



SOUVENIR

TROPMET 2023

Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent

JOINTLY HOSTED BY

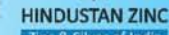
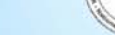
Indian Meteorological Society (IMS) Jaipur Chapter
and

Birla Institute of Technology, Mesra
in coordination with
Birla Institute of Scientific Research, Jaipur

ORGANISED BY

Indian Meteorological Society

22-24 November, 2023





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and Impact on Weather and Climate
over Indian Subcontinent**

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Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent

JOINTLY HOSTED BY
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ORGANISED BY
Indian Meteorological Society
22-24 November 2023

TROPMET is a series of national conferences organized annually by Indian Meteorological Society (IMS). This year, TROPMET will be held at Birla Institute of Scientific Research, Jaipur, Rajasthan during 22-24 November 2023. The TROPMET-2023 focuses on Changing Dynamics of Arid Region and impact on Weather and Climate over Indian Subcontinent. The arid climate over India are extremely diverse in terms of their land forms, soils, fauna, flora, water balances and human activities. The arid regions over India is characterized by excessive heat and inadequate, variable precipitation, which leads to high impact weather events such as floods, droughts, heat waves, dust storms, heavy precipitation etc. Therefore, understanding of the changes is required for scientific community, policy makers and planners to reduce the potential impact on various sectors for the benefit of the society. Keep it in view, TROPMET 2023 deliberates the following subthemes.

- Meteorological Research over Arid Region
- High Impact Weather Events over Arid Regions
- Agriculture Pattern in Arid Zones
- Desert Locust monitoring and forecast through Remote Sensing
- Changing Monsoon Dynamics
- Ocean Atmospheric Interaction
- Atmospheric Process in Planets
- Meteorological Observation and Analysis
- Environmental Pollution and Health Impacts
- Numerical weather Modeling and Processes
- Renewable energy over Arid region
- Application of Drone in weather and climate studies
- Atmospheric Process in Planets
- AI/ML in weather and climate prediction

CALL FOR PAPER & ABSTRACT SUBMISSION

The original research papers from India and abroad, covering TROPMET-2023 theme/sub-themes are invited for presentation. Authors may submit abstracts not exceeding 300 words (template available at www.tropmet2023.in website).

IMPORTANT DATES

Abstract Submission: 22 August 2023
Intimation on Acceptance: 10 September 2023
Confirmation of Participation: 15 September 2023
Online Registration Starts: 15 September 2023

Early Bird Registration ends: 30 October 2023

REGISTRATION FEES

CATEGORY	BY 30 OCTOBER 2023	LATER
IMS/OSI Members	INR. 3000/-	INR. 4000/-
Non-IMS/OSI Members	INR. 4000/-	INR. 5000/-
Scholars/Students	INR. 1000/-	INR. 1500/-
Post Doctoral Fellow	INR. 3000/-	INR. 4000/-
Foreign Nationals	INR. 10000/-	INR. 12000/-
Industry Exhibitions	INR. 50000/-	-

The Registration Fee can be paid through multiple payment options such as net banking or UPI/bank drafts. There is no registration fee for Honorary Fellows and Fellows of the IMS.

ACCOMMODATION AND TRANSPORT

TROPMET-2023 have minimal resources for offering accommodation and travel support, and all participants are expected to secure support from their sources. The support may be extended to a few case-by-case basis, with priority given to IMS members with no affiliations and students without financial support. The detail charges of the accommodation is available on website.

Industry Presentation & Exhibition Special sessions are provided to provide a platform for industry/entrepreneurs. A presentation slot of 15 to 20 minutes duration will be allowed for selected industry/entrepreneurs. Provision is also made for vendors to exhibit their products and services.

VENUE:

BIRLA AUDITORIUM
JAIPUR, RAJASTHAN, INDIA.

CONTACT:

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 Organizing Secretary
 Birla Institute of Technology Mesra
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Prof. P.V.S.Raju
 Chairman Organizing Committee
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 Convener: Dr. P.V.S. Raju, Member secretary



सत्यमेव जयते

डॉ. एम. रविचंद्रन
Dr. M. Ravichandran

सचिव
भारत सरकार
पृथ्वी विज्ञान मंत्रालय
पृथ्वी भवन, लोदी रोड, नई दिल्ली-110003

SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
PRITHVI BHAWAN, LODHI ROAD, NEW DELHI-110003



MESSAGE

It is my pleasure to know that the Indian Meteorological Society (IMS) is organizing its annual National Conference on Tropical Meteorology (TROPMET - 2023) and jointly hosted by IMS Jaipur Chapter and Birla Institute of Technology, Mesra in coordination with Birla Institute of Scientific Research, Jaipur on **"Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent"** from 22-24 November at Birla Auditorium, Statue circle, Jaipur.

