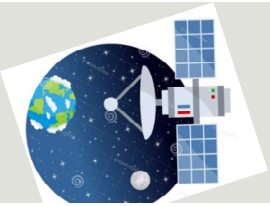
PURSUIT OF GEOSPATIAL TECHNOLOGY AND APPLICATIONS IN 21ST CENTURY

HEAD TALK

(JANUARY 19, 2022)

DR. A.P. KRISHNA
PROFESSOR & HEAD
DEPARTMENT OF REMOTE SENSING
BIT MESRA



Department of Remote Sensing – Established in 1997

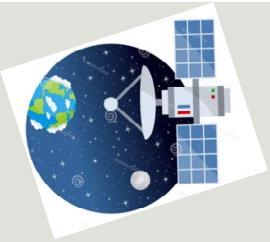
DEPARTMENT VISION

- Be a center of excellence in the field of **Geo-spatial Technology education and research** to match the needs of ever-increasing requirement of human resources in these fields and to cater to the larger interest of the Society and Nation.

DEPARTMENT MISSION

- **Impart quality education** and equip the students with strong foundation that could make them capable of handling challenges of the ever advancing geo-spatial technologies.

- **Maintain state-of-the-art in research and outreach** facilities in phase with the premier institutions for sustained improvement in the quality of education and research



Background

Established in 1997, Department of Remote Sensing offers:

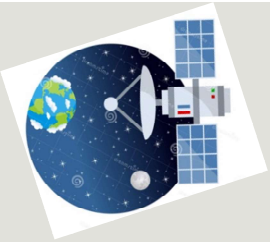
M.Tech. (Remote Sensing)

M.Sc. (Geoinformatics)

Ph.D. (Remote Sensing) &

EDUSAT Courses

- DST FIST Level – I support (2005-2009)
- UGC – SAP Level – I support (2007-2012)
- TEQIP Support (2011/12 onwards)
- Research Grants Received from various organisations



Programme Details

- **Master of Technology (M.Tech.) in Remote Sensing** **(Started: 1997; Seats: 18; duration 2 years)**

  Admission:- Through GATE/Entrance examination

  (NBA Accreditation was done in Jan-2016 – 2+1 years)

  (Renewal SAR submitted in November, 2019 and updated SAR in 2021 – Visit due)

- **Master of Science (M.Sc.) in Geoinformatics** **(Started: 2006; Seats: 20; duration 2 years)**

  Admission :- Through counselling/2021 onwards – JAM/CUCET and Entrance examination

- **Doctor of philosophy (Ph.D.) in Remote Sensing (Technology)**

  Admission :- Through Entrance examination and interview

Admissions/eligibility

- **Master of Technology in Remote Sensing**

(duration 2 years) - Year 1997 onwards

Admission: Through GATE and Non-Gate applicants through Entrance test

Eligibility: a) B.E. / B.Tech. in any branch of Engineering or B.Arch., OR b) Masters degree in Agriculture / Atmospheric Sciences / Botany / Climatology / Chemistry / Computer Applications / Computer Science / Disaster Management / Electronics / Environmental Science / Fisheries / Forestry / Geography / Geology / Geophysics / GeoInformatics / GIS / Information Science / Mathematics / Meteorology / Oceanography / Physics / Remote Sensing / Soil Science / Statistics / Town Planning / Zoology / allied disciplines. c) Candidates must have stereoscopic vision and normal colour vision

- **Master of Science in Geoinformatics**

(duration 2 years) – Year 2006 onwards

Admission: Through JAM/CUCET and Non-JAM/CUCET through Entrance test

Eligibility: a) Graduate in Agriculture / Atmospheric Sciences / Botany / Chemistry / Computer Applications / Computer Science / Disaster Management / Ecology & Environmental Sciences / Fisheries / Forestry / Geography / Geology / GIS / Information Science / Mathematics / Oceanography / Physics / Soil Science / Statistics / Town Planning / Zoology / allied disciplines. b) Candidates must have stereoscopic vision and normal colour vision.

- **Doctor of Philosophy (PhD) in Remote Sensing, GIS & Earth Sciences**

Admission: Through Entrance Test (Those with UGC-CSIR/DBT/ICMR-JRF etc. and all other similar all India fellowships based on a written test for Ph.D. admission may be exempted from the Entrance Test but will be required to appear in the interview)

Eligibility: Students with M.Tech./M.Sc. in allied Disciplines

Our Distinguished Alumni
M.Tech.(Remote Sensing) & M.Sc.(Geo-informatics)

Dr. M. V. RAVIBABU
Professor
National Institute of Rural Development and Panchayti Raj
Hyderabad

Dr. . MILAP PUNIA
Professor
Centre for Study of Regional Development
School of Social Sciences, JNU

Dr. RAMA RAO NIDAMANURI
Professor & Head
Department of Earth & Space Science
Indian Institute of Space Science & Technology (DoS), Trivandrum

Dr. GULAB SINGH
Associate Professor
CSRE, IIT- Bombay

Dr. BALAKRISHNA GOKARAJU
Associate Professor, CECSE,
North Carolina Agriculture and Technical State University

Dr. BHARAT GUPTA
Associate Professor
CI-E & ICT Academy, NIT Patna

Dr. MILI GHOSH
Associate Professor
Department Remote Sensing
BIT, Mesra, Ranchi

Dr. KIRTI AVISHEK
Associate Professor
Dept of Civil & Environmental Science Engineering
BIT, Mesra, Ranchi

Dr. PRAVEEN KUMAR RAI
Asst. Professor
Dept. of Geography
BHU

Dr. BINOD KUMAR VIMAL
Asst. Professor
BAU, Bhagalpur

Dr. KARTAR SINGH
Asst. Professor
School of Earth Sci.
Bansthali Vidyapith University

Dr. SHRUTI KANGA
Associate Professor
School of Engineering & Technology,
Suresh Gyan Vihar University, Jaipur

Dr. SWAGATA GHOSH
Assistant Professor
Amity Institute of Geoinformatics and Remote Sensing
Amity University, Noida

Dr. SUMAN SINHA
Assistant Professor
Amity Institute
Kolkata

Dr. VARUN NARAYAN MISHRA
Assistant Professor
Centre for Climate Change and Water Research, Suresh Gyan Vihar University, Jaipur

Dr. PREM CHANDRA PANDEY
Assistant Professor
CESE, School of Natural Sciences (SNS), Shiv Nadar University, Greater Noida

Dr. VENKATESHWAR RAO VALA
Group Director at NRSC- ISRO

Dr. AMITABH
Scientist / Engineer - SG & Deputy Project Director (Chandrayaan-3 Optical Payload Data Processing)
SAC (ISRO)

Dr. C. P. SINGH
Scientist / Engineer – SF
SAC (ISRO)

Dr. ASHUTOSH BHARDWAJ
Scientist/Engineer-SF &
RESPOND Coordinator
IIRS, Dehradun

Dr. POONAM SETH TIWARI
Scientist/Engineer – SF
Photogrammetry and Remote Sensing Department
IIRS, Dehradun

Dr. HINA PANDEY
Scientist/Engineer- SF
Photogrammetry, Automatic Feature Extraction
IIRS, Dehradun

Mr. ASHUTOSH KUMAR JHA
Scientist/Engineer- SE
Geoinformatics Department
IIRS, Dehradun

Mrs. NEELU SHARMA
Research Associate
North Carolina Agricultural and Technical State University

Mr. ABHISHEK VERMA
RSGIS Head,
Reliance India Limited,
Ranchi

Mr. SOURABH SUMAN
Founder & Director, Aerowiz
Ranchi

Mr. ABHINAV MEHTA
Founder, Wildmark
Founder, TGIS, Ahmedabad

Ms. ADRIJA ROY
Geospatial Head
McKinjey, BOSTON, USA

Mr. SHANTANU LALA
Assistant General Manager
BSNL

Mr. HARSHIT RAJAN
Sr. GIS Analyst
International Maize and Wheat Improvement Center (CIMMYT)

Mr. SANDEEP BANERJEE
Associate Director
SkyMap Global, Singapore

Mr. DHRUV BHATT
Vacancy Profile Specialist
ID PLANS CORP, FL. USA

Ms. POOJA RANA
Program Coordinator
Focal Point-GIS Mapping
Delhi

Mr. ALEX PRAVEEN
RS GIS analyst
Skymap Global, Kolkata

Ms. SUNANDA MUKHERJEE
GIS Engineer
Tickoo Institute of Emerging Technologies
Subsidiary of CADCIM Technologies (USA),Gurgaon

Mrs. POONAM NEGI
Manager (Business Development)
RMSI Pvt. Ltd.

Mr. LALIT DAS
Project Manager/GIS Consultant
Livolink Foundation,
Bhubaneshwar, Odhisa

Ms. SOUMYA RAJAN
Asso. Consultant, Data & Analysis,
KPMG, Kolkata

PAKEEZA SAMAR
Senior Software Developer
TCS, Noida

Mr. MICHAEL HEMBROM
Researcher
DRDO, Delhi

Ms. SUPARNA DEY
Project Scientist
NIRD, Hyderabad

Md. BADIZUMMAN KHAN
Information Officer
Bihar State Pollution Control Board
Patna

Ms. DHARINI JHA
Ph.D. Scholar
(Natural & Physical Science)
James Cook University
Townsville, Australia

Mr. PEEJUSH PANI
PhD., Chinese Academy of Science,
Beijing

Mr. NIKHIL RAJ DEEP
SRF
DRDO, Delhi

Mr. SUNIL KUMAR JHA
Jr. Scientist
KIAAR, Karnataka

Mr. VIDHYA GANESH R.
Research Scientist
IIT, Kanpur

Mr. KAPTAN SINGH
Technical Associate
Forest Survey of India
Dehradun

Recent Batch Placement
M.Tech.(Remote Sensing)

Ms. Bhawna Sharma
GIS Analyst
Trimble Inc.

Ms. Sumedha Sharma
GIS Analyst
Trimble Inc.

Ms. Poulomi Chatterjee
GIS ANALYST
Scanpoint Geospatial Pvt. Ltd.

Ms. Ananya Paul
JRF
MNIT- Jaipur

Mr. Kshitij Divyansh
IRF , BIT MESRA

Mr. Nirjhar Jyoti Biswas
Project Assistant
North Eastern Space Applications Centre (NESAC)

Faculty Details

1. Dr. A.P. Krishna	Professor & Head
2. Dr. C. Jeganathan	Professor & DRIE (BIT)
3. Dr. Nilanchal Patel	Professor
4. Dr. Virendra Singh Rathore	Associate Professor
5. Dr. Mili Ghosh Nee Lala	Associate Professor
6. Dr. Swagata Payra	Associate Professor
7. Dr. Richa Sharma	Assistant Professor

Technical /Lab Staff:

1. **Mr. Nitish Kumar Sinha** – System Analyst
2. **Mr. Ritesh Lakra** – Junior Tech. Sup.
3. **Mr. Sidharth Thakur** – Junior Tech. Sup.

Office Staff:

1. Mr. Gulam Haider

Peons:

1. Mr. Hari Nath Mahto
2. Mr. Paulus Horo
3. Mr. Vijay Kr. Mahto

Earth Observing System era

- Earth Observing System (EOS) era (Stoney, 2005, Bailey et al., 2001, Jensen, 2000, Colwell, 1983) began with launch of TERRA satellite in 1999 and has brought in the global coverage, frequent repeat coverage, high level of processing, easy and mostly free access to data
- TERRA\AQUA satellites carrying sensors such as Moderate Resolution Imaging Spectroradiometer (MODIS) and Measurements of Pollution in the Troposphere (MOPITT) have daily re-visit and various processed data
- Applications of sensor data have become wide-spread and applications have multiplied
- Institutions and individuals who never used remote sensing have begun to take interest in remote sensing
- Also, the availability of the processed data in terms of products such as leaf area index (LAI) and land use\land cover (LULC) have become routine
- Currently, MODIS itself has 40+ products
- Active spaceborne remote sensing sensors using radar technology also became prominent around this time (and during the Landsat era) launch of European Radar Satellite (ERS), Japanese Earth Resources satellite (JERS), Radarsat, and Advanced Land Observation Satellite (ALOS)
- Shuttle Radar Technology Mission (SRTM) used to gather data for digital elevation

Remote sensing in significant interdisciplinary areas

- Natural resource management
- Management of agricultural practices, for example related to land use, land conservation and soil carbon stock
- Tactical forest fire-fighting operations in real-time decision support systems
- Monitoring of land cover and its changes over different temporal and spatial scales, even after a disaster event
- Better informed forest and water management
- Evaluation of carbon stocks and related dynamics
- Simulation of climate system dynamics
- Improvement of climate projections and meteorological reanalysis products, widely used for climate change research studies
- Improving warning and preparedness, being therefore also useful in disaster risk reduction

Satellite remote sensing (SRS) in climate change - I

- **Satellite remote sensing has provided major advances in understanding the climate system and its changes, by quantifying processes and spatio-temporal states of the atmosphere, land and oceans**
- **Spatial pattern of sea-level rise and the cooling effects of increased stratospheric aerosols**
- **Unparalleled global- and fine-scale spatial coverage of satellite observations**
- **Short duration of observation series and their uncertainties still pose challenges for capturing the robust long-term trends of many climate variables**
- **Focus on future systems to make better use of remote sensing in climate change studies**

Satellite remote sensing (SRS) in climate change - II

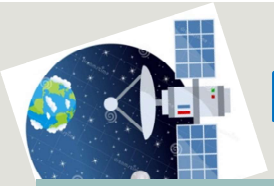
- Observing the climate system at multiple spatio-temporal scales e.g. most efficient approaches to monitor land cover and its changes in time over a variety of spatial scales
- Improvement of meteorological reanalysis data
- As per Global Climate Observing System (GCOS) report of 2010, 26 out of 50 essential climate variables (ECVs) are significantly dependent upon satellite observations
- SRS are used for developing prevention, mitigation and adaptation measures to cope with the impacts of climate change

Facilities Available

1. Digital Image Processing (DIP) Lab
2. Geographical Information System (GIS) Lab
3. Digital Photogrammetry (DP) Lab
4. Global Positioning System and Satellite Navigation Lab
5. Remote Sensing Research Lab
6. Conventional Photogrammetry Lab
7. Image Interpretation/Cartography Lab
8. Survey Maps and Satellite data library

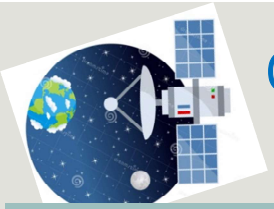
Faculty Details - Research Areas

	Area of Research
1. Dr. A.P. Krishna	Snow Cover & Glacier Dynamics, Natural Resources, Basin Hydrology, Natural Hazards, Planetary Remote Sensing, Urban and Built Environment
2. Dr. C. Jeganathan	Spatial Decision Modelling, Geo-statistics, Vegetation Dynamics, RSGIS Application Software Development
3. Dr. N. Patel	Digital Image Processing, Geospatial Analysis, Environmental Remote Sensing
4. Dr. V.S. Rathore	RS in Hydrology, RS in Earth Sciences, Geomorphology, Geo-tectonics and surveying
5. Dr. Mili Ghosh	GIS based Rural Planning, Environmental Modeling, Planetary Remote Sensing
6. Dr. Swagata Payra	Atmospheric Physics, Remote Sensing for Aerosol / Air Pollution, Numerical Modelling, Different special weather phenomenon
7. Dr. Richa Sharma	Remote Sensing Applications in Health, Surface Mining, Tourism and Environment Studies



