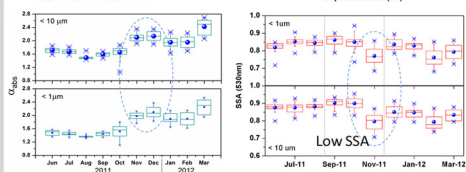
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RAWEX-GVAX experiment, conducted jointly by ISRO and US-DoE



Biomass-burning aerosols contribute to CCN formation at high supersaturation.



Cloud Condensation Nuclei (CCN) at a central Himalayan site reveals higher CCN activity during late autumn due to the contribution of biomass burning aerosols, indicating the influence of seasonal changes in aerosol composition.

Altitude profiles of CCN characteristics across the IGP, just prior to the onset of the Indian summer monsoon (ISM) of 2016, indicated highest CCN activation efficiency over the eastern IGP (~72%), despite highest CCN concentrations in the Central IGP above the planetary boundary layer (PBL).

<https://doi.org/10.1002/2014JD022966>

<https://doi.org/10.5194/acp-20-561-2020>

<https://doi.org/10.5194/acp-20-3135-2020>

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हिन्दी आर्टिकल

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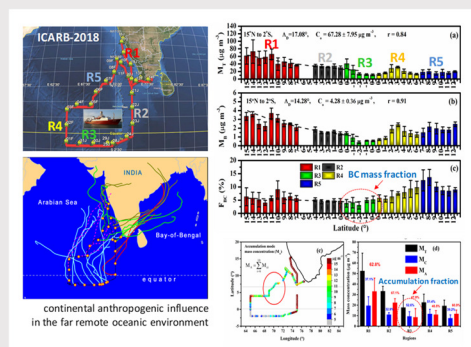
Rajeev, K., K. Krishna Moorthy, M. Mohan, P. R. Nair, S. Suresh Babu, D. Bala Subrahmanyam, N. V. P. Kiran Kumar, V. Sreekanth, Manoj Kumar Mishra, A. Girach Imran, **Mukunda M. Gogoi**, M. Santosh, S K Kompalli, S. Sijkumar, K.V.S. Namboodiri, R. K. Manchanda, Impact of the annular Solar Eclipse of 15 January 2010 on the boundary layer structure and distribution of aerosols and trace gases over Thumba, Proceedings of National Workshop: Results on Solar Eclipse (NaWRoSE), 23-40, 2011.

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Over the marine environment, CCN properties and activation fraction showed the impact of size segregated aerosol number concentration, especially the ultrafine particle events, over the northern **Indian Ocean (NIO)**.

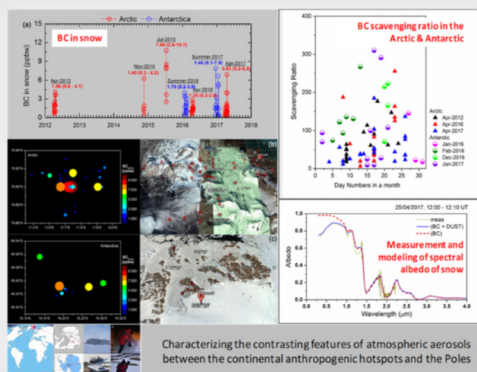
Aerosol measurements over the equatorial Indian Ocean (EIO) showed significantly higher values of BC mass fraction (FBC~ 3.7%), indicating the continental anthropogenic influence even at the far oceanic region during dry winter.

Several NPF events with conspicuous bimodal size distributions and 3–10 times enhancement in nucleation particle (<25 nm) concentrations were noticed over the southeastern Arabian Sea, NIO and EIO. NPF occurred more frequently over the remote oceanic EIO, but more intensely over the regions in the continental proximity demonstrating the varying precursor vapor source strengths.



<https://doi.org/10.1016/j.atmosenv.2019.06.038>

<https://doi.org/10.1016/j.atmosenv.2020.11719>



Aerosol measurements carried out from the Indian polar stations at **Arctic and Antarctic** have revealed higher BC in Arctic snow than that at the Antarctica. Concurrent with this, the scavenging ratio of BC showed large variability over both the poles, indicating difference in removal mechanisms of BC from the atmosphere.