It is a well-accepted fact that the possible consequences of global warming and Climate Change are spreading to all spheres of life with many vital sectors like Agriculture, water, energy, disaster risk reduction, health etc will be under stress. Climate change will have adverse impacts over many parts of the globe, with a developing country like India impacted more compared to other regions. In this scenario, the demand for weather and climate services by society has increased many folds, as many production systems in different areas of technology want to explicitly account for weather/climate-based vulnerabilities in their planning strategy.

Considering this, the IMS, in collaboration with Birla Institute of Technology, Mesra in coordination with Birla Institute of Scientific Research, Jaipur focussing on Changing Dynamics of Arid Region and impact on Weather and Climate over Indian Subcontinent. The arid regions over India are extremely diverse in terms of their climate, land forms, soils, fauna, flora, water balances and human activities. These regions are characterized by excessive heat and inadequate/variable precipitation, which frequently result in high impact weather events such as floods, droughts, heat waves, dust storms, heavy precipitation etc. Therefore, understanding of the changing dynamics of the arid region in terms of weather and climate impacts is of great interest to many users.

I am confident that the National Conference 'TROPMET-2023' will provide a common platform to the scientists, academicians, numerical modelling communities, and industrialists from different organizations and help in drawing purposeful recommendations on the issues of the weather and climate services over the arid region during the period of climate change.

I convey my best wishes for the success of this conference.


(M. Ravichandran)



डॉ. मृत्युंजय महापात्र

मौसम विज्ञान विभाग के महानिदेशक,
विश्व मौसम विज्ञान संगठन में भारत के स्थाई प्रतिनिधि
विश्व मौसम विज्ञान संगठन के तीसरे उपाध्यक्ष

Dr. Mrutyunjay Mohapatra

Director General of Meteorology,
Permanent Representative of India to WMO
Third Vice President of WMO



Message

It gives me immense pleasure to know that Indian Meteorological Society(IMS) is organizing TROPMET-2023, a National Conference on Tropical Meteorology, on the topical theme **"Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent "** from 22 November to 24 November 2023at Birla Institute of Scientific Research, Jaipur, India.

Recently, India Meteorological Department (IMD), Ministry of Earth Sciences (MoES) has taken major steps in improving the weather, climate and associated hazards, monitoring, forecasting and warning services capabilities in the country. With the improvement in observational and forecasting tools including augmentation of Numerical Weather Prediction Models, Radar network and satellite products, forecasting / warning services with respect to tropical cyclones, severe thunderstorms, heat/cold wave, fog, heavy rainfall and advisories to various socio economic sectors including farmers, and fishermen have been further strengthened. Scientists of IMD in collaboration with other institutes of MoES and national & international R&D institutes are working strenuously in providing better weather and climate services to all users by further augmenting modelling and observational network. With this there has been an improvement of severe weather forecasting by 40 to 50% in last 10 years.

I am very optimistic that the TROPMET-2023 symposium organized by IMS will provide an excellent opportunity for interaction among weather scientists, academicians, numerical weather modeling communities and industrialists to discuss different aspects of weather and climate forecasts with special emphasis on **"weather and climate services over the arid region"**and share information for the benefit of the society considering the challenges faced by the society due to the climate change.

I wish the event a grand successes.


(M. Mohapatra)

Phone : 91-11-24611842, Fax : 91-11-24611792

E-mail : directorgeneral.imd@imd.gov.in / dgmmet@gmail.com / m.mohapatra@imd.gov.in

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आज़ादी का
अमृत महोत्सव

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BIRLA INSTITUTE OF TECHNOLOGY

MESRA - 835215, RANCHI (JHARKHAND), INDIA

Prof Indranil Manna

Vice-Chancellor

प्रो. इन्द्रनील मन्ना

कुलपति



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Date : 7th November, 2023

MESSAGE

I am glad to learn that the Jaipur Centre of BIT Mesra in association with the Jaipur Chapter of Indian Meteorological Society will organize a National Symposium on “Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent” (TROPMET-2023) at the Birla Auditorium, Jaipur during 22-24 November, 2023.

Weather and climate affect all of us. India, since ages has always been an agrarian country as more than half the population is engaged in agriculture and related profession. Thus, the subject domain of this symposium is of national interests and importance. In particular, the future of agricultural activities and related economy of the state of Rajasthan will require specific policy and intervention for rain water harvesting, crop rotation, soil fertility, irrigation, and weather forecasting. I am glad that the symposium will be addressed by several eminent scientists and researchers working in this subject domain. Hence the outcome will largely benefit the students and scholars working in this particular subject area and the state of Rajasthan.