Recently Acquired & Ongoing Projects

Sl. No.	Project Title	P.I./Co-P.I.	Funding Agency
1	Modelling Forest Phenological Parameters from Time Series Remote Sensing Data **(30.23L)**	Dr. C. Jeganathan, Dr. A. P. Krishna, Dr. Mili Ghosh Nee Lala, Mr. Nitish Kumar Sinha	SAC Ahmedabad (2021)
2	Remote Sensing based Hydrologic budget of the Subarnarekha River Basin **(27.39L)**	Dr. A. P. Krishna/ Dr. C. Jeganathan/ Dr. V. S. Rathore	DST-SERB (2020)
3	Quantifying the Spatio-Temporal rhythm of vegetation growth, health and its vulnerability due to climate change in different forest ecosystem in North-Eastern India using time-series satellite data **(29.45L)**	Dr. C. Jeganathan	ISRO-RESPOND (2020)
4	Industry-Academia Collaboration: Skymap Global & BIT Agriculture Research Project **(7.5L)**	Dr. C. Jeganathan/Dr. A. P. Krishna/Dr. Vandana Bhattacharjee/Dr. Abhijit Mustafi/Dr. Sudhanshu Mishra	Skymap Global (Singapore) (2019)
5	National Wetland Inventory & Assessment over BiharState **(20.5L)**	Dr. C. Jeganathan/ Dr. A. P. Krishna/ Dr. V. S. Rathore/Mr. Nitish Kr. Sinha	SAC, Ahmedabad (2019)
6	Use of Geoinformatics in Rural Road Projects under PMGSY (Pradhan Mantri Gram Sadak Yojna- PMGSY) **(54.34L)**	Dr. A. P. Krishna/ Dr. C. Jeganathan/ Dr. V. S. Rathore/ Mr. Nitish Kr. Sinha	NRSC Hyderabad (2019)
7	LightningimpactonozoneprecursoroverIndianregionanditsimplications on tropospheric ozone **(34.60L)**	Dr. Swagata Payra	MoES, GoI
8	Prediction of ground-level particulate matter concentrations from Multi-SatelliteAODovertheIndianSubcontinent **(22.08L)**	Dr. Swagata Payra	SAC, ISRO



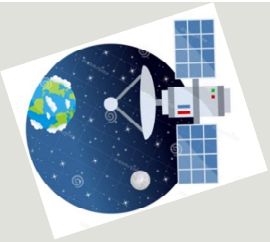
Ongoing & Recently Concluded Pojects

Sl. No.	Project Title	P.I./Co-P.I.	Funding Agency
1	Geophysical characterization of subsurface Calcrete deposits in semi arid - arid region of Rajasthan using fully polarimetric L- and S- band SAR data **(13.44L)**	Dr. V. S. Rathore/ Dr. A. P. Krishna	SAC, Ahmedabad
2	Integrated Watershed Mission Project (IWM), Kanke, Ranchi **(673L)**	Dr. V. S. Rathore/Dean (SW) /HOD (RS)	MoRD, DoLR, GoI and GoJ
3	National Wasteland Change Analysis **(13.25L)**	Dr. V. S. Rathore/ Dr. A. P. Krishna/ Dr. C. Jeganathan/ Mr. Nitish Kr. Sinha	NRSC Hyderabad
4	Chandrayaan1-AO: - "Refinement of existing Algorithm for FeO and TiO2 mapping using HySI data and a comparative assessment of the HySI generated maps with that of Clementine and Moon Mineralogy Mapper-derived FeO and TiO2 products" **(17.2L)**	Dr. Mili Ghosh Nee Lala/ Dr. A. P Krishna	SAC Ahmedabad
5	MOM-AO: "Estimation of TIS derived Martian Surface temperature and assessment of its inter-annual variability in the current Martian climate in accordance with MCC derived morphological units" **(17.43L)**	Dr. Mili Ghosh Nee Lala/ Dr. A. P Krishna/ Dr. C. Jeganathan	SAC Ahmedabad
6	National Land Use / Land Cover Change Analysis - 3rd Cycle **(51.48L)**	Dr. C. Jeganathan/ Dr. A. P. Krishna/ Dr. V. S. Rathore/ Mrs. R. N. K. Sharma/ Mr. Nitish Kr. Sinha	NRSC Hyderabad
7	Aerosol measurements over Jaipur (since 2009 – ongoing)	Dr. Swagata Payra	AERONET campaign collaborative with Goddard Space Flight Centre (GSFC), NASA, USA

Completed Projects

Sl. No.	Research Project Topic	Funding Agency
1	Hybrid Polarimetric Signatures Study Under Desertic Environment Using RISAT.	SAC Ahmedabad
2	Ground Water Quality mapping Rajiv Gandhi Drinking Water Mission Phase 4	NRSC, Hyderabad
3	National Urban Information System Thematic Mapping	NRSC Hyderabad
4	Land Use and land Cover Mapping 2nd Cycle Bihar State	NRSC Hyderabad
5	Agriculture Ecosystem Products Development over Hindu-Kush-Himalaya (HKH) (Phase-I)	ICIMOD Nepal under NASA-SERVIR Himalaya
6	Drought Modelling And Software Development (Phase-I)	IWMI Sri Lanka
7	Understanding Lunar Volcanism and Tectonism on Moon using Chandrayaan-1 data	SAC Ahmedabad
8	National Wasteland Mapping 1st Cycle	NRSC Hyderabad
9	Land & Water Audit in Jharkhand State using Geoinformatics	SAP UGC
10	Interferometric Analysis of Radar Data for Estimation of Tree/Stand Height	SAC Ahmedabad
11	Development of Forest Fire Management System in Shimla forest division in Himachal Pradesh (India) using Geo spatial information system	MoEF,GoI
12	Geo-Informatics based water resource management plan for Ghad sub-watershed, Maharashtra	DST, GoI
13	Demarcation of younger arsenic affected alluvium along Ganga river in parts in Bihar	CGWB Patna
14	Snow & Glaciers Mapping in Zanskar Basin (J&K)-Phase II	SAC Ahmedabad
15	Glacial Retreat and Mass Balance studies in Zanskar Valley, J & K Himalayas.	SAC Ahmedabad

Some Significant Journals of the Research Areas being pursued in the Department	Publishers	Country	Impact Factor
Remote Sensing of Environment	Elsevier	Netherlands	9.085
Global Change Biology	Wiley	USA	8.555
Global Ecology and Biogeography	Wiley	USA	6.446
GIScience & Remote Sensing	Taylor & Francis	UK	5.965
IEEE Transactions on Geoscience and Remote Sensing	IEEE GRS Society	USA	5.855
Journal of Environmental Management	Elsevier	Netherlands	5.647
International Journal for Applied Earth Observation and Geoinformation	Univ. of Twente	Netherlands	4.65
Nature Scientific Reports	Springer Nature	UK	4.576
Environmental Modelling & Sofware	Elsevier	Netherlands	4.552
Geophysical Research Letters	AGU	USA	4.58
Journal of Hydrology	Elsevier	Netherlands	4.405
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing	IEEE GRS Society	USA	3.827
Geocarto International	Taylor & Francis	UK	3.789
International Journal of Climatology	Wiley	USA	3.76
Landscape Ecology	Springer	USA	3.615
Progress in Physical Geography	Sage	UK	3.357
International Journal of Remote Sensing	Taylor & Francis	UK	2.976
IEEE Geoscience and Remote Sensing Letters	IEEE GRS Society	USA	2.761
Computers & Geosciences	Elsevier	Netherlands	2.53
International Journal of Geographical Information Science	Taylor & Francis	UK	2.502
Ecological Modelling	Elsevier	Netherlands	2.363
Remote Sensing Letters	Taylor & Francis	UK	2.298
Transactions in GIS	Wiley	USA	2.252
Egyptian Journal of Remote Sensing and Space Sciences	Elsevier	Egypt	2.848
Environmental Earth Sciences	Springer	Germany	1.569
Journal of Applied Remote Sensing	SPIE	USA	1.107
Arabian Journal of Geosciences	Springer	Saudi Arabia	1.327
National Journals			
Current Science	Indian Academy of Sciences	India	0.833
Journal of Indian Society of Remote Sensing	Springer	India	0.725
Indian Journal of Geomatics (ISRO), Indian Forester (Founded in 1875; ICFRE), Earth System Sciences, Journals of Indian Academy of Sciences etc.,			

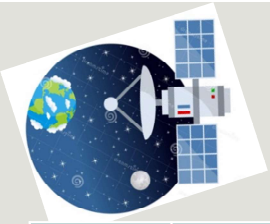


Faculty-wise Project Details (Since 2016)

S. No.	Faculty	Grants Received as PI (in Lakhs)	Projects Executed	
			Completed	Ongoing
1	Dr. A P Krishna	**97.98**	**3**	**2**
2	Dr. N Patel	**-**	**-**	**-**
3	Dr. C Jeganathan	**131.61**	**3**	**3**
4	Dr. V S Rathore	**280.69**	**2**	**2**
5	Dr. M Ghosh	**34.63**	**2**	**1**
6	Dr. Swagata Payra	**56.48**	**1**	**2**
6	Ms. Richa NK Sharma	**(Co-PI 51.48)**	**1**	**-**

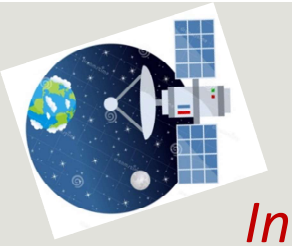
Project Contribution (Since 2011)

S. No.	Faculty	No. of Projects as PI	No. of Projects as Co-PI	Grant PI (Co-PI) In Lakhs
1	Dr. A P Krishna	**3**	**7**	**97.89 (140.94)**
2	Dr. N Patel	**-**	**-**	**-(-)**
3	Dr. C Jeganathan	**7**	**5**	**161.21 (129.07)**
4	Dr. V S Rathore	**6**	**1**	**357.63 (194.52)**
5	Dr. M Ghosh	**2**	**1**	**34.63 (4)**
6	Ms. Richa NK Sharma	**-**	**1**	**- (51.48)**



Faculty-wise Research Contribution

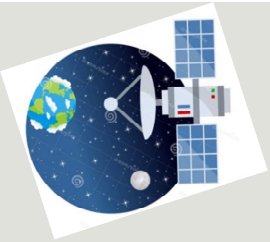
S. No.	Faculty	Ph.D. Guidance		Papers in SCI	Other Papers	Books/Chapter	
		Completed	Ongoing			International	National
1	Dr. A P Krishna	10	7	32	28	10	14
2	Dr. N Patel	5	5	29	20	4	-
3	Dr. C Jeganathan	5	5	42	11	8	7
4	Dr. V S Rathore	3	3	13	10	-	1
5	Dr. Mili Ghosh Nee Lala	4	5	16	7	3	-
6	Dr. Swagata Payra	2	1	25	10	2	-
6	Ms. Richa Sharma	0	4(1)	2	10	5	2



Research Collaborations

International Research Collaboration

- Aalborg University, Aalborg, Denmark.
- University of Nova, Lisbon, Portugal
- University of Aveiro, Aveiro, Portugal
- University of Poitiers, Poitiers, France
- University of Cape Town, South Africa.
- University of Lancaster, UK
- University of Southampton, UK
- University of California Santa Barabara, USA
- International Water Management Institute (IWMI), Sri Lanka
- Nanjing University, China
- International Center for Integrated Mountain Development (ICIMOD), Nepal



Research Collaborations

National Research Collaboration

- National Remote Sensing Agency (NRSC), ISRO, Hyderabad
- Space Application Center (SAC), ISRO, Ahmedabad
- Wadia Institute of Himalayan Geology, Dehradun
- Regional Remote Sensing Center, ISRO, Kolkata
- Indian Institute of Technology (IIT), Bombay
- Indian Institute of Technology (IIT), Kharagpur
- Indian Institute of Remote Sensing (IIRS), Dehradun
- K J Somaiya Institute of Applied Agricultural Research, Karnataka
- Haldia Institute of Technology
- Central University, Rajasthan

DR. RICHA SHARMA

Research areas:

- Applications of Remote Sensing and Geoinformatics in health
- Forestry
- Tourism
- Surface mining

DR. V.S. RATHORE

Current Research Areas

- Delineation of Geomorphic features for Uranium enriched Calcrete mapping in Western Rajasthan using Microwave and Hyperspectral Remote Sensing
- Microwave satellite data processing for lithology mapping in Western Rajasthan
- Characterization of Impact Craters in the Permanent Shadow Region of Lunar Surface using Microwave data
- Delineation of extreme events induced Sea water Intrusion in the Eastern Coast Fresh Water Aquifers

DR. MILI GHOSH NEE LALA
Research area

- Monitoring Lake Eco-Environment
  - Ø Sambhar Lake , Rajasthan
  - Ø Wular Lake, J&K
- Monitoring extreme climatic event
  - Ø Lightning
- Planetary Remote Sensing
  - Ø Moon
  - Ø Mars

Extraction of free water surface boundary to delineate the lake shoreline(Sambhar Lake)

Fig1. (A) spatial distribution of GPS points collected for verification purpose. (B) and (H) water depth during the field visit; (C) actual surface conditions near the shoreline, it is important to show here because this appearance of lake bed can lead to the detection as virtual water boundaries; (E) muddy surface of the lake; (D), (G), and (F) distance between GPS points (dry surface) and appearance of the pure, highly shallow, and boundary pixels in the HPF image.