Measured and model simulated albedo indicated the role of dust absorption, in addition to that of BC, in changing the snow albedo properties in the Arctic.

Airborne BC over the Svalbard region of Norwegian Arctic have revealed a consistent springtime time enhancement (nearly 3-times higher than the lowest BC concentrations in summer); delineating more than 25% of this enhancement to the long range transported biomass burning aerosols.

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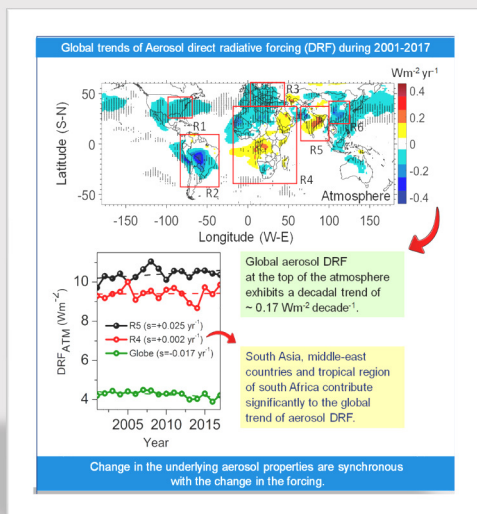
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SCIENTIFIC PRESENTATIONS

INTERNATIONAL

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2. **Gogoi, Mukunda M.**, Aerosol Radiative Forcing over India, International conference on air pollution and monitoring, M G Univeristy, Kottayam, 8-11 March, 2019.
3. **Gogoi, Mukunda M.**, S Suresh Babu, Ryoichi Imasu, Characterization of aerosol absorption over south Asia based on multi-platform measurements and CAI-2 retrieval of AOD and soot volume fraction, IWGGMS-15, Sapporo, Japan, 3-6 Jun 2019.
4. **Gogoi, Mukunda M.**, Aerosol Radiative Forcing from the simultaneous measurements of aerosol properties and radiation over India, Special session on aerosols, clouds, precipitation and hydrological cycles, Water Future Conference, Bangalore, 24-27 September, 2019.
5. Subba, T., X. Chen, E. E. Clothiuaux, **Mukunda M. Gogoi**, B. Pathak and P. K. Bhuyan, Diurnal variability of precipitation over the Western Ghats in India: observations and modelling, Special session on aerosols, clouds, precipitation and hydrological cycles, Water Future Conference, Bangalore, 24-27 September, 2019.
6. Naja, M., P. Srivastava, H. Joshi, R. Kumar, **Mukunda M Gogoi**, S. Suresh Babu, S. K. Satheesh, K. Krishna Moorthy, Aerosols Properties Over the Central Himalayan Region, Special session on aerosols, clouds, precipitation and



The study on recent **trend in global aerosol direct radiative forcing** from satellite measurements is unique in order to understand the broad consequences of aerosols in the Earth's climate system. This study revealed a general decreasing trend (i.e., a reduced cooling effect) at the top of the atmosphere and at the surface with rapid change over the land compared to the global ocean. South Asia and Africa/Middle East regions depict significant increasing trend of atmospheric warming, whereas the rest of the regions show a decline.

<https://doi.org/10.1002/asl.975>

PUBLICATION SUMMARY

GOOGLE SCHOLAR

<https://scholar.google.co.in/citations?user=6DGOFIQAAAAJ&hl=en>

RESEARCHGATE

https://www.researchgate.net/profile/Mukunda_Gogoi3

RG score: 33.73

h-index: 19

RG Read: 12000 +

Citations: 1100 +

AAQR – 1, ACP – 5, AE - 10

AG – 4, AR – 5, ASL – 1, ASR – 2

CS – 2, ESPR-1, GRL – 2, IJC – 1, JAC – 1

JASTP – 1, JESS – 2, JGR – 7

PS – 2, STE – 1, TAO – 1

ARCTIC PROJECT

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GOSAT-RA PI

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SUPERVISION OF STUDENTS

Doctoral Students

Tamanna Subba (Ph.D. in Atmospheric Science, 2020; Currently Post-Doctoral Researcher at University of Michigan, Ann Arbor, MI)

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Ajithra V S (2017), Department of Physics, Nesamony Memorial Christian College, Tamil Nadu, India.