I am happy that the faculty members associated with the Jaipur Centre of BIT Mesra, particularly concerned with Remote Sensing and its application, led by Dr. Swagata Payra are actively involved in organizing this event.

I wish the participants and organizers of TROPMET-2023 a grand success.

JAI HIND!

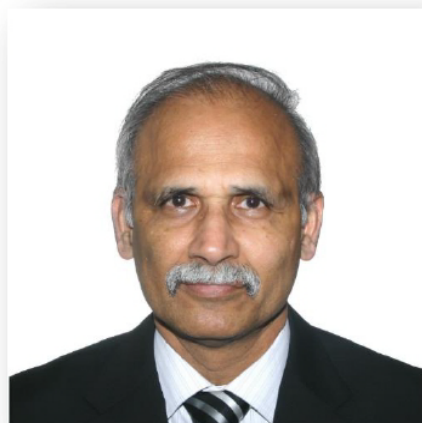

(Indranil Manna) 7.11.2023

Dr Rupa Kumar Kolli
President, Indian Meteorological Society

Honorary Scientist & Former Executive Director
International Monsoons Project Office (IMPO)
Indian Institute of Tropical Meteorology (IITM)
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Former Chief, World Climate Applications & Services
Division, World Meteorological Organization (WMO)



MESSAGE

It gives me great pleasure to convey my warm greetings to the members of the Indian Meteorological Society (IMS) and its patrons and partners organizing TROPMET-2023 on the topical theme “Changing **Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent**”. I heartily compliment the Jaipur Chapter of IMS and the Birla Institute of Scientific Research for hosting the event and making excellent organizational arrangements. I welcome all the participants to this widely acknowledged and three-decade-old annual flagship event of the IMS.

Our world is undergoing a transformative phase, and arid regions play a pivotal role in shaping the environmental narrative. The Indian subcontinent, with its diverse landscapes and rich cultural heritage, is not immune to the evolving dynamics of arid regions, and we must recognize the far-reaching consequences on our weather and climate. As we observe shifts in temperature patterns, altered precipitation cycles, and the increasing frequency of extreme weather events, it becomes imperative for us to delve into the intricacies of these changes.

One of the key aspects to explore is how these changes in arid regions influence monsoon patterns, a lifeline for agricultural economies in the Indian subcontinent. Moreover, the impact of arid region dynamics extends beyond regional boundaries. This underscores the need for collaborative efforts in understanding and mitigating the challenges posed by the changing dynamics of arid regions.

In addressing these challenges, it is crucial to leverage scientific advancements, technological innovations, and cross-disciplinary collaboration. As researchers, policymakers, and stakeholders, we have a collective responsibility to develop sustainable strategies that not only adapt to the evolving climate but also mitigate the adverse effects on our environment.

It is therefore very apt that TROPMET-2023 is focusing on the dynamics of the arid region and the associated impacts on the weather and climate over India, bringing together researchers and students, operational experts, policymakers and other related experts to present, discuss and share information for the benefit of the scientific community as well as the society at large. I am grateful to the various sponsoring agencies for their generous and sustained support of the event.

I convey my best wishes for the grand success of TROPMET-2023.


Rupa Kumar Kolli



Deserts of India have a well-marked influence on the weather patterns of the subcontinent. They are resultant of certain atmospheric situations but equally important is their feed-back to atmospheric processes leading to variability in the weather patterns, not only locally but regionally as well. The climate of arid regions is undergoing significant change. Some studies indicate that there is an eastward shift of the Indian monsoon which is leading to thinning in the arid conditions in the west and northwest regions of India, which may lead to shrinking of the Thar desert, which is otherwise known for its arid expanse.

The discussions on changing dynamics of arid region and their impacts on weather and climate over Indian subcontinent during TROPMET 2023 will unearth some of the secrets of earth-atmospheric interactions and resultant weather fluctuations.

Dr. Laxman Singh Rathore

Former Director General of Meteorology



I am pleased to inform you that the Indian Meteorological Society (IMS), together with its local chapter IMS-Jaipur and BIT Mesra, is organising its flagship annual event, TROPMET-2023, a National Symposium on “Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent” at Birla Auditorium, Jaipur, Rajasthan during 22-24 November, 2023.