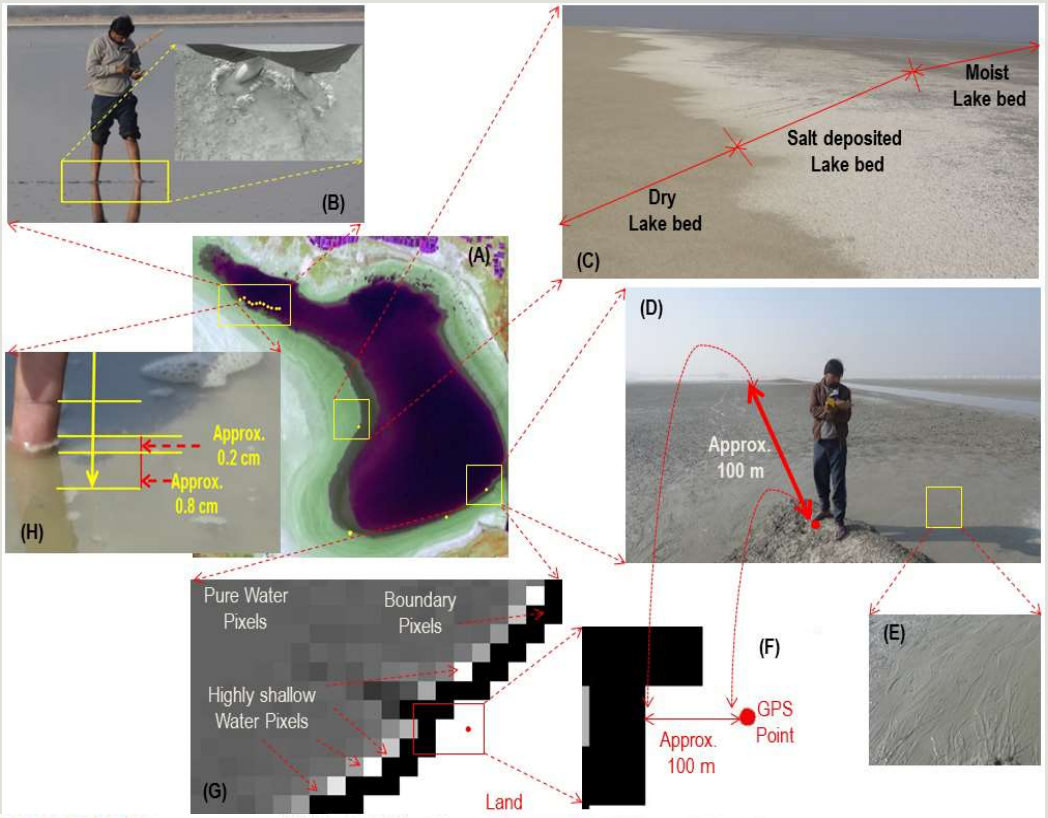
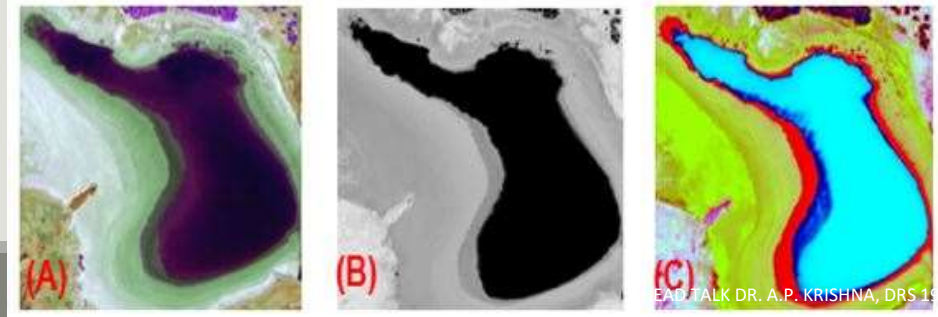
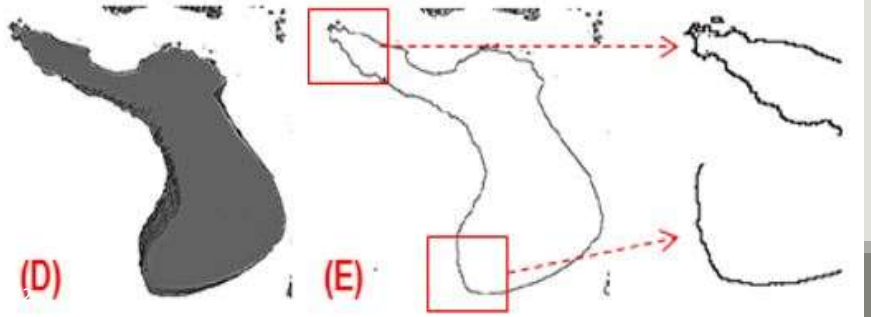


Fig2 Output at different stages
(Water indexing, TCT, HSV transform, convolution and vectorization**)**





Planetary Remote Sensing(Moon)

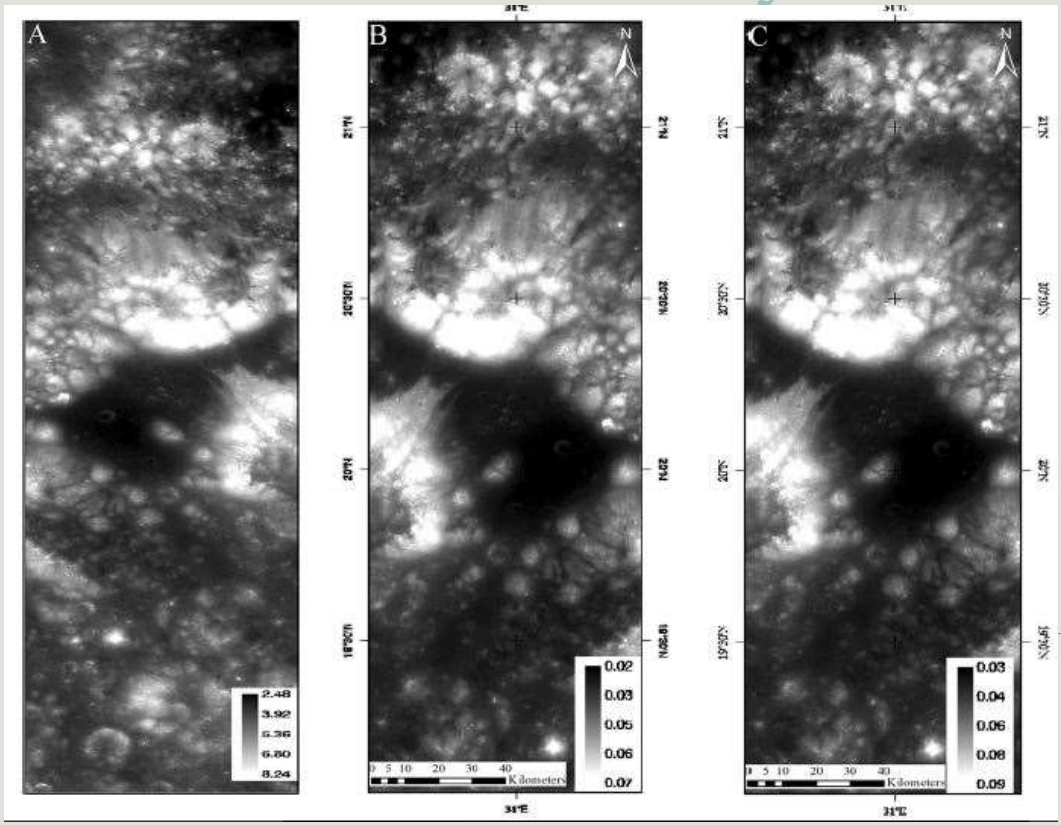


Fig. **A** Comparison between the unprocessed HySI radiance image (750 nm) on the left for the Apollo—17 landing site, **B** the georeferenced apparent reflectance HySI image (750 nm) in the centre and, **C** the spatially transformed photometrically corrected HySI reflectance image (750 nm) on the right

Photometric correction is the prime requirement for orbiter images of atmosphere less bodies . For the first time, photometric correction of Chandrayaan-1 HySI images has been done by our team and the same can be implemented for Chandrayaan-2 IIRS images

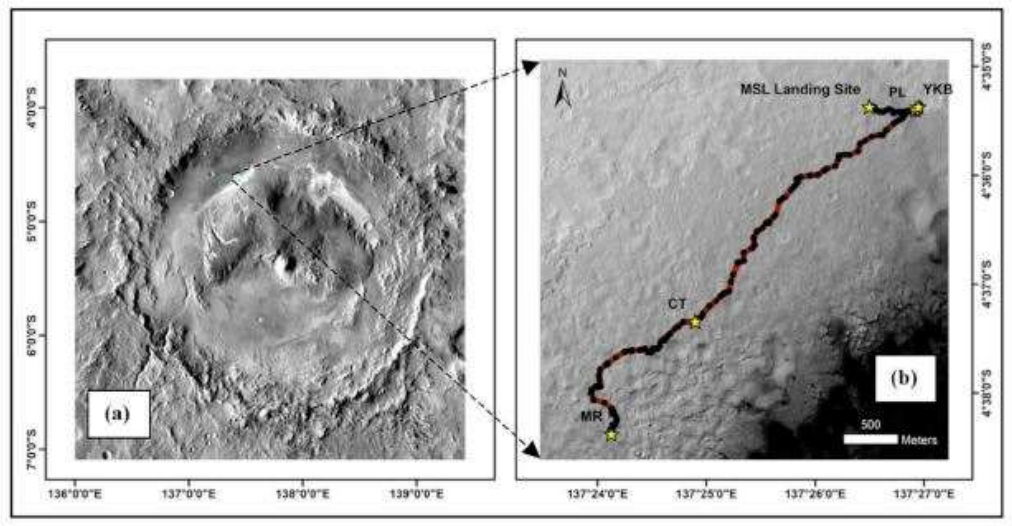


Fig. 1. (a) Study Area (Gale Crater) (b) Curiosity traverse map showing the four selected study locations – Point Lake (PL), John Klein - Yellowknife Bay (YKB), Cooperstown (CT) and Mt. Remarkable (MR).

Seasonal variation of Thermal Inertia has been detected on Martian surface which is caused by mainly seasonal dust deposition

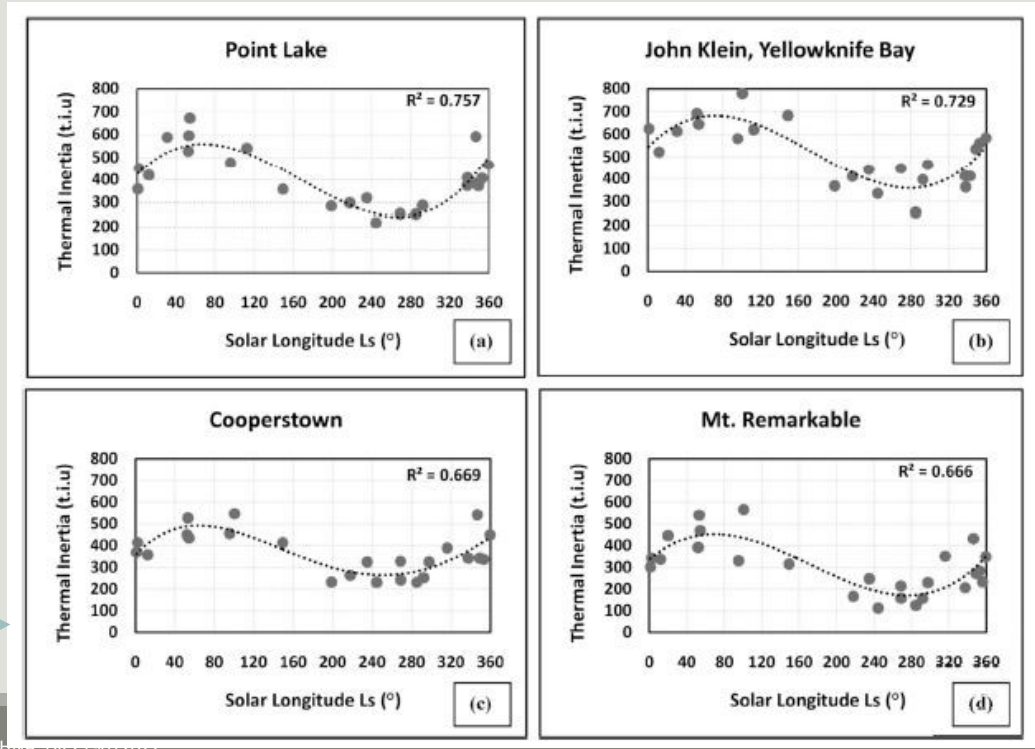


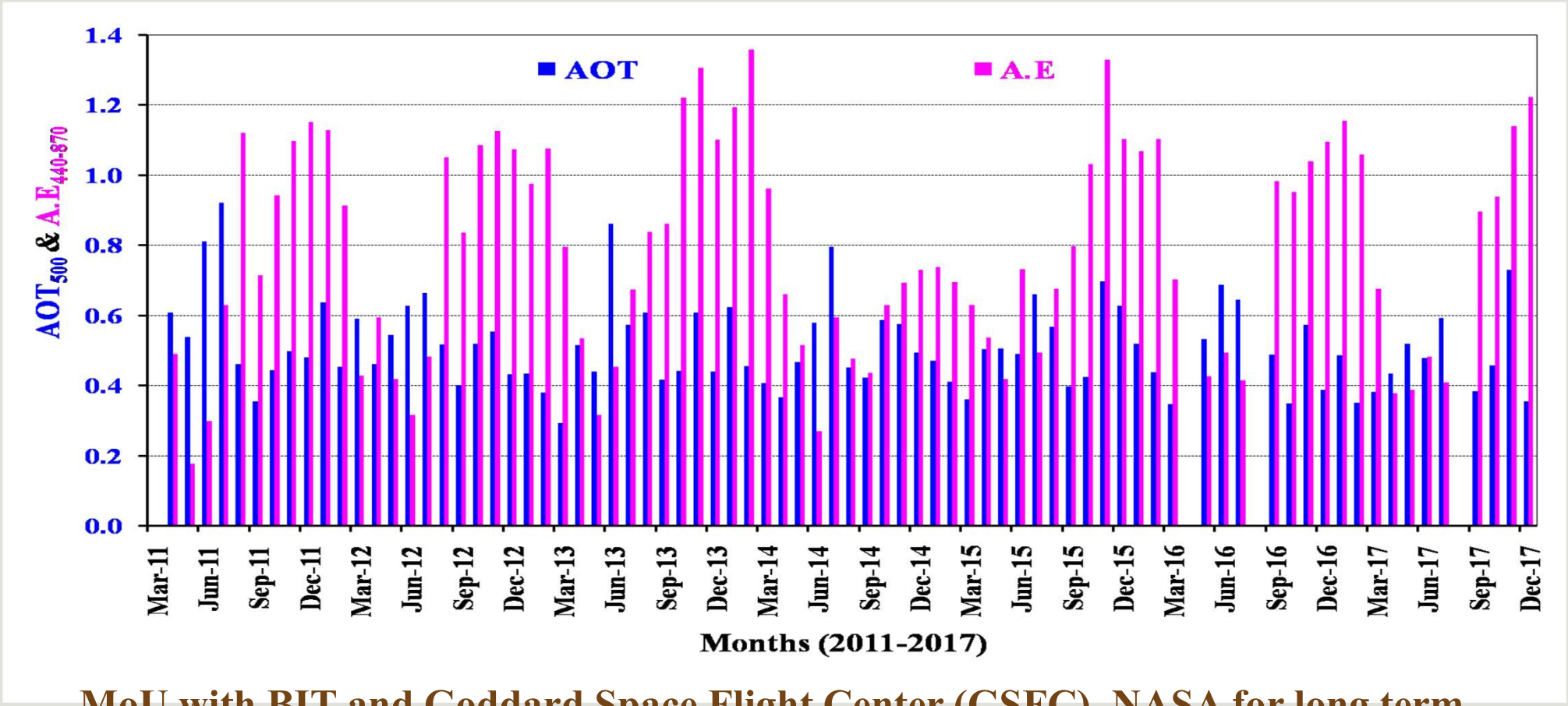
Fig. 2. Seasonal THEMIS TI variations at (a) Point Lake (b) John Klein, Yellowknife Bay (c) Cooperstown (d) Mt. Remarkable.