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37. Bhuyan, P.K., **Mukunda M Gogoi**: Comparison of MODIS and MWR derived aerosol optical depth over Dibrugarh: Northeastern India, 4th Annual Meeting of Asia Oceania Geosciences Society (AOGS), Bangkok, 31 July- 4 August 2007.
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41. **Gogoi, Mukunda M.**, Inversion techniques in satellite remote sensing of aerosols, Division of Electrical Sciences, Indian Institute of Science, Bangalore, 5 February, 2019
42. Mishra, M. K., **Mukunda M. Gogoi**, V. Kalimuthan, N.R. Vijayasankar, Sreejith P., Prijith S. S., Dipanwita Haldar, Supriya Sharma, Emerging Trends in Spatial Data Analytics, ISRO Structured Training Program, IIRS, Dehradun, 28-31 May 2019.

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44. **Gogoi, Mukunda M.**, Moderate-resolution Multi-angle Multi-spectral Polarization Imager, Brain storming session – SPL, 20 Aug, 2019.
45. Subba, T., **Mukunda M. Gogoi**, Application of hybrid-synergistic approach for the accurate estimation of aerosol radiative forcing over south Asia: regional perspectives and climatic implications, Special session on Aerosols and Radiative Effects, 20th National Space Science Symposium (NSSS), Savitribai Phule Pune University, Pune, 29-31 January 2019.
46. Vaishya, A., **Mukunda M. Gogoi**, Vertical structure of optical and radiative effects of aerosol across the IGP: East-West contrast and seasonality, 20th National Space Science Symposium (NSSS), Savitribai Phule Pune University, Pune, 29-31 January 2019.
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54. Arun, B. S., A. R. Aswini, **Mukunda M Gogoi**, Sobhan K Kompalli, Prashant Hegde, And S Suresh Babu, Summertime aerosol characteristics at a free-tropospheric site Himansh (4080 m a.s.l) in the western Himalayas, Conference of Indian Aerosol Science and Technology Association (IASTA), 26-28 November 2018.
55. Vyas, B. M. and **Mukunda M. Gogoi**, Distinct influence of long-range transport on the seasonal inhomogeneities in aerosol properties and air pollutants over