We received overwhelm response from all corner of the country with almost 600 registered delegates presenting more than 550 research papers. I am confident that this symposium shall bring eminent academicians, scientists, and engineers on a single platform to deliberate and evolve strategies for more innovative solutions to improve the weather and climate services and research over the arid region. As a Chairman of the local organizing committee of the symposium, I extend a very warm welcome to all the delegates and speakers participating in this important symposium. We have made all efforts to host a seamless experience for the symposium to make it a memorable experience and good learning platform for all of us.

Prof. P. V. S. Raju

Chairman, IMS Jaipur Chapter/Convener TROPMET2023



I am glad to know that Indian Meteorological Society (IMS), along with IMS Jaipur Chapter and Birla Institute of Technology Mesra in association with Birla Institute of Scientific Research is organizing the prestigious TROPMET-2023 during November 22-24, 2023 at Jaipur. More than 650 abstracts received from all corner of the country as well as from foreign delegates. I am sure that TROPMET-2023 will provide a platform where eminent academicians, scientists, and engineers can discuss their research outcome for societal benefits. Being a Co-Convener of TROPMET-2023, I welcome all delegates to participate in this event and enjoy the beauty of the Pink City and also convey my best wishes for the successfully organizing the TROPMET-2023.

Dr. M. P. Punia

Co-Convener, TROPMET-2023



It is a matter of pleasure that Birla Institute of Technology Mesra and Indian Meteorological Society (IMS) Jaipur Chapter is hosting the TROPMET-2023 organized by Indian Meteorological Society at Birla Auditorium, Birla Institute of Scientific Research, Statue Circle, Jaipur, Rajasthan during November 22-24, 2023.

The TROPMET conference is a series of national symposiums organized by the IMS, in partnership with the local IMS chapter on various themes every year to bring forth the advances in science and technology. Since 1992, the IMS has proudly provided a platform for conducting annual seminars/symposiums (TROPMETs) on Tropical Meteorology. The TROPMET Conference is the flagship event of the IMS, creating a platform for diverse stakeholders to discuss changing dynamics of Weather and Climate over the Indian Subcontinent, including applications in the water and agricultural sectors. and offer innovative solutions, strategies, and policy recommendations, with the view of further advancing and attaining the sustainable development goals. TROPMET-2023 conference will focus on weather and climate prediction with a specific theme on *“Changing Dynamics of Arid Region and impact on Weather and Climate over Indian Subcontinent”*.

We have received more than 650 abstracts from all over the country and more than 550 scientist/expert will share their research outcome during TROPMET-2023. I am thankful for overwhelming response from scientific community related to theme of the symposium. I am sure that this symposium will provide the platform for the exchange of ideas among the researchers in the field of Weather, Climate Change, Environmental Pollution, Numerical Weather Prediction etc. Eminent Plenary and lead speakers are going to present their view in different perspectives. I hope that the Souvenir will serve as a comprehensive compilation of the present knowledge and experience and will be used widely by researchers who are concerned with the subjects. I extend my warm welcome to participants of TROPMET-2023.

I convey my best wishes for the great success of TROPMET-2023.

Dr. Swagata Payra
Organizing Secretary

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About Rajasthan

Rajasthan is the largest state in India geographically. It is one of the most beautiful tourist destinations in India. Its palaces and forts are major attractions that draw many tourists to the state each year. Behind each palace and fort is a riveting story about its kings, their kingdoms and the colorful culture of Rajasthan. Six of the forts - Chittorgarh Fort, Kumbhalgarh Fort, Ranthambhore Fort, Gagaron Fort, Amber Fort and Jaisalmer Fort - were declared UNESCO World Heritage Sites in 2013.

Rajasthan is located in northwestern India, bounded on the west and northwest by Pakistan and shares domestic borders with the states of Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and Gujarat.

Geography and Landscape: The geography of Rajasthan is characterized by its diverse landscape. The Thar Desert, also known as the Great Indian Desert, occupies a significant portion in the northwest, presenting a stark and arid terrain. The Aravalli Range, one of the oldest mountain ranges in the world, cuts through the state, providing a scenic contrast to the desert. The fertile plains of the region are interspersed with hills, valleys, and lakes, creating a varied topography.

Capital and Major Cities: The capital city, Jaipur, is a testament to Rajasthan's historical richness. Known as the "Pink City," Jaipur boasts an array of stunning palaces, forts, and markets. Other major cities include Jodhpur, famous for the Mehrangarh Fort; Udaipur, known for its picturesque lakes and palaces; Ajmer, home to the revered Ajmer Sharif Dargah; Bikaner, with its impressive Junagarh Fort; and Kota, an educational hub with architectural gems.