DR. SWAGATA PAYRA

RESEARCH AREAS:

- SATELLITE REMOTE SENSING FOR AEROSOL STUDIES
- NUMERICAL MODELLING (MESOSCALE MODEL, CHEMISTRY TRANSPORT MODEL AND STATISTICAL MODEL)
- SPECIAL WEATHER PHENOMENON (FOG, DUST STORM, LIGHTNING ETC)

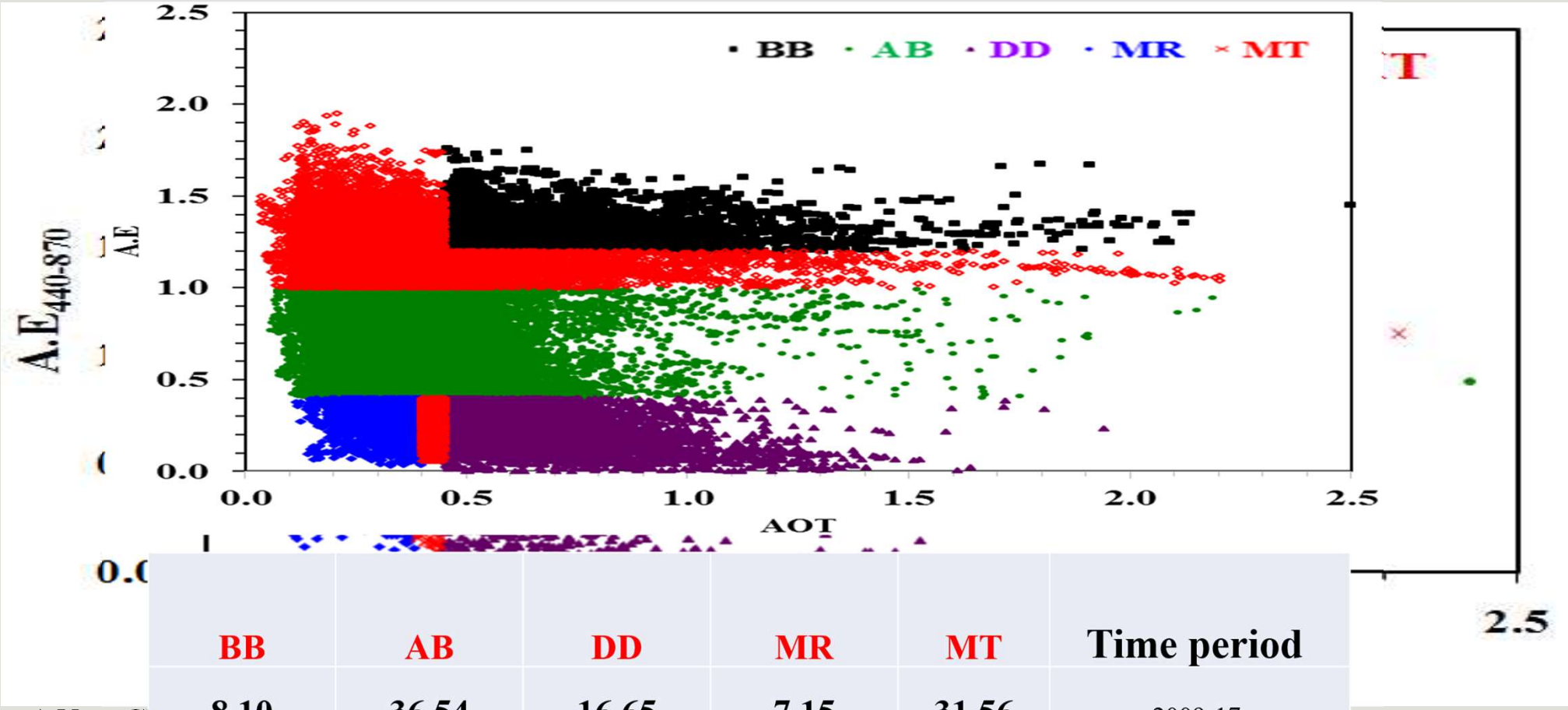
Monthly variations in aerosol optical thickness (AOT) at 500-nm wavelength and Ångström Exponent (AE)



MoU with BIT and Goddard Space Flight Center (GSFC), NASA for long term aerosol measurement (AERONET)


1.4
1.2
1
0.8
0.6
0.4
0.2
0
AOT & AE
Summer
Winter
AOT
0.5
0.48
AE
0.41
1.16

SCATTER PLOT DIAGRAM OF AOT Vs A.E FOR AEROSOL TYPES OVER JAIPUR



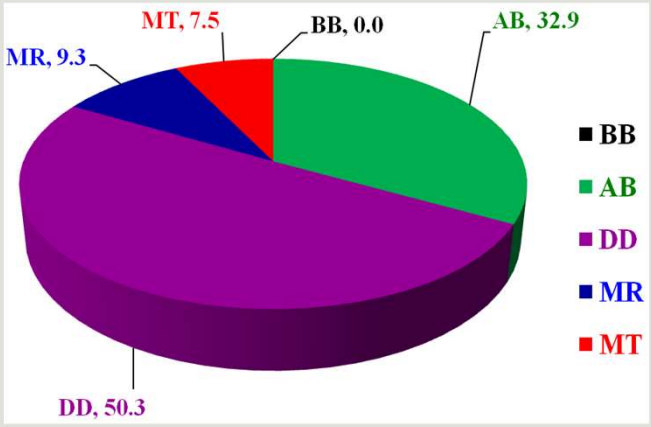
BB	AB	DD	MR	MT	Time period
8.10	36.54	16.65	7.15	31.56	2009-17
9.70	34.67	13.62	8.41	33.60	2011-13

A New C

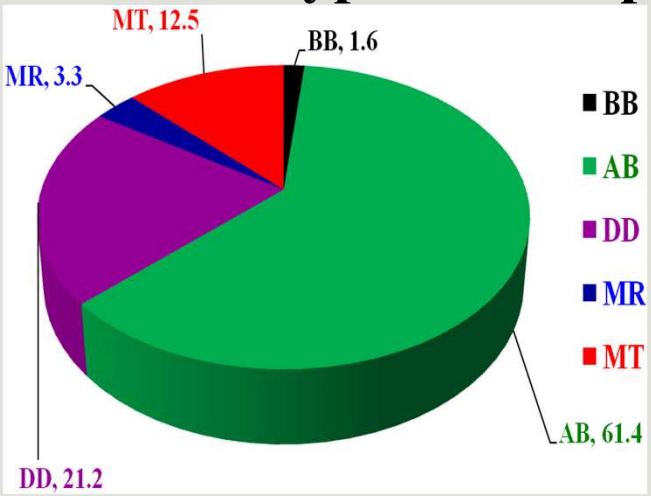
Aerosol a SCIE)

PERCENTAGE CONTRIBUTION as per aerosol type over Jaipur

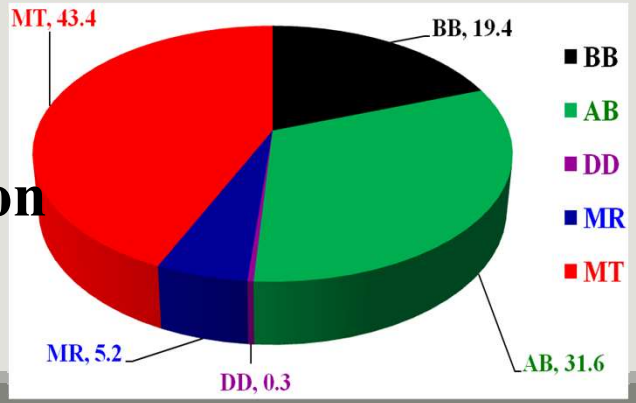
Summer



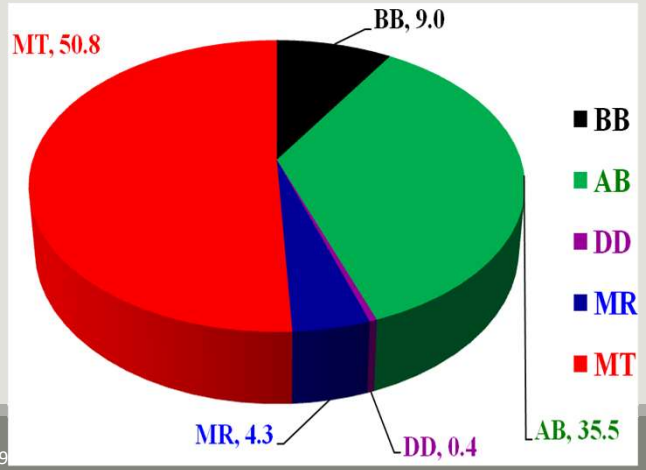
Monsoon



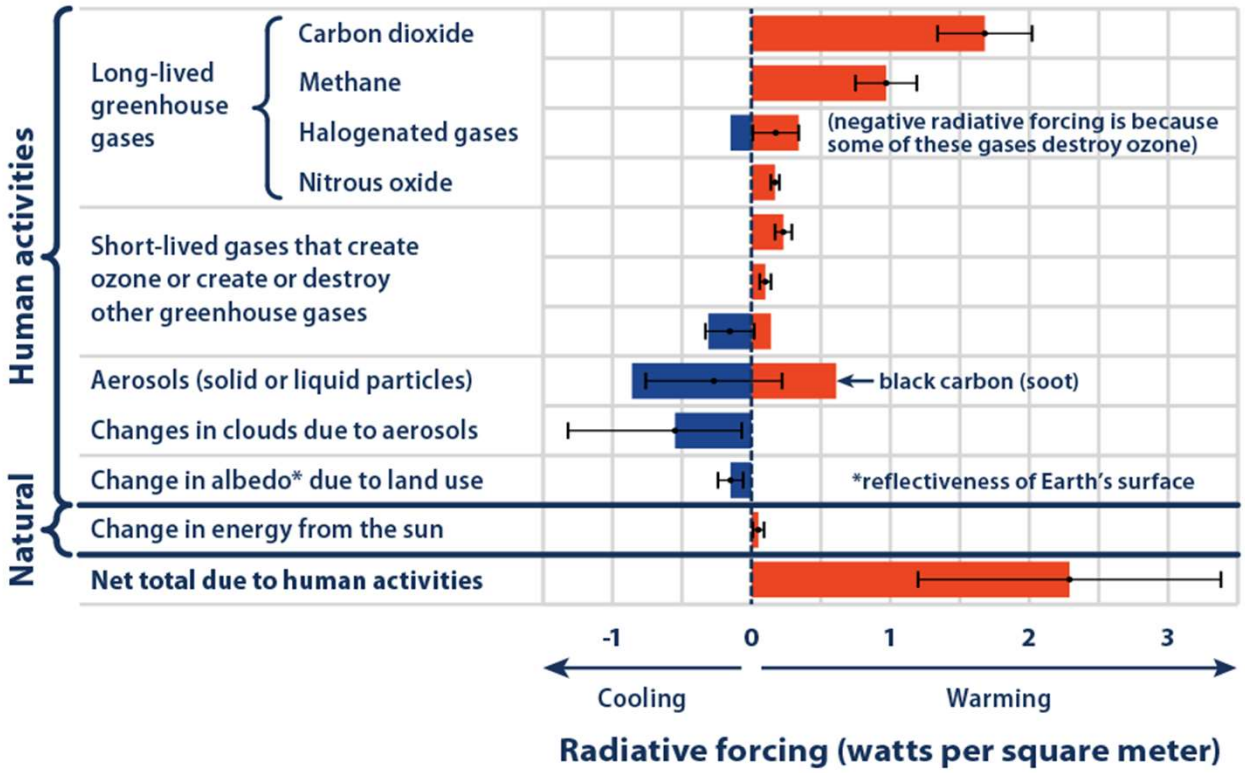
Post-monsoon



Winter

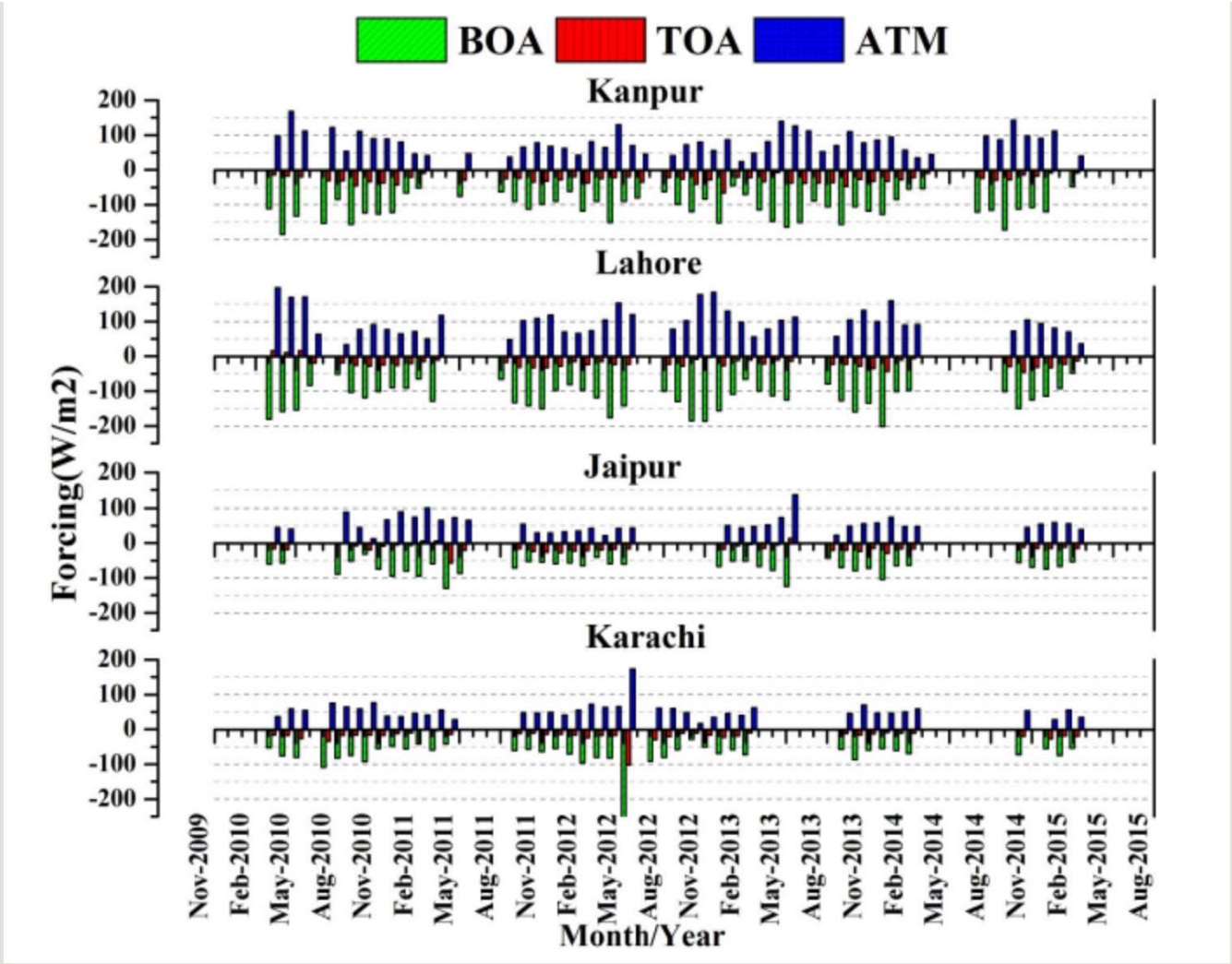


Radiative Forcing Caused by Human Activities Since 1750



Data source: IPCC (Intergovernmental Panel onClimate Change). 2013. Climate change 2013: The physical science basis. Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press. www.ipcc.ch/report/ar5/wg1.