- Udaipur in western India, Conference of Indian Aerosol Science and Technology Association (IASTA), 26-28 November 2018.
56. Prasanth. S., P. Kaur, B. K. De, P. Dhar, **Mukunda M. Gogoi** and Anirban Guha, Do aerosols suppress the Gross and Primary Production over the north-eastern region India: a decadal study (2001-2010), TROPMET National Symposium on Understanding weather and climate variability: research for society, Banaras Hindu University, Varanasi, 24-27 October 2018.
 57. **Gogoi, Mukunda M.**, S Suresh Babu, Aditya Vaishya, Vijayakumar S Nair, Radiative implications of spring time aerosols in the Ny-Alesund (Svalbard Island), National Conference on Polar Science (NCPS), NCAOR, Goa, 16-17 May, 2017
 58. Vaishya, A., **Mukunda M Gogoi** and S Suresh Babu, Regional and synoptic source influence on Arctic aerosols during spring, National Conference on Polar Science (NCPS), NCAOR, Goa, 16-17 May, 2017
 59. Subba, T., **Mukunda M Gogoi**, Binita Pathak, Pradip K Bhuyan, Dynamics of aerosol radiative forcing in the Brahmaputra Basin: synergy of model and ground-based observation, 19th National Space Science Symposium (NSSS), VSSC, Trivandrum, 9-12 February 2016,
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 62. **Gogoi, Mukunda M.** and S. Suresh Babu, Study of atmospheric aerosols in the Svalbard region of Arctic: Present status and future plans, 19th National Space Science Symposium (NSSS), VSSC, Trivandrum, 9-12 February 2016.
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 64. **Gogoi, Mukunda M.**, Characterization of Polar aerosols: Source processes and Climate Impact, Arctic Team Selection Meeting, NCAOR, Goa, 28 April 2016.
 65. Subba, T., B. Pathak, **Mukunda M Gogoi**, P. Ajay, P. K. Bhuyan. Long term climatology of aerosol radiative forcing in the Brahmaputra valley and its implications. International Conference on climate change mitigation and technologies for adaptation, Shillong, 20-21 June 2016.
 66. **Gogoi, Mukunda M.** and S. Suresh Babu, An assessment on INSAT-3D Aerosol Optical Depth over India, National Symposium on Recent Advances in Remote Sensing and GIS with Special Emphasis on Mountain Ecosystems & Annual Conventions of Indian Society of Remote Sensing & Indian Society of Geomatics, Dehradun (India), 7 – 9 December 2016.
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 68. **Gogoi, Mukunda M.** Design and development of a Data Management System for ARFI Project of ISRO-GBP, ISRO Seminar for Computer and Information Technology (ISCIT), VSSC, Trivandrum, 19-20 Mar 2015.
 69. **Gogoi, Mukunda M.**, K Krishna Moorthy, S K Kompalli, Jai Prakash Chaubey, S Suresh Babu, Manoj M. R., Vijayakumar S Nair and Tushar P. Prabhu: Results from long-term aerosol observations over HANLE: Physical and Optical