History and Heritage: Rajasthan has a storied history that dates back to ancient times. It was a part of the Indus Valley Civilization and later witnessed the rise and fall of various kingdoms and dynasties, including the Rajputs. The state's forts and palaces, such as the Amber Fort, City Palace, and Hawa Mahal in Jaipur, showcase the architectural prowess and opulence of these historical periods.

Culture and Traditions: Rajasthan is a vibrant tapestry of cultural traditions. The traditional attire, including colorful turbans for men and vibrant sarees for women, reflects the lively spirit of the people. The state is renowned for its folk music, dance forms like Ghoomar and Kalbelia, and art forms like miniature paintings and block printing. Festivals like Diwali, Holi, and the Pushkar Fair add to the cultural vibrancy.

Tourist Attractions: The state is a magnet for tourists seeking a glimpse into India's royal past. The Amber Fort in Jaipur, with its intricate architecture and panoramic views, is a popular attraction. Jodhpur's Mehrangarh Fort, perched on a hill, offers a commanding view of the "Blue City." Udaipur's Lake Palace, situated in the middle of Lake Pichola, is a symbol of architectural elegance. The holy town of Pushkar is famous for its annual camel fair and the Brahma Temple.

Wildlife and Natural Reserves: Rajasthan is home to a diverse range of wildlife. Ranthambhore National Park, a former hunting ground of the Maharajas, is known for its population of Bengal tigers. Sariska Tiger Reserve and Keoladeo National Park, a UNESCO World Heritage Site, are important for wildlife conservation and bird watching.

Economy and Agriculture: Agriculture is a significant contributor to the state's economy. Rajasthan is a major producer of crops such as wheat, barley, pulses, and oilseeds. The traditional water harvesting systems like step wells (baoris) and tanks reflect the ingenuity of the people in dealing with the arid climate.

In conclusion, Rajasthan is a kaleidoscope of history, culture, and natural wonders. Its forts and palaces whisper tales of valor and grandeur, while its vibrant festivals and traditions showcase the spirit of its people. Whether exploring the dunes of the Thar Desert, marveling at architectural wonders, or experiencing the warmth of Rajasthani hospitality, a visit to Rajasthan is a journey through time and a celebration of the rich tapestry of Indian heritage.

About Jaipur

Jaipur formerly Jeypore, is the capital and largest city of the Indian state of Rajasthan. As of 2011, the city had a population of 3.1 million, making it the tenth most populous city in the country. Jaipur is also known as the Pink City, due to the dominant color scheme of its buildings. It is also known as the Paris of India, and C. V. Raman called it the Island of Glory. It is located 268 km (167 miles) from the national capital New Delhi. Jaipur was founded in 1727 by the Kachhwaha Rajput ruler Jai Singh II, the ruler of Amer, after whom the city is named. It was one of the earliest planned cities of modern India, designed by Vidyadhar Bhattacharya. During the British Colonial period, the city served as the capital of Jaipur State. After independence in 1947, Jaipur was made the capital of the newly formed state of Rajasthan.

Jaipur is a popular tourist destination in India and forms a part of the west Golden Triangle tourist circuit along with Delhi and Agra (240 km, 149 mi). It also serves as a gateway to other tourist destinations in Rajasthan such as Jodhpur, Jaisalmer, Bikaner, Udaipur, Kota and Mount Abu. On 6 July 2019, UNESCO World Heritage Committee inscribed Jaipur the "Pink City of India" among its World Heritage Sites. The city is also home to the UNESCO World Heritage Sites Amer Fort and Jantar Mantar.

About Birla Institute of Technology Mesra

Birla Institute of Technology (BIT) Mesra, located in Ranchi, Jharkhand was founded in 1955 with a vision of catering to the country's growing demand in Engineering and Technology. The main campus of the Institute is fully residential and is spread over 780 acres. Apart from this main campus, we also have 5 Centers equally fulfilling the engineering and scientific aspirations of students, from different regions and diverse ethnicities, maintaining the quality of teaching and research. The main building of the Institute itself covers an area of 30,000 square meters and accommodates the various research and training laboratories, administrative offices and classrooms. In 1986, the Institute was granted the status of a Deemed-to-be University under Section 3 of the UGC Act 1956. The Institute is firmly dedicated to adhering to all regulatory standards and guidelines, aiming to secure international recognition for our degree programs, as well as for our students and scholars. The benchmarking of quality across various

courses is evident through the NBA, NAAC and AICTE compliance and accreditation systems.

- NAAC: After the visit of the NAAC team to the BIT Mesra campus from November 14th to 16th, 2022, and the prior submission of the Data Validation and Verification (DVV) Report, BIT Mesra was awarded an 'A' grade by NAAC.
- NBA: 8 UG and 15 PG Courses of BIT Mesra are NBA accredited.
- AICTE: BIT Mesra, owing to its high standards of educational quality, has received EoA (Extension of Approval) from AICTE to conduct its UG & PG courses.