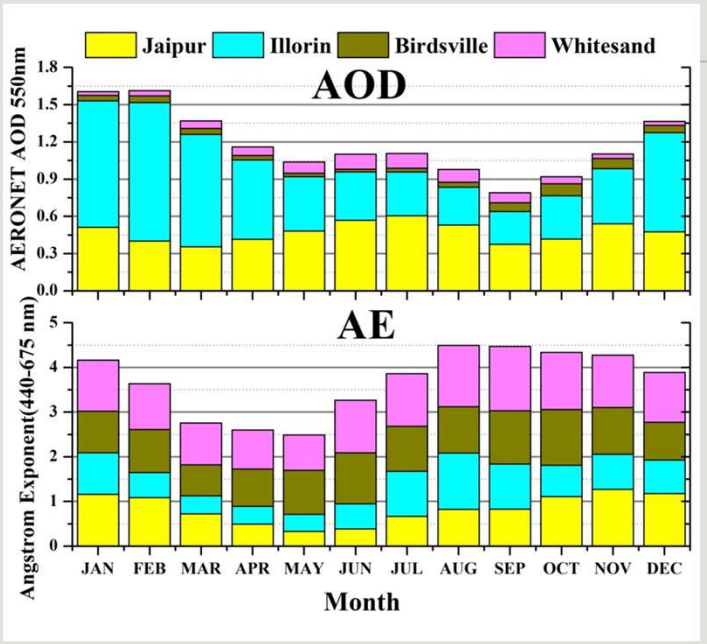
For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

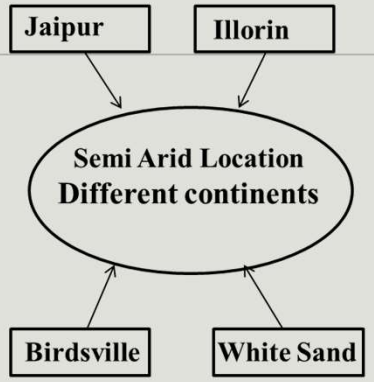


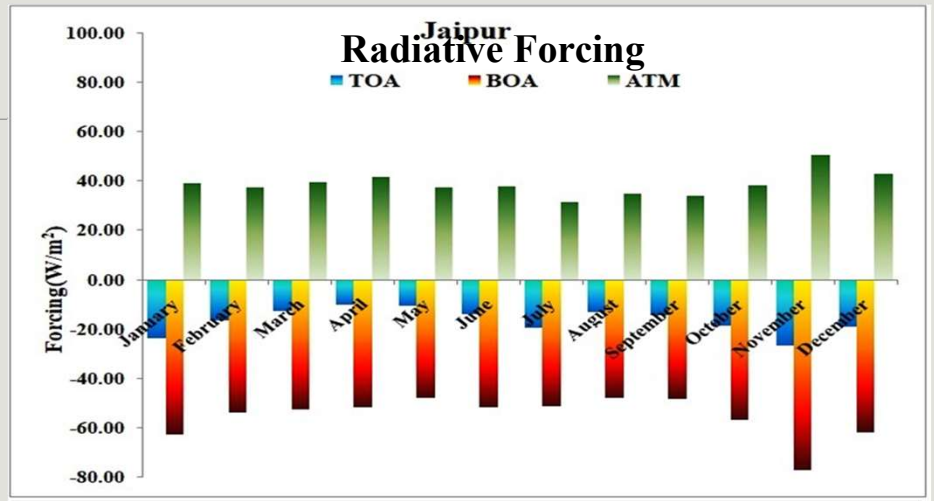
Radiative Forcing over India and Surroundings

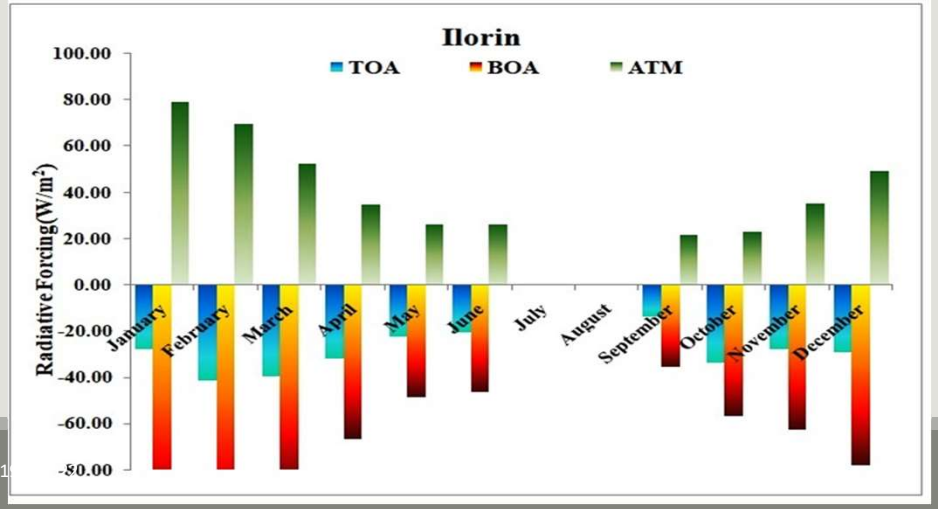
Recent Paper

Aerosols properties over desert influenced locations situated in four different continents

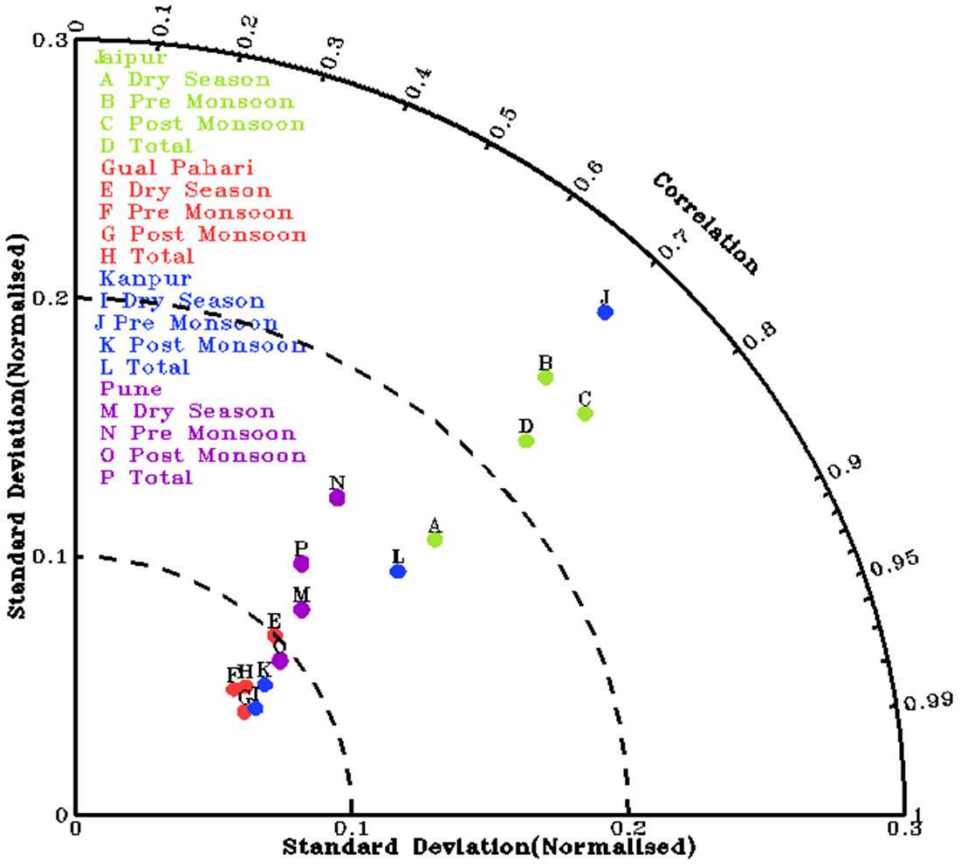


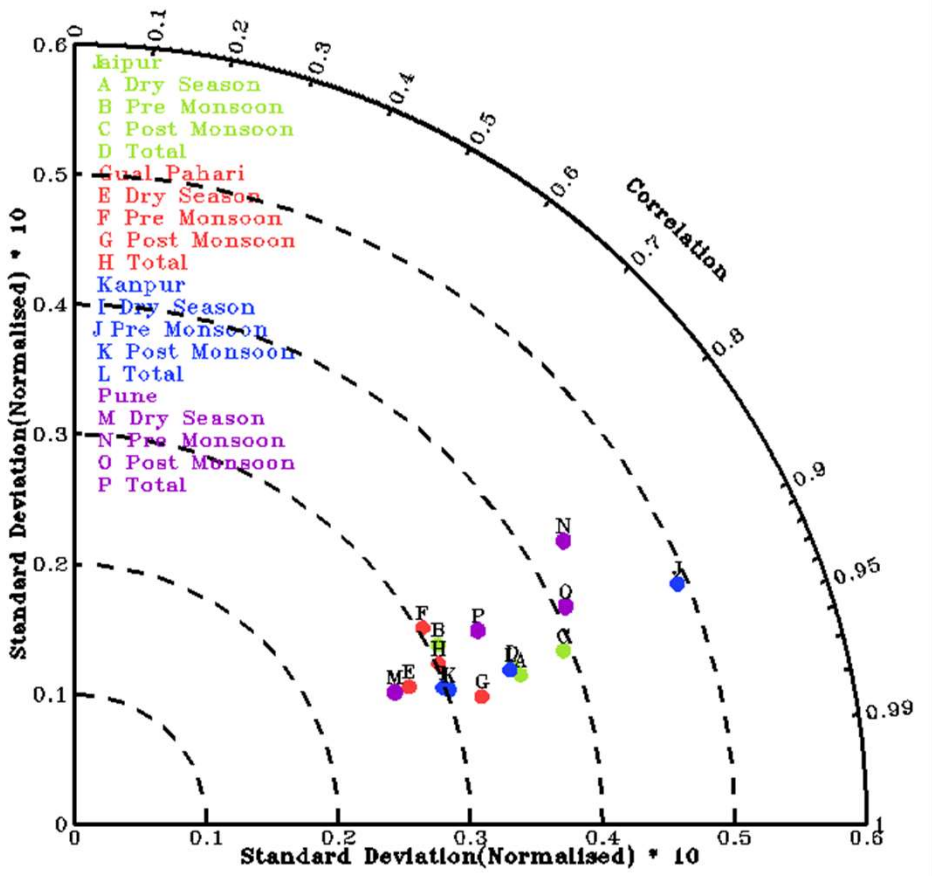






Aerosols properties over desert influenced locations situated in four different continents Atmospheric Environment :
https://doi.org/10.1016/j.atmosenv.2021.118232
IF= 4.8 Indexing: SCI





Taylor diagrams for Jaipur, Kanpur, Gual Pahari and Pune

a) without Error Envelope criterion

b) b) with EE criterion between

ground based remote sensing(AERONET) and Satellite based Remote Sensing (MODIS)

Swagata Payra et al., Environmental Science and Technology, IF =9.1

Atmospheric Pollution Research xxx (xxxx) xxx–xxx

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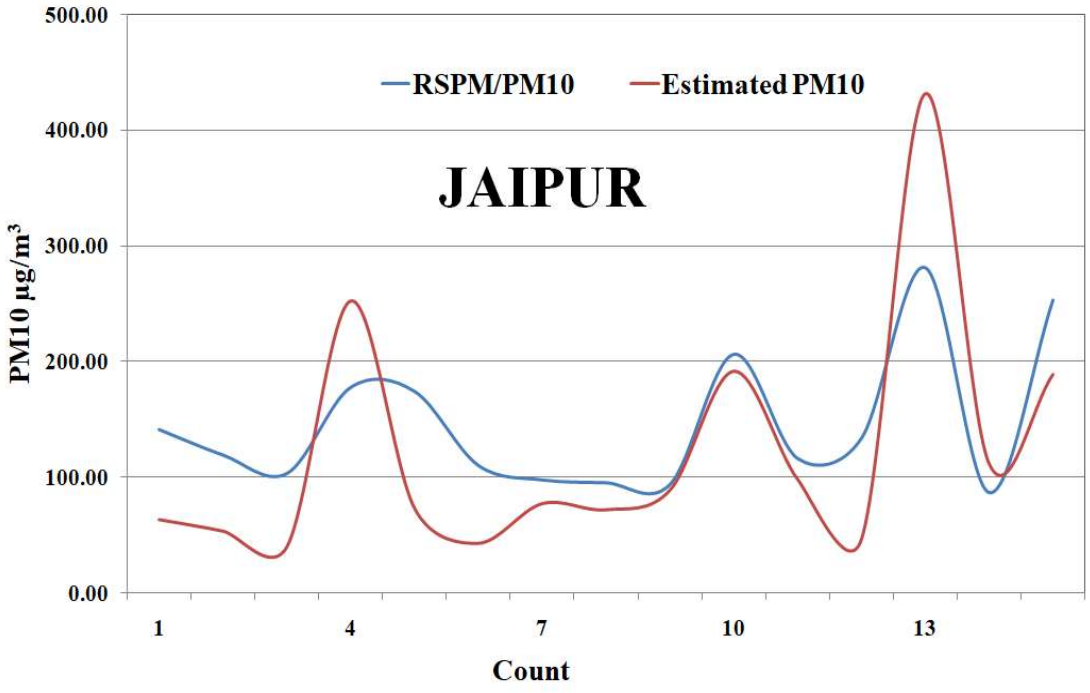
IF:- 4.35

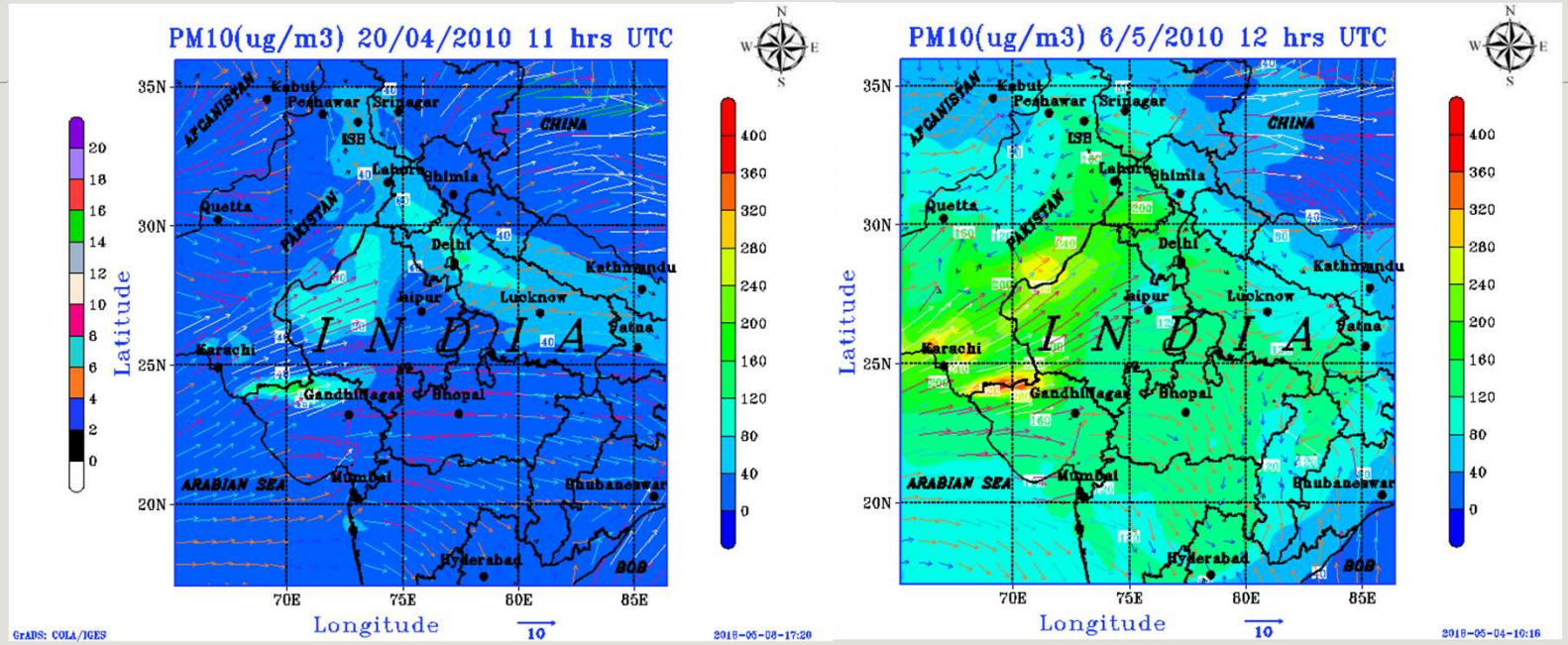
Particulate matter estimation over a semi arid region Jaipur, India using satellite AOD and meteorological parameters

Manish Soni[a], Swagata Payra[a,*], Sunita Verma[b]

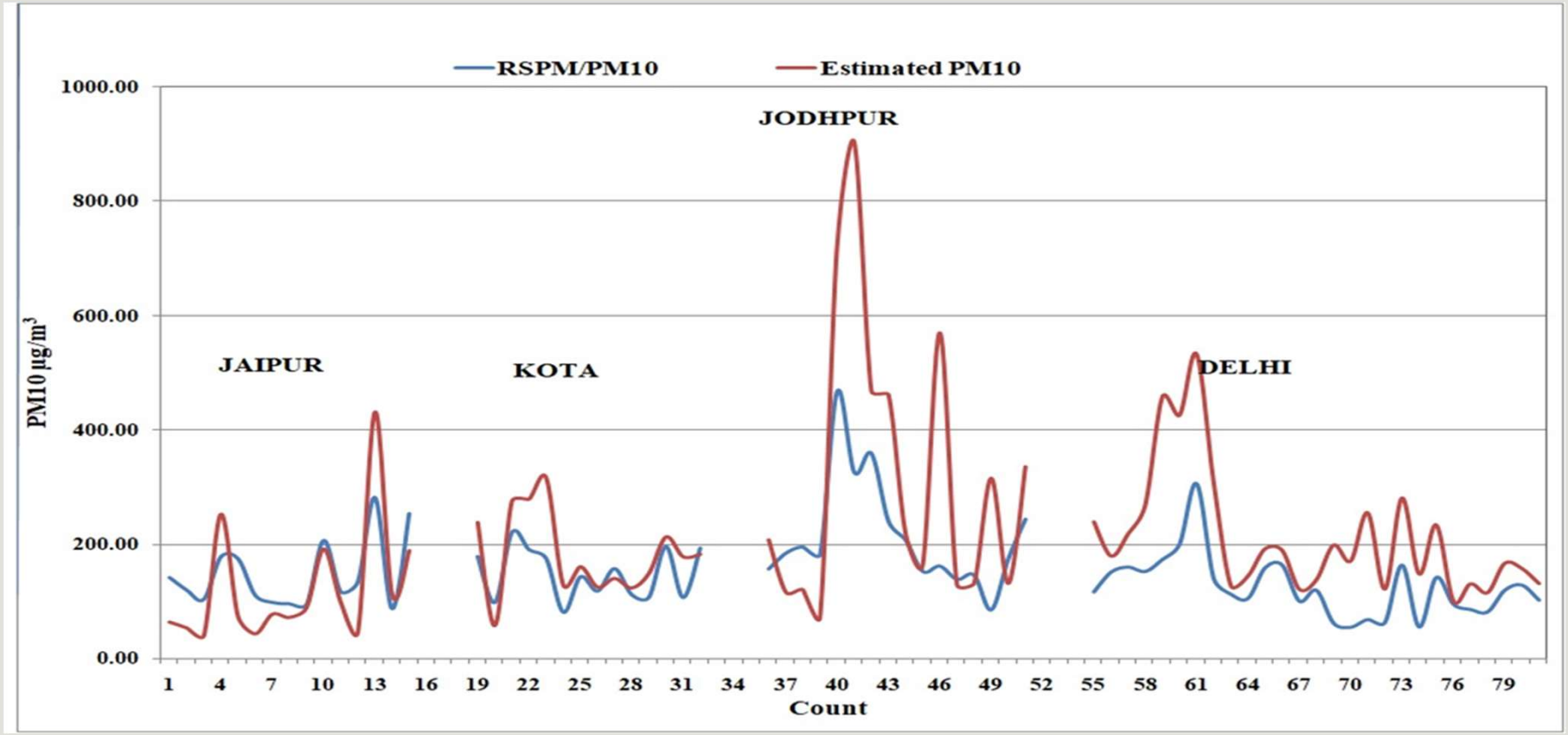
[a] Department of Physics, Birla Institute of Technology Mesra, Jaipur Campus, 27 Malviya Industrial Area, Jaipur, 302017, India
[b] Department of Environment and Sustainable Development (ESD), Banaras Hindu University (BHU), Varanasi, 22105, UP, India



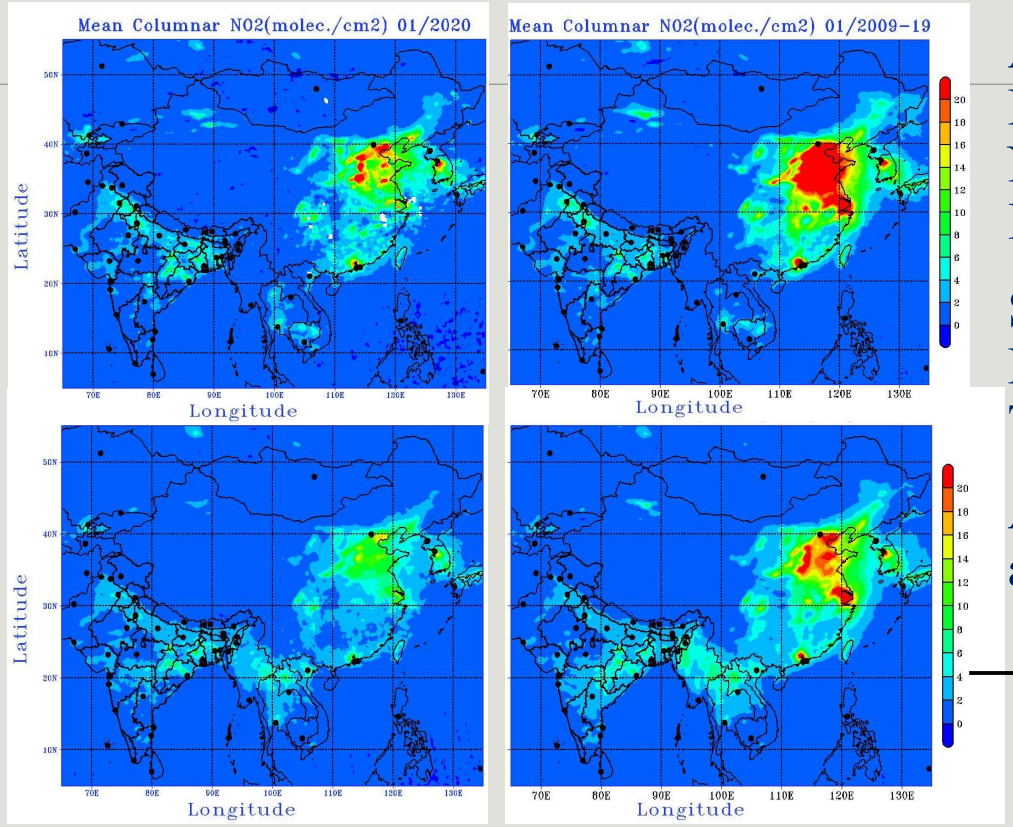
Particulate Pollution Modeling during Dust Storm



M Soni, S Verma, M K. Mishra, R K Mall, S Payra (2022). Estimation of Particulate Matter Pollution using WRF-Chem during dust storm event over India. Urban Climate, Accepted, UCLIM-D-21-00536.IF: 5.731


RSPM/PM10
Estimated PM10
1000.00
800.00
600.00
400.00
200.00
0.00
PM10 µg/m3
JAIPUR
KOTA
JODHPUR
DELHI
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79
Count

Impact of COVID-19 on the Air Quality over China and India Using Long-term (2009-2020) Multi-Satellite Data



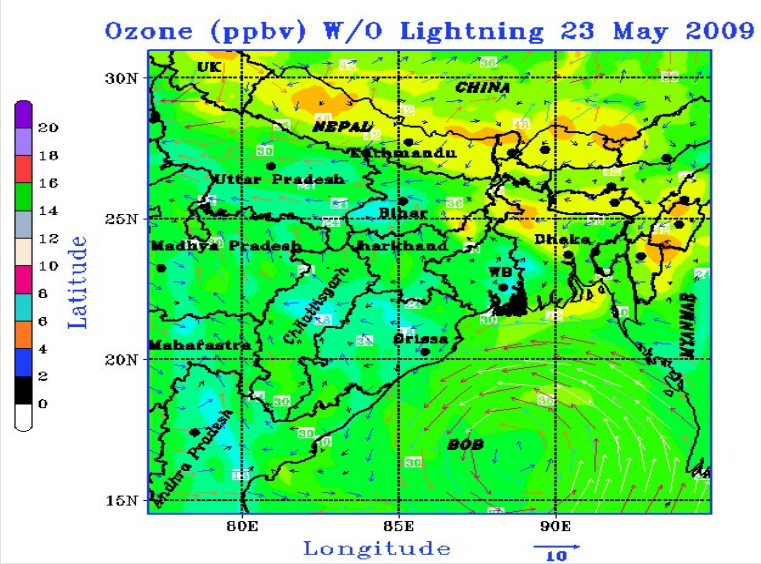
Air Quality Parameters: AOD, NO_2, SO_2, Aerosol Index

Satellite Products: MODIS, OMI, TROPOMI

Area of Interest: China and India

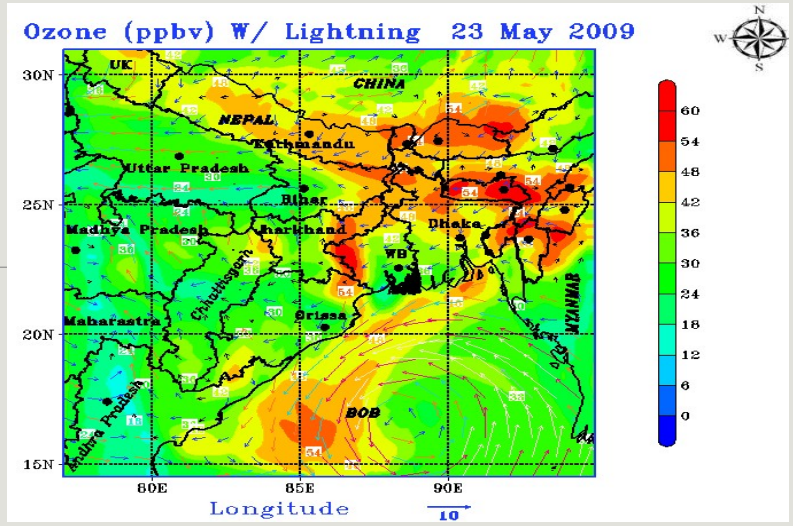
→ **Mar 2020 and Mar 2009-19**

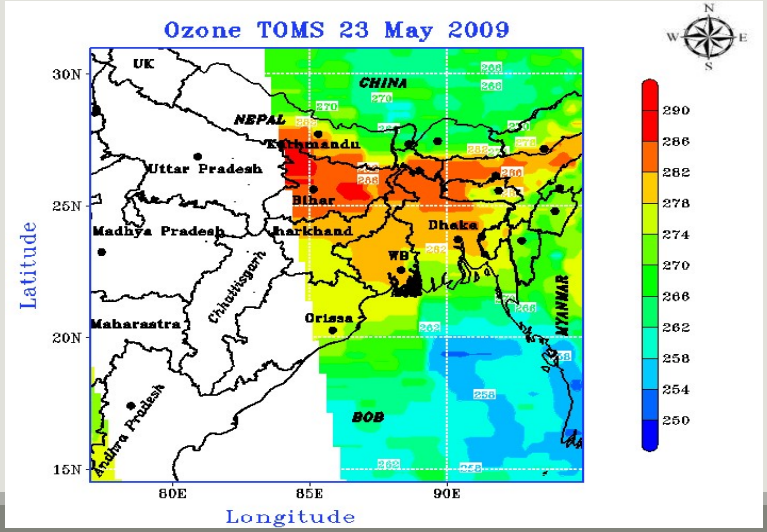
Aerosol and Air Quality Research https://doi.org/10.4209/aaqr.2020.06.0295 (IF=3.06 Indexing: SCIE)



←WRF-Chem with Lightning Module OFF

WRF-Chem with Lightning Module ON→

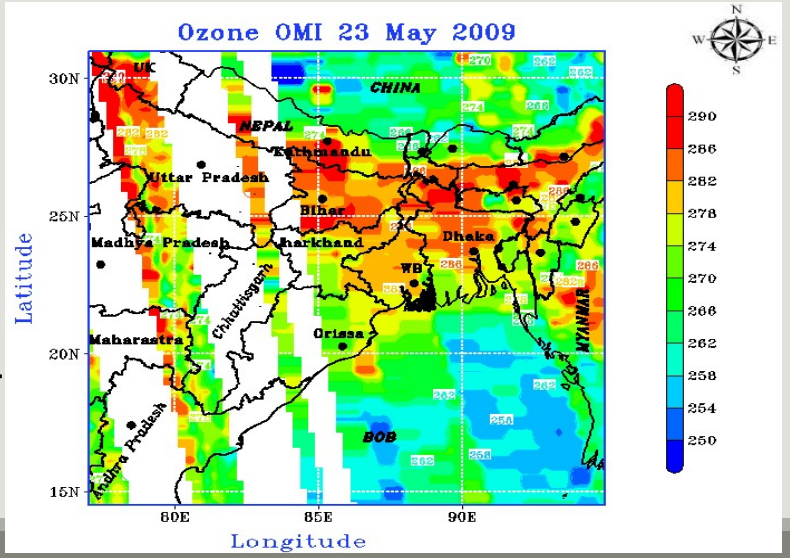




← Ozone TOMS 0.25 degree resolution

Ozone OMI 0.25 degree resolution→-

White color shows no data or data missing →



Under preparation

Delhi has significant frequencies of low winds, especially at night. Due to some other local factors, scientists say, fog prediction is a complex process and requires adequate representation of the local perturbations in weather prediction techniques.

The model, brought out by IIT Delhi Professor Manju Mohan and Swagata Payra of the Centre of Excellence in Climatology, is pivoted on an approach known as Multi-rule Based Diagnostic (MRD) which characterises the local atmospheric conditions.

"Fog prediction has long been a challenge for operational forecast. This is mainly due to lack of appropriate fog physics in current operational models. The method has been used for prediction after successful validation for surface temperature, relative humidity, and wind speed over the region of interest," Mohan and Payra said describing their study.

"After analysis of numerous simulations over the study area, criteria for the above meteorological parameters are used to determine the onset of fog. The MRD approach helps predict fog for the next three days. There is a 95 per cent success rate for predictions; in more than half, i.e. 56 per cent, of onset time predictions, we achieved an accuracy of 30 minutes, while 84 per cent of the times, there was an accuracy of 90 minutes," they added.

Dense fog is known to disrupt life in the Capital and NCR every winter, causing several accidents and throwing flight schedules in disarray. Visibility is lowest during the peak winter months of December and January.

Fog continues to elude scientists

K V Venkatasubramanian | 6 Jan 2015 4:27 AM | New Delhi

Fog has a significant impact on economic and safety aspects too. Timely and accurate forecasts of reduced visibility are essential for agencies responsible for road safety, search and rescue operations and air traffic management. Nevertheless, officials in meteorological departments' around the country find it difficult to forecast fog conditions, as its formation involves different physical processes. These conditions make it difficult to model fogs. The occurrence of fog can be predicted with 95 per cent accuracy, by a new method that was recently developed by two scientists, namely, Dr SwagataPayra, Birla Institute of Technology (BIT), Mesra, Rajasthan, and Dr Manju Mohan, a professor at Centre for Atmospheric Sciences, IIT.

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New weather forecasting trick predicts fog with 95 per cent accuracy

By NEETU CHANDRA SHARMA
PUBLISHED: 03:10 BST, 26 December 2014 | **UPDATED:** 03:10 BST, 26 December 2014

Fog predictions could become more accurate with a new method developed by the Indian Institute of Technology (IIT) Delhi, in association with the Centre of Excellence in Climatology.

The new method uses a high-resolution Weather Research and Forecasting (WRF) model, through which the likeliness of foggy and non-foggy days is identified.

Delhi often experiences low winds, especially at night. Due to some other local factors, scientists say, fog prediction is a complex process and requires adequate representation of the local perturbations in weather prediction techniques.

The model, brought out by IIT-Delhi Professor Manju Mohan and Swagata Payra of the Centre of Excellence in Climatology, is pivoted on an approach known as Multi-rule Based Diagnostic (MRD) which characterises the local atmospheric conditions.

"Fog prediction has long been a challenge for operational forecast. This is mainly due to lack of appropriate fog physics in current operational models. The method has been used for prediction after successful validation for surface temperature, relative humidity, and wind speed over the region of interest," Mohan and Payra said describing their study.

"After analysis of numerous simulations over the study area, criteria for the above meteorological parameters are used to determine the onset of fog. The MRD approach helps predict fog for the next three days. There is a 95 per cent success rate for predictions; in more than half, i.e. 56 per cent, of onset time predictions, we achieved an accuracy of 30 minutes, while 84 per cent of the times, there was an accuracy of 90 minutes," they added.

आईआईटी दिल्ली और बीआईटी मिसरा ने विकसित की तकनीक, 90 मिनट तक भविष्यवाणी हो सकेगी

36 घंटे पहले कोहरे का सटीक अनुमान

सुविधा

नई दिल्ली | अनुराग मिश्र

दिल्ली में कोहरे का 95 फीसदी तक सही तरीके से आकलन संभव हो सकेगा। आईआईटी दिल्ली और बीआईटी मिसरा के वैज्ञानिकों ने मिलकर एक नई तकनीक मल्टीरूल बेस्ड डायगोनस्टिक (एमआरडी) विकसित की है, जिसके आधार पर कोहरे का अनुमान बेहतर तरीके से लगाया जा सके। नई तकनीक के तहत 36 घंटे पहले इस बात का पता लगाया जा सकेगा कि आने वाले समय में कितना कोहरा पड़ेगा।

दिल्ली आईआईटी के सेंटर फॉर एटमॉस्फेरिक साइंसेज के वैज्ञानिक मंजू मोहन और स्वागत पायरा ने बताया कि दिल्ली में कोहरा पिछले दो दशकों से परेशानी का कारण साबित हो रहा है। दिल्ली में कोहरे की वजह मुख्यतः पश्चिमी विक्षोभ का नमी के साथ संयोग होना होता है। पर बीते कुछ समय में पश्चिमी विक्षोभ और प्रदूषण की वजह से सिनर्जी प्रभाव बन रहा है जो कोहरे की स्थिति को और विकराल बना रहा है।

पायरा ने बताया कि नया तरीका कोहरे के बारे में सही अनुमान देने में सक्षम होगा। दिल्ली में रात के समय हवाओं के स्तर और घरेलू प्रभावों की वजह से मौसम के बारे में सही जानकारी देने में मुश्किल होती है। उन्होंने कहा कि एमआरडी से सतह के तापमान, आर्द्रता और उस क्षेत्र में हवा की गति के आधार पर सटीक पता लगाया जा सकेगा।

इस तकनीक के आधार पर तीन दिन पहले कुहासे के बारे में भविष्यवाणी की जा सकेगी। जबकि 36 घंटे पहले के बारे में पूरी तरह सटीक पूर्वानुमान लगाना संभव होगा। तीस मिनट की अवधि के लिए किया गया अनुमान 84 फीसदी तक सही होगा तो 90 मिनट की अवधि के लिए की गई भविष्यवाणी पूरी तरह सही होने का दावा किया गया है।

दो दशकों में बढ़ा कोहरा: दिल्ली में बीते दो दशकों में कोहरे का कहर बढ़ा है। वर्ष 1996 में जहां 46 दिन कोहरा पड़ा था तो 2013 में 74 दिन कोहरे की मार झेली। आईआईटी दिल्ली के शोध में यह बात सामने आई है। अध्ययन में कोहरा बढ़ने का कारण मुख्य रूप से औद्योगिकीकरण और उसकी वजह से बढ़े प्रदूषण को माना गया है।

आईआईटी दिल्ली के वायुमंडलीय विज्ञान केंद्र के शोध के मुताबिक वर्ष 1951 में सिर्फ एक दिन कोहरा पड़ा था। वर्ष 1955 में राजधानी में नौ दिन कोहरा पड़ा था, जिसने पहली बार यहां के लोगों को परेशान किया था। आईआईटी के एक प्रोफेसर के मुताबिक वर्ष 1991 के बाद देश में तेज गति से हुए औद्योगिकीकरण और उसके कारण बेहद तेजी से बढ़े वायु प्रदूषण की वजह से दिल्ली में लगातार हर साल कोहरे के दिनों में इजाफा हुआ है। वर्ष 2000 में 47 दिन कोहरा पड़ा। इसने दिल्ली के लोगों के जीवन पर बुरा प्रभाव डाला वर्ष 2006 तक आते-आते इन दिनों की संख्या 77 हो गई थी।

ऐसे होता है आकलन

हवा में आर्द्रता, उसका तापमान, उसकी गति और जमीन की नमी के आधार पर यह मॉडल गणना करता है। कोहरे की जानकारी के लिए ये कारक बहुत महत्वपूर्ण हैं। दिल्ली के मौसम पर स्थानीय के साथ-साथ बाहर की स्थितियों का प्रभाव भी पड़ता है। कोहरे के बारे में जानकारी देने के लिए मॉडल इन जानकारी का भी उपयोग करता है।

दो भागों में किया गया शोध

इस शोध को दो भागों में किया गया। पहले भाग में डब्ल्यूआरएफ मॉडल का इस्तेमाल किया गया। वर्ष 2006, 07 और 08 में इसका इस्तेमाल किया गया। दूसरे भाग में कोहरे के पूर्वानुमान की गणना के बारे में शोध किया गया।

राजधानी में हर वर्ष कोहरा बढ़ता जा रहा है, जिसके चलते सड़क पर चलना भी मुश्किल हो जाता है। • फाइल फोटो

यह होंगे फायदे • एयरपोर्ट और रेलवे गाड़ियों का आकलन और इंतजाम पहले से कर सकेंगे • कोहरे को लेकर सटीक सलाह जारी की जा सकेंगे • सड़क दुर्घटनाओं में कमी आएगी

बीते कुछ वर्षों में कोहरे की स्थिति

(संबंधित वर्ष में कितने दिन कोहरा पड़ा उसकी स्थिति दर्शायी गई है)

मंगलवार सुबह पड़ेगा कोहरा

मंगलवार को सुबह कोहरा दर्ज किया जा सकता है। दृश्यता 100 मीटर के स्तर तक गिर सकती है। पहाड़ों की ओर से आने वाली हवाओं के चलते मंगलवार से न्यूनतम तापमान में तीन से चार डिग्री तक गिरावट आ सकती है।

Hindustan times

DR. C. JEGANATHAN

Research areas actively pursuing:

- Remote Sensing based vegetation and environmental Analysis
- Modelling Space-Time vegetation dynamics
- Land Surface Phenology and Climate Change
- Landscape Metrics and Modelling
- Land Cover Change Modelling
- Geostatistical Modelling
- Downscaling of Satellite data
- Spatial Multi-criteria decision modelling
- RSGIS Software Development

Softwares Developed:

1. BioCAP software Product (Installable package) + Technical & User Manual. Output Product from DOS-DBT project Phase-I, Govt. of India National Project.
2. SPLAM software Product (Installable package) + Technical & User Manual. Output Product from DOS-DBT project Phase-II, Govt. of India National Project.
3. Spatial Decision Support Tools under GIS Environment. Output Product from Technology Development Project of ISRO (TDP Code: 749-14).
4. STAMP- Customised Software Package – Spatio-Temporal Analysis and Modelling of Phenology of natural vegetation using ArcGIS, Arcobjects and Visual Basic (Software Product and Manuals). ICIMOD-NASA-SERVIR Project over Hindu Kush Himalaya using Satellite Remote Sensing and Geographic Information System.
5. ADAMS- Customised Software Package – Agriculture Drought Assessment and Management System using ArcGIS, Arcobjects and Visual Basic (Software Product and Manuals). IWMI Drought Monitoring Project over South Asia using Satellite Remote Sensing and Geographic Information System.

DR. N. PATEL

NICHE RESEARCH AREAS:

URBAN ANALYTICS, LAND DEGRADATION, SOIL EROSION, SOIL ORGANIC CARBON AND MOISTURE, SNOW CHARACTERIZATION, CLIMATE CHANGE, NATURAL HAZARDS

LATEST RESEARCH CARRIED OUT:

SOIL EROSION, FOREST FIRE VULNERABILITY ASSESSMENT, SNOW CHARACTERIZATION

Innovative Findings:

Developed a new Thermal Snow Index (S3TSI) to map snow cover in vegetated terrain:

Published (R Kour, N Patel, AP Krishna, Development of a New Thermal Snow Index and its Relationship with Snow Cover and Snow Cover Characteristics Indices, Arabian Journal of Geosciences (Springer) DOI 10.1007/s12517-015-2143-6, 9:71, pp. 1-11, (2016)).

Determined relationship between soil erosion and geomorphology:

Published (AK Kathwas, N Patel, Geomorphic Control on Soil Erosion–a Case Study in the Subarnarekha Basin, India, Polish Journal of Soil Science, DOI: http://dx.doi.org/10.17951/pjss.2021.54.1.1-24, Vol. 54, Issue 1, pp. 1-24, 2021)

DR. A.P. KRISHNA

Research Activity:

Scientific activities have centred around the research thrust areas –

- Climate Change, Snow Cover, Glacier Dynamics;
- Natural Hazards, Disaster Management;
- Natural Resources and Basin Hydrology;
- Planetary Remote Sensing, Satellite Geodesy, Geo-sciences;
- Urban and Built Environment

Climate Change, Snow Cover, Glacier Dynamics

- 2 doctoral research with multiple good quality publications/conference presentations, Ph.D. degrees already awarded.
- 1 more scholar has started work in this area towards doctoral research.
- In addition, 3 PG dissertations of one year duration (M.Tech.-Remote Sensing) and 2 PG thesis of 6 months duration (M.Sc.-Geoinformatics) have also been mentored.
- 2 of the M.Tech dissertations jointly supervised with supervisors from Remote Sensing Group Bern, University of Bern, Switzerland and University of Zurich, Switzerland (later Delhi University).

Natural Hazards, Disaster Management

- 3 doctoral research with multiple good quality publications/conference presentations as well as Ph.D. degrees already awarded.
- In addition, 3 PG dissertations of one year duration (M.Tech.-Remote Sensing) and 4 PG thesis of 6 months duration (M.Sc.-Geoinformatics) have also been mentored.

Natural Resources and Basin Hydrology

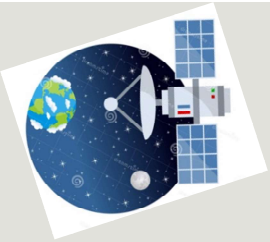
- 3 doctoral research with multiple good quality publications/conference presentations, Ph.D. degrees already awarded.
- 3 more scholars have started work in this area towards doctoral research.
- In addition, 7 PG dissertations of one year duration (M.Tech.-Remote Sensing) and 4 PG thesis of 6 months duration (M.Sc.-Geoinformatics) have also been mentored.
- At present, one DST-SERB funded project is underway on river basin level hydrology.

Planetary Remote Sensing, Satellite Geodesy, Geo-sciences

- 3 doctoral research scholars being supervised towards Ph.D. degree with works in advanced stages with multiple good quality publications/conference presentations.
- This is as an outcome of 2 ISRO funded projects on planetary remote sensing (Chandrayan-1 and Mars Orbiter Mission - MOM).
- In addition, 1 PG dissertation of one year duration (M.Tech.-Remote Sensing) and 1 PG thesis of 6 months duration (M.Sc.-Geoinformatics) have also been mentored.

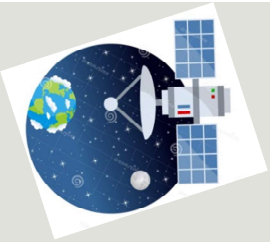
Urban and Built Environment

- 2 doctoral research with multiple good quality publications/conference presentations, Ph.D. degrees already awarded.
- In addition, 5 PG dissertations of one year duration (M.Tech.-Remote Sensing) and 4 PG thesis of 6 months duration (M.Sc.-Geoinformatics) have also been mentored.



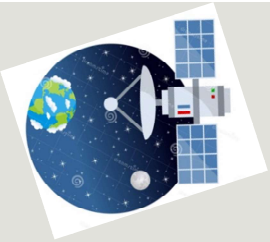
Mission 2025 Plans

- Continue the Publications Trend and Project Acquisition Efforts. (30 Publications 2021 to 2025; Project Grant worth 2 Crore).
- Expand Horizon in the domain of Atmosphere, Deep Learning & WEB-GIS.
- Start New Courses: M.Tech. (Climate Change Modelling) and M.S. by Research (Geospatial Technology & Applications).
- Increase the Ph.D. Scholar to full strength.
- Increase International Collaboration, and this may lead to Dual Degree (with a Foreign visit for a Semester) in the future which will help in increasing research output and attracting new admissions.



Instrument & Software Facilities

- UAV(Drone): Quadcopter with
  - thermal sensor
  - optical camera and day night surveillance camera
  - Laser and Multispectral camera (in the process of purchase)
- Field Spectrometer (in the process of purchase)
- Lieca DGPS Smart Station
- Handheld GPS, Digital Photogrammetry Workstations
- A0 Plotter/Scanner
- LEICA Remote Sensing/Image Processing Software
- ARC-GIS & ERDAS IMAGINE
- Watershed Modelling System (WMS)
- Terrset – Geospatial Monitoring and Modelling Software
- Open Source Software GRASS, QGIS, E-Photo, & R
- Pix4D software for Drone data processing and 3D Modelling
- High-end Workstations, Laptops, Tabs etc.



Future Research Plan

- Mars/Moon Planetary studies
- Air Pollution over Mega Cities
- Atmospheric Chemistry related studies
- Ionospheric Total Electron Content in Earthquake Prediction
- Water Pollution/Quality Assessment over Major Rivers
- UAV based Micro-Contouring, 3D modelling, Automated Feature Extraction
- Climate Change Impact on Vegetation pigments/nutrients
- Glacial Dynamics
- Forest Biomass/Carbon Sequestration
- Forest/Agriculture Vulnerability to climate change
- Precision Agriculture
- Urban Flood Simulation/mitigation

GLIMPSE of NICES workshop

ISRO Chairman Dr. Kiran Kumar addressing Our students through EDUSAT

Students enjoying Field Trip 2019

Students enjoying Field Trip 2019

Our Faculty Outreach Activity

Egypt Conference Visit
Dr.Richa Sharma,2019

Dr. Mili Ghosh & Dr. A.P. Krishna
2nd Lunar Science Meet, 2019

1st Prize in Research Colloquium

3rd Prize (Poster) Research Colloquium

Our Ph.D. Scholars receiving Awards

Best Paper Award in a National Conference

Our Faculty Receiving **Indian National Geospatial Award Citation and Medal** from Dr. Anna Durai (Mars Mission Director, ISRO)

Our Faculty Presenting in International Conference

DAAD-RISE Visiting scholar

Mr. Dominick Weckmuller

University of Heidelberg, Germany, June 2018

Recent Publications by Faculty members of Department of Remote Sensing covering relevant themes

Sl. No.	Title of paper	Name of the author/s	Name of journal (Impact Factor)	Year of publication	ISSN number	DOI
1	Spatio-temporal variability of lightning activity over J&K region and its relationship with topography, vegetation cover, and absorbing aerosol index (AAI)	Mushtaq F, Lala Mili G N, Anand Abhishek	Journal of Atmospheric and Solar-Terrestrial Physics (1.79)	2018	P-ISSN: 1364-6826	https://doi.org/10.1016/j.jastp.2018.08.011
2	Multi-polarized Radarsat-2 satellite sensor in assessing forest vigor from above ground biomass	Suman Sinha, Santra, A., Sharma, L.K., Jeganathan, C., Nathawat, M.S., Das, A.K. and Shiv Mohan	Journal of Forestry Research (1.155)	2018	P-ISSN: 1007-662X E-ISSN: 1993-0607	https://doi.org/10.1007/s11676-017-0511-7
3	Extracting Mountain Agriculture from Time-Series MODIS NDVI using Dynamic Time Warping Technique	Saptarshi Mondal and Jeganathan C.	International Journal of Remote Sensing (2.493)	2018	P- ISSN: 0143-1161 E- ISSN: 1366-5901	http://dx.doi.org/10.1080/01431161.2018.1444289
4	A baseline regional evapotranspiration (ET) and change hotspots over Indian sub-tropics using satellite remote sensing data	Shweta, Bhattacharya, B K, Krishna, A P,	Agricultural Water Management (3.542)	2018	P-ISSN: 0378-3774	http://dx.doi.org/10.1016/j.agwat.2018.06.024
5	Slope failure susceptibility zonation using integrated remote sensing and GIS techniques: a case study over Jhingurdah open pit coal mine, Singrauli Coalfield, India	Sengupta, S, Krishna, A P, Roy, I	Journal of Earth System Science (1.104)	2018	P-ISSN: 0253- E-ISSN :0973-774X	https://doi.org/10.1007/s12040-018-0982-8
6	Assessment of groundwater potential zones in coal mining impacted hard-rock terrain of India by integrating geospatial and analytic hierarchy process (AHP) approach	Kumar, A, Krishna, A P	Geocarto International (2.365)	2018	P- ISSN: 1010-6049 E- ISSN: 1752-0762	https://doi.org/10.1080/10106049.2016.1232314
7	A comprehensive optimization model for integrated solid waste management system: A case study	Paul, K., Chattopadhyay, S., Dutta, A.K., Krishna, A.P., & Ray, S.	Environmental Engineering Research (1.087)	2018	P-ISSN : 1226-1025 E-ISSN : 2005-968X	https://doi.org/10.4491/eer.2018.132

Recent Publications by Faculty members of Department of Remote Sensing covering relevant themes

Sl. No.	Title of paper	Name of the author/s	Name of journal (Impact Factor)	Year of publication	ISSN number	DOI
8	Wavelet and non-parametric statistical based approach for long term land cover trend analysis using time series EVI data	Niraj Priyadarshi, V.M. Chowdary, Iswar Chandra Das, Jeganathan C., Y.K. Srivastava, G Srinivasa Rao, Uday Raj & Chandra Shekhar Jha	Geocarto International **(2.365)**	2018	P- ISSN: 1010-6049 E- ISSN: 1752-0762	https://doi.org/10.1080/10106049.2018.1520925
9	Evaluating the performance of multiclass and single-class classification approaches for mountain agriculture extraction using time series NDVI	Saptarshi Mondal and Jeganathan, C.	Journal of Indian Society of Remote Sensing **(0.869, Reputed Indian journal)**	2018	P-ISSN: 0255-660X E-0974-3006	http://dx.doi.org/10.1007/s12524-018-0852-5
10	Bayesian Dynamic Linear Model for estimation of phenological events from Remote sensing data	Margaret Johnson, Petrutza C. Caragea, Wendy Meiring, C. Jeganathan and Peter M. Atkinson	Journal of Agricultural, Biological and Environmental Statistics **(1.203)**	2018	P-ISSN:10857117, 15372693	https://doi.org/10.1007/s13253-018-00338-y
11	Accounting tropical forest carbon stock with synergistic use of space-borne ALOS PALSAR and COSMO-Skymed SAR sensors	Suman Sinha, A. Santra, A. K. Das,L. K. Sharma, Shiv Mohan,M. S. Nathawat, S. S. Mitra & C. Jeganathan	Tropical Ecology **(0.647)**	2019	P-ISSN: **0564-3295** **E-ISSN:**2661-8982	http://dx.doi.org/10.1007/s42965-019-00011-6
12	Understanding Spatio-temporal Pattern of Grassland Phenology in the western Indian Himalayan State	Harshit Rajan and Jeganathan, C	Journal of Indian Society of Remote Sensing **(0.869, Reputed Indian journal)**	2019	P-ISSN: 0255-660X E- ISSN:0974-3006	http://dx.doi.org/10.1007/s12524-019-00976-w
13	Groundwater vulnerability and contamination risk assessment using GIS-based modified DRASTIC-LU model in hard rock aquifer system in India	Kumar, A, Krishna, A P	Geocarto International **(2.365)**	2019	P-ISSN: 1010-6049 E- ISSN: 1752-0762	https://doi.org/10.1080/10106049.2018.1557259
14	Spatio-temporal change of surface temperature of Himalayan Lake and its inter-relation with water quality and growth in aquatic vegetation	Mushtaq F,Ahmed P and Lala Mili G N	Geocarto International **(2.365)**	2019	P-ISSN: 1010-6049 E- ISSN: 1752-0762	https://doi.org/10.1080/10106049.2019.1590467

Recent Publications by Faculty members of Department of Remote Sensing covering relevant themes

Sl. No.	Title of paper	Name of the author/s	Name of journal (Impact Factor)	Year of publication	ISSN number	DOI
15	Seasonal thermal inertia variations at Gale crater: Role of active surface deposition phenomena	Rangarajan V. G, Ghosh M.	Icarus (3.565)	2019	P-ISSN: 0019-1035	http://dx.doi.org/10.1016/j.icarus.2019.113499
16	Multi-sensor approach integrating optical and multi-frequency synthetic aperture radar for carbon stock estimation over a tropical deciduous forest in India	Suman Sinha, Shiv Mohan, A.K. Das, L.K. Sharma, C. Jeganathan, A. Santra, S. Santra Mitra and M.S. Nathawat	Carbon Management **(1.463)**	2019	P- ISSN: 1758-3004 E- ISSN: 1758-3012	https://doi.org/10.1080/17583004.2019.1686931
17	Spatio-temporal change assessment of glacier extent in Sikkim Himalaya, India using geospatial techniques	Hazra, P and Krishna, A P	Environmental Earth Sciences **(1.871)**	2019	P-ISSN: 1866-6280 E-ISSN:1866-6299	https://doi.org/10.1007/s12665-019-8390-1
18	Effects of landuse and landcover dynamics on the migration and demographic pattern of tribal population using Geospatial techniques	Kathwas, A.K., Patel, N.	Theoretical and Empirical Researches in Urban Management **(Scopus indexed)**	2019	P-ISSN: 20653913 E-ISSN:20653921	https://ideas.repec.org/a/rom/terumm/v14y2019i3p77-97.html
19	Correlating Thermal Anomaly with Earthquake Occurrences using Remote Sensing Data	Mukhopadhy,U.K, Sharma, R,N.K. , Anwar, S and Dutta,A.	Advances in Intelligent Systems and Computing **(0.57)**	2019	P-ISSN: 2194-5357	http://dx.doi.org/10.1007/978-3-030-14118-9_85
20	Seven-Component Scattering Power Decomposition of POLSAR Coherency Matrix	Singh, G., Malik, R., Mohanty S, Rathore,V. S., Yamada, K., Umemura, M., and Yamaguchi,Y.	IEEE Transactions on Geoscience and Remote Sensing **(5.63)**	2019	P- ISSN: 0196-2892 E- ISSN: 1558-0644	https://doi.org/10.1109/TGRS.2019.2920762
21	Forest-cover change over Chotanagpur– An empirical approach on periodic sequence	Sharma, R.N.K**., Pandey, A.K. and Sharma, G.P.**	Indian Forester **(Reputed Indian journal since 1875)**	2019	P-ISSN: 0019-4816	https://portal.issn.org/resource/ISSN/2321-094X

Recent Publications by Faculty members of Department of Remote Sensing covering relevant themes

Sl. No.	Title of paper	Name of the author/s	Name of journal (Impact Factor)	Year of publication	ISSN number	DOI
22	Regression-based integrated Bi-Sensor SAR Data Model to Estimate Forest Carbon Stock.	Suman Sinha, A. Santra, A.K. Das, L.K. Sharma, Shiv Mohan, M.S. Nathawat, S. Santra Mitra and C. Jeganathan	Journal of Indian Society of Remote Sensing, **Springer.** **(0.87)**	2019	P-ISSN: 0255-660X E- ISSN:0974-3006	http://dx.doi.org/10.1007/s12524-019-01004-7
23	InSAR-Based Tree Height Estimation of Hilly Forest Using Multitemporal Radarsat-1 and Sentinel-1 SAR Data	Kumar, Praveen and **Krishna, A P**	**IEEE** Journal of Selected Topics in Applied Earth Observations and Remote Sensing **SCI, (4.493)**	2020	P-ISSN: 1939-1404 E- ISSN:2151-1535	https://doi.org/10.1109/JSTARS.2019.2963443
24	Developing and optimising an urban Integrated Solid Waste Management model: effect of transfer stations	Paul, Koushik, Chattopadhyay, S, Dutta, A, **Krishna, A P**, Ray, S	Journal of Urban and Environmental Engineering **(0.41)**	2020	ISSN:19823932	http://dx.doi.org/10.4090/juee.2020.v14n1.119131
25	Forest biomass estimation using multi polarisation SAR data coupled with optical data	Kumar, Praveen & **Krishna, A P**	Current Science **(1.102)**	2020	ISSN: 0011-3891	http://dx.doi.org/10.18520/cs/v119/i8/1316-1321
26	Identification of Desakota Region and Urban Growth Analysis in Patna City, India Using Remote Sensing Data and GIS	Khan, Badiuzaman, Rathore, V S, **Krishna, A P**	Journal of the Indian Society of Remote Sensing, Springer Nature **(1.689)**	2020	P-ISSN: 0255-660X E- ISSN:0974-3006	https://doi.org/10.1007/s12524-020-01248-8
27	Seven-component scattering power decomposition of POLSAR coherency matrix	Singh, Gulab; Malik, Rashmi; Mohanty, Shradha; **Rathore, Virendra Singh**; Yamada, Kanta; Umemura, Maito; Yamaguchi, Yoshio	IEEE Transactions on Geoscience and Remote Sensing (IEEE, **5.85**)	2020	P-ISSN: 0196-2892	http://dx.doi.org/10.1109/TGRS.2019.2920762
28	Improved NDVI based proxy leaf-fall indicator to assess rainfall sensitivity of deciduousness in the central Indian forests through remote sensing	Singh, Beependra; Jeganathan, C; **Rathore, VS**	Scientific reports (Nature Group, **4.5**)	2020	E- ISSN:2045-2322	https://doi.org/10.1038/s41598-020-74563-2

Recent Publications by Faculty members of Department of Remote Sensing covering relevant themes

Sl. No.	Title of paper	Name of the author/s	Name of journal (Impact Factor)	Year of publication	ISSN number	DOI
29	Variability of lake surface water temperature: a case study during El Nino and La Nina events over the Himalayan lake region	Mushtaq F, Ahmad P and Lala M G N	Physical Geography **(I.08)**	2020	P-ISSN: 0272-3646 E-ISSN:1930-0557	https://doi.org/10.1080/02723646.2020.1751386
30	Seasonal thermal inertia variations at Gale crater: Role of active surface deposition phenomena	Rangarajan V G, Ghosh M	Icarus **(3.5)**	2020	ISSN:0019-1035	http://dx.doi.org/10.1016/j.icarus.2019.113499
31	Estimation and evaluation of high spatial resolution surface soil moisture using multi-sensor multi-resolution approach	Swadhina Koley and Jeganathan C	Geoderma (Elsevier, **6.11**)	2020	ISSN: 0016-7061	https://doi.org/10.1016/j.geoderma.2020.114618
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THANKS!