- properties, ARFI, ICARB, RAWEX & NOBLE Project Review Meeting, VSSC, Thiruvananthapuram, 8-9 Jan 2014.
70. Chaubey, J.P., K K Moorthy, S Suresh Babu, **Mukunda M Gogoi**, Sobhan K Kompalli, Manoj M R Long Term Monitoring of the Aerosol Characteristics over Arctic and Antarctic: ARFI initiatives over Polar Regions, ARFI, ICARB, RAWEX & NOBLE Project Review Meeting, VSSC, Thiruvananthapuram, 8-9 Jan, 2014.
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 75. **Gogoi, Mukunda M.**, Poonam Ghiladial, Anila, Shikhar, Sandeep Soni: Validation of Spatio-temporal AWS rainfall data with TRMM retrievals over Rajasthan region, National workshop on 'Geoinformatics for Meteorology and climatology Applications', Sponsored by Indian Meteorological Society Dehradun Chapter & Indian Institute of remote Sensing, ISRO, Dehradun, November 18-29, 2013.
 76. **Gogoi, Mukunda M.**, S Suresh Babu, K Krishna Moorthy, Jai Prakash Chaubey, S K Kompalli, V Sreekanth, Manoj M R, Tushar P Prabhu, S. P Bagare, Bhuvan C Bhatt, Vinod K Gaur and N S Singh: Aerosols Physical and Optical Characteristics in Free Tropospheric Environment: RAWEX Observations in Western Trans-Himalayas, 17th National Space Science Symposium, Sri Venkateswara University, Tirupati, 14-17 February, 2012.
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82. Joshi, H., P Pant, S Suresh Babu, **Mukunda M Gogoi**, U C Dumka and H C Chandola: Climatology of Black Carbon mass concentration over a high-altitude location in the central Himalayas: Distribution of potential sources, 17th National Space Science Symposium, Sri Venkateswara University, Tirupati, 14-17 February, 2012.
83. Chaubey, J P., K Krishna Moorthy, S Suresh Babu, Manoj M R, **Mukunda M Gogoi**, Anoop Tiwari and S Rajan: Summertime Black Carbon Aerosols in the Arctic Boundary Layer, 17th National Space Science Symposium, Sri Venkateswara University, Tirupati, 14-17 February, 2012.
84. **Gogoi, Mukunda M.**, Investigations of atmospheric aerosols and their long-term characterization over the Arctic, Brainstorming and review meeting on Arctic research proposals, NCAOR, Goa, 28 February, 2012.
85. De, B. K., A. Guha, R. Roy, T. Banik, A. Choudhury and **Mukunda M Gogoi**: Aerosol Physical and Optical Characteristics over an ARFINET station Agartala in Northeastern India, 17th National Space Science Symposium, Sri Venkateswara University, Tirupati, 14-17 February, 2012.
86. Babu, S S., **Mukunda M Gogoi**, K Krishna Moorthy, V. S. Nair, Arun Kumar V H and J. P. Chaubey" Influence of long-range transport and source impacts on the optical and radiative properties of Bay-of-Bengal aerosols" Results from ICARB experiments of ISRO-GBP. TROPNET, Hyderabad, 14-16 December, 2011.
87. **Gogoi, Mukunda M.**, ARFI contribution to CTCZ, CTCZ group meeting, Indian Institute of Science, Bangalore, 26-27 November, 2011.
88. **Gogoi, Mukunda M.**, S. Suresh Babu, V. S. Nair, C.B.S. Dutt and K. Krishna Moorthy: Scattering Properties of Atmospheric Aerosols over the Bay of Bengal during Winter-ICARB, National Space Science Symposium, (NSSS), Saurashtra University, Rajkot, 24-27 February, 2010
89. **Gogoi, Mukunda M.**, B. Pathak, K. K. Moorthy, P. K. Bhuyan, S S. Babu, K. Bhuyan, and G. Kalita: Multi-year investigations of near-surface and columnar aerosols over Dibrugarh, Northeastern location of India: Heterogeneity in source impacts, IASTA-conference, Bose Institute, Darjeeling, 24-26 March, 2010.
90. Pathak, B., P. K. Bhuyan, **Mukunda M Gogoi**, G. Kalita and K. Bhuyan: Validation of ground-based measurements of aerosol optical depth with satellite observation over Dibrugarh, IASTA-conference, Bose Institute, Darjeeling, 24-26 March, 2010.
91. **Gogoi, Mukunda M.**, K Krishna Moorthy, P. K. Bhuyan, S Suresh Babu: Climatological features of columnar aerosol properties and the influence of synoptic conditions-First time results from the northeastern region of India, National Space Science Symposium, (NSSS), Ooty, 26-29 February 2008.
92. **Gogoi, Mukunda M.**, P.K. Bhuyan, K. Krishna Moorthy: Validation of ground based spectral aerosol optical depth measurement with satellite observations, Vth Conference of Physics Academy of North East (PANE), Guwahati, Assam, 1-2, March 2007.
93. **Gogoi, Mukunda M.**, P.K. Bhuyan, K. Krishna Moorthy: Possible impact of a major oil well fire on aerosol optical depth over Dibrugarh; India, National Space Science Symposium (NSSS), Vishakhapatnam, February 2006.

94. **Gogoi, Mukunda M.**, P K Bhuyan, P S Pillai and K Krishna Moorthy: Effect of changes in Atmospheric water vapor on Aerosol optical depth over a Sub-tropical location in North East India; 4th Asian Aerosol Conference (4AAC), Mumbai, 13-16 December 2005.
95. **Gogoi, Mukunda M.**, P K Bhuyan, P S Pillai and K Krishna Moorthy: Characteristics of aerosol spectral optical depth and a study of Ångström turbidity parameters from solar radiation measurement over Dibrugarh; 4th Asian Aerosol Conference (4AAC), Mumbai, 13-16 December 2005.
96. **Gogoi, Mukunda M.**, P.K. Bhuyan, K. Krishna Moorthy, P.S. Pillai: Association of surface meteorological parameters with aerosol optical depth over Dibrugarh, India; General Assembly of the International union of Radio Science (URSI), New Delhi, 23-29 October 2005.
97. **Gogoi, Mukunda M.**, P.K. Bhuyan: Diurnal and Seasonal variation of Aerosol Optical Depth measured over a tropical location in NE India; IASTA Meeting and International Conference on Aerosols, Clouds and Indian Monsoon, Indian Institute of Technology, Kanpur, 15-17 November 2004.
98. **Gogoi, Mukunda M.**, P.K. Bhuyan: A study of aerosol optical depth characteristics over Dibrugarh, Third regional conference on Physics Research in North East India; Physics Academy of North East (PANE), Dibrugarh University, Dibrugarh, 9 November 2002.