The journey of the Institute has been commendable not only in Engineering and Technology but also in building the fundamental science and exploration of modern-day innovations in diverse areas of applications. The academic program of the Institute is comprised of 18 Departments and Centres with all the modern infrastructure required to go hand in hand with the growing story of research in the country. Dedicated facilities in the Institute make it a perfect platform for multidisciplinary research. A strong connection with the Alumni such as the Immersive Summer Research Experience in reputed US Universities also helps the students in grooming their skills from multiple perspectives. The Institute has taken many initiatives to enhance teaching–learning process, promote innovation and entrepreneurship activities among the students, build state-of-the-art engineering education infrastructure, and pursue high-end R&D activities through various schemes.

The Institute is very keen to promote the culture of research not just for the creation of new knowledge but also for integrating it into our teaching programs, promoting exciting innovation and entrepreneurial activities, and raising the reputation of the Institute to a much higher pedestal.

- A total of 64 new research grants were sanctioned from 1st April 2022 to 31st March 2023 by external sponsoring agencies (DST-SERB, FIST, PURSE, ISRO, AICTE, ICMR, DRDO, DAE, CCL, etc.) with a total sanctioned budget of Rs. 28.78 Crore.
- A total of 16 consultancy projects were sanctioned with funding of Rs. 1.05 Crores during 22-23.
- A budget of Rs. 3.74 Crore was allocated for improving the facilities of Central Instrumental Facility (CIF), and 4 new instruments have been added, and CIF utilization is equivalent to the revenue of Rs. 1.01 Crore in 2022-2023.

Amity University, Rajasthan, is one of the fastest growing universities of Amity group, situated amidst the oldest mountain ranges of the Aravali. The University has a beautiful tree-lined campus spread over 152 acres of land on the Delhi-Jaipur Highway. With a manmade water-harvesting lake, neem forest solar park that contributing towards conservation of natural resources. The NAAC A+ accredited AUR is a fully residential with air conditioned amphitheatre style classrooms, hi-tech labs for sciences, engineering and management with modern facilities for various research ventures. The University is having research recognition from DST, ICAR, ICMR, DBT, Ministry of Agriculture, Ministry of Earth Science, MoFPI, DRDO, Genomics - Carls USA, etc, and has established dedicated research centres and initiated research clusters in frontier areas. AUR has integrated its ongoing programs with industry needs, adopted a participative and industry-driven teaching approach and provides practical exposure to students through expert sessions from industries.



Amity Centre for Ocean-Atmospheric Science and Technology (AMITY COAST) is first of its kind in the state of Rajasthan established in 2015 to promote interdisciplinary research on numerical modeling of Ocean & Atmosphere state, monsoon studies, climate modeling, extreme weather as well as academic programs at graduate, post-graduate and doctoral levels. The centre have Environmental Monitoring Facility (EMF), established at Amity COAST with the collaboration of India Meteorological Department (IMD), New Delhi. Currently the EMF lab has The Sky Radiometer to measure scattered solar radiation at multiple wavelengths for the estimation of aerosol properties & Aerosol Optical Depth (AOD). Aethalometer: to measure the concentration of optically absorbing ('black') suspended particulates in ambient atmosphere. In addition, Amity COAST is also equipped with High Performance Computing server providing ~ 5 Tera Flops clock speed and 184 TB storage. The HPC server is fortified with parallel processing capabilities and meteorological data handling software.

About Birla Institute of Scientific Research Statue Circle, Jaipur

Birla Institute of Scientific Research (BISR) was established in realization of the dreams of visionary industrialist Shri Braj Mohan Birla to foster and promote Science and Technology. His vision was carried forward by Late Shri Ganga Prasad Birla and now by Shri Chandra Kant Birla by strengthening and diversifying the activities of BISR. BISR undertakes goal oriented applied research in the frontier areas of science and technology. BISR undertakes industry and government sponsored projects, and has made a mark as a leading R&D institution in the country. The research programmes of BISR are concerned principally with Biotechnology and Natural Resource Management.



Its activities include: Conduct basic and applied research in established and emerging areas. Organize quality improvement and customized training programmes. Establish and maintain effective linkages with industry, educational and other institutions.

Besides, in-house initiatives government and industry sponsored projects are also undertaken. It also organizes quality improvement and customized training programme. It has established effective linkages with industry, educational and other institutions. It organizes conferences, symposia, workshops and scientific meetings in the areas of strategic needs of the country.

Overview of IMS Activities since its Inception

D. R. Pattanaik¹ and R. K. Giri²

²Vice-President, Indian Meteorological Society, New Delhi

Email: drpattanaik@gmail.com

²Secretary, Indian Meteorological Society, New Delhi

Email: rk.giriccs@gmail.com

1. Establishment of IMS

The Indian Meteorological Society (IMS) established in 1956 during the Session of the Indian Science Congress, has made more than 3500 members at present. It was registered as a Society under the Societies Registration Act in 1972 in New Delhi. The society has its head Quarter in Delhi with 32 chapters spread across the country. The society is a non-profit organization and none of its income or assets shall accrue to the benefit of its members. A well discussed constitution is its major assets of IMS. The constitution is available at IMS website at the following URL: https://imetsociety.org/wp-content/pdf/docs/others/IMS_Constitution.pdf



IMS Local Chapters

2. The main objectives of the society are :

- Advancement of Meteorological and allied sciences in all their aspects.
- Dissemination of the knowledge of such sciences both among the scientific workers and among the public.
- Application of Meteorology and allied sciences to various constructive human activities, such as, agriculture and land uses, irrigation and power development, navigation of sea and air, engineering and technology, medicine and public health etc.

3. Membership of IMS

Any person who is interested in the aims and objectives of the Society is eligible to become a member. He shall apply for membership in the prescribed form available in the website and shall be notified on acceptance by the Council.

- **Life Member (LM)**

A Member who pays all his dues in a lump sum as prescribed by the General Body shall be a Life Member. The society has about 3000 life members.

- **Annual Member (AM)**

A Member who pays all his dues in a lump sum as prescribed by the General Body shall be a Life Member. The society has about 3000 life members.

- **Student Members (SM)**

In order to encourage students to become IMS member, IMS recently introduced student membership where a student can become IMS student member by paying Rs. 1000/- along with the forwarded application from head of the institution where he/she is working. The membership will be valid till the time he/she becomes 30 years of age or get some employment in any place whichever is early. He/she can become a regular life member of IMS by paying the balance amount.

- **Institutional Members (Annual)**

Any institution which is interested in the aims and objectives of the Society is eligible to become an Institutional Member on payment of an annual subscription. The institution shall apply for Membership and shall be notified on acceptance by the Council. The Institutional Member may nominate its representative to exercise the Membership privileges.

- **Patron**

A person or an institution who is interested in the aims and objectives of the Society and makes a donation of substantial sum to the Society will, at the discretion of the Council, be admitted as Patron.

SUBSCRIPTION

Annual Member	Indian : Rs.300
Life Member	Indian : Rs. 3000; Foreign : US\$ 150
Entrance Fee	Indian : Rs. 00 ; Foreign : US\$ 10
Student Member	Indian : Rs. 1000
Institutional Member	Indian : Rs. 10000 (annual); : US\$ 250
Patron	Indian : Rs. 100000 ; Foreign : US\$ 2500
Institutional Patron	Indian : Rs. 1000000 ; Foreign : US\$ 25000

4. IMS Fellows

Honorary Fellow and Fellow

- Persons of acknowledged eminence in Meteorology and allied fields of Science and Technology or in their furtherance may be elected as honorary fellows by the General Body on proposal from the Council.
- Life members, who have made outstanding contribution of Meteorology and allied fields of Science and Technology, may be elected as Fellows by the General Body on proposal from the council. The following outstanding members of the society have been elected as Fellows/Honorary.
- IMS has also given Life Time Achievement Awards to three eminent scientists.
- **IMS LIFE TIME ACHIEVEMENT AWARDS**

S. No.	Name
1	Prof. P. V. Joseph
2	Shri Soundararajan Raghavan
3	Late Shri Dev Raj Sikka

- **List of IMS Honorary Fellows**

S. No.	Name
1	Late Dr. A. P. J. Abdul Kalam
2	Late Dr. J. S. Fein
3	Dr. P. S. Goel
4	Late Prof. V. R. Gowariker
5	Prof. Murli Manohar Joshi
6	Dr. Ramesh Kakar
7	Dr. K. Kasturirangan
8	Late Prof. T. N. Krishnamurti
9	Prof . G. O. P. Obasi
10	Dr. Kamal Puri
11	Prof. V. S. Ramamurthy
12	Prof. Veerabhadran Ramanathan
13	Dr. P. Krishna Rao
14	Dr. M. V. K. Siva Kumar
15	Dr. M. S. Swaminathan
16	Dr. Petteri Taalas
17	Er. Avinash Chand Tyagi
18	Dr. Upendra Narayan Singh

- List of IMS Fellow

S. No.	Name
1	Late Dr. R Ananthakrishanan
2	Late Dr. G.C. Asnani
3	Dr. Swati Basu
4	Prof. G. S. Bhat
5	Dr. V. K. Dadhwal
6	Late Prof. P. K. Das
7	Late S. K. Das
8	Prof. S. K. Dash
9	Dr. R.K. Datta
10	Dr. U. S. De
11	Dr. B. L. Deekshatulu
12	Late Dr. O.N. Dhar
13	Prof. S.K. Dube
14	Prof. (Mrs.) Sulochana Gadgil
15	Dr. B. N. Goswami
16	Dr. Akhilesh Gupta
17	Dr. George Joseph
18	Prof. P.V. Joseph
19	Dr. P.C. Joshi
20	Dr. A.K. Kamra
21	Dr. R.R. Kelkar
22	Prof. R. N. Keshavamurthy
23.	Late Dr. P. Koteswaram
24	Dr. R. Krishnan
25	Dr. S. M. Kulshrestha
26	Dr. Rupa Kumar Kolli
27	Sh. A. S. Kiran Kumar
28	Dr. Santosh Kr. Mishra
29	Prof. U.C. Mohanty
30	Late Dr. D.A. Mooley

31	Dr. Shailesh Nayak
32	Prof. P.C. Pandey
33	Late Dr. G.B. Pant
34	Late Prof. P.R. Pisharoty
35	Late Mr. S. Raghavan
36	Dr. M. Rajeevan
37	Late Dr. Y. Ramanathan
38	Dr. K. J. Ramesh
39	Dr. DV Bhaskar Rao
40	Dr. L. S. Rathore
41	Late Prof K. R. Saha
42	Late Dr. R. P. Sarkar
43	Dr. N. Sen Roy
44	Prof J. Shukla
45	Late Sh. D.R. Sikka
46	Prof. J. Srinivasan
47	Dr. S. K. Srivastav
48	Dr. H. N. Srivastava
49	AVM. Dr. Ajit Tyagi
50	Dr. G.Viswanathan
51	Prof. B. Padmanabha Murty
52	Prof. Ravi Sankar Nanjundiah
53	Dr. Mrutyunjay Mohapatra
54	Prof. S. K. Satheesh
55	Dr. (Mrs.) N. Jayanthi
56	Dr. G. Srinivasan
57	Dr. M. Ravichandran
58	Prof. V.B. Rao
59	Dr Raj Kumar
60	Dr A.K. Sahai
61	Prof. V. Geethalakshmi
62	Prof. K. Mohanakumar
63	Dr D.R. Pattanaik

- **List of IMS Presidents**

S. No.	Name	Period
1	Dr. P. Koteswaram	1971-74
2	Sh. Y. P. Rao	1974-78
3	Dr. P. K. Das	1978-83
4	Sh. S. K. Das	1983-86
5	Dr. R. P. Sarkar	1986-89
6	Dr. S. M. Kulshrestha	1989-91
7	Prof. P.R. Pisharoty	1991-93
8	Dr. N. Sen Roy	1993-95
9	Dr. R.K. Datta	1995-97
10	Dr. R. R. Kelkar	1997-99
11	Dr. S. K. Srivastav	1999-2001
12	Prof. S. K. Dube	2001-2003
13	Dr. S.K. Srivastav	2003-05
14	Dr. G. B. Pant	2005-07
15	Sh. R. C. Bhatia	2007-09
16	Dr. L. S. Rathore	2010-12
17	Dr. Shailesh Nayak	2012-14
18	Dr. Akhilesh Gupta	2014-16
19	AVM Dr. Ajit Tyagi	2016-18
20	Prof. S. K. Dash	2018-20
21	Dr. M. Mohapatra	2020-22
22	Dr. Rupa Kumar Kolli	2022-24

- **List of IMS Associate Fellow**

S. No.	Name
1	Prof. Sandeep Pattnaik
2	Dr. Ayantika Dey Choudhury
3	Dr G.C. Satyanarayana
4	Dr. Vinoj Velu
5	Dr. Debabrata Swain
6	Prof. Kandula V Subrahmanyam

- **IMS National Council (2022-24):** The IMS new National Council took over the charge from the previous council On 26th April, 2022.

Indian Meteorological Society National Council 2022-24	
President	Dr. Rupa Kumar Kolli
Immediate Past President	Dr. Mrutyunjay Mohapatra
Vice President	Dr. D. R. Pattanaik Dr. N. Subash
Secretary	Dr. R. K. Giri
Jt. Secretary	Dr. Ananda Kumar Das
Treasurer	Dr