SERVICE

REVIEWER OF JOURNALS

- Advances in Space Research
- Atmospheric Environment
- Atmospheric Research
- Climate Dynamics
- Current Science
- Egyptian Journal of Remote Sensing
- Environmental Pollution
- Environmental Science Pollution Research
- International Journal of Climatology
- Journal of Earth Systems Sciences
- Water, air and soil pollution

TRAININGS/ WORKSHOPS

- Structured Training Programme on 'New Trends in Remote Sensing and GIS Application: Global Perspective and Indian Scenario', Indian Institute of Remote Sensing, Dehradun, May 27-31, 2019.
- 'Presentation Skills', HRDD, VSSC, July 05, 2019.
- 'Big Data Analytics', HRDD, VSSC, 09-11 October, 2018.
- 'Aethalometer Inter-comparison Experiment, Indian Institute of Science, Bangalore, 01-15 April, 2017, [Program Coordinator](#)
- 'MySQL', HRDD, VSSC, 17 & 18 August, 2017.
- 'JAVA', HRDD, VSSC, 20-22 Dec, 2016.
- 'Secure Web Design', HRDD, VSSC, 8-10 Sep, 2015.
- 'AJAX and J-Query', HRDD, VSSC, 5-6 Sep, 2013.
- 'Geoinformatics for Meteorology and climatology Applications', Sponsored by Indian Meteorological Society Dehradun Chapter & Indian Institute of remote Sensing, ISRO, Dehradun, November 18-29, 2013.
- 'Bhuvan One-day workshop', Thiruvananthapuram, 19 March 2012.
- 18th ISRO Induction Training Program (IITP), 10 Oct – 3 Dec, 2008.
- DST sponsored workshop on "Sensors for Agricultural and Industrial Applications", Department of Physics, DU, 20 Sep-1 Oct, 2004.
- The short-term course on "Physics of atmosphere and Oceans", Indian Institute of Science, Bangalore, 1-12 July, 2002

GENERAL ACTIVITIES/ OUTREACH

- Co-chair: Technical session on "Aerosol-cloud-precipitation interactions" in the Tropmet-2020, the virtual National Symposium on "Weather and Climate Services over Mountainous Regions", NESAC, Shillong, during 14-17 December, 2020.
- Co-Chair, Editorial committee, 'SPL Golden Jubilee Souvenir', 2019.
- Evaluator, 27th National Children Science Congress (NCSC-2019), Thiruvananthapuram, December 27-31, 2019.

- Convener, Resource Material Committee, World Space Week-2018, Vikram Sarabhai Space Centre, Trivandrum
- Convener, Session-AS-06 'Spatial and temporal variability of aerosol in an around Indian sub-continent and the associated radiative forcing - a study from in-situ and satellite derived data', Asia Oceania Geosciences Society (AOGS), Singapore, 2017.
- Editor, Scientific Progress Report, ARFI & ICARB, 2010, 2012.
- Member, Website management committee, National Space Science Symposium (NSSS), VSSC, Thiruvananthapuram, 09-12 February, 2016.
- Member, Design and development of SPL website, 2013-2017.
- Editor, Scientific Progress Report: ARFI, ICARB, RAWEX & NOBLE, 2014.
- Member, Editorial Committee, 'NaWRoSE Proceedings', 2011.
- Member, Doctoral Committee of SPL.
- Member, Editorial Committee, 'SPL Annual Report', since 2010.

HOBBIES AND LEISURE

<https://www.youtube.com/watch?v=SfDP6midTPo>
<https://www.youtube.com/watch?v=YYSwKPs1YNg>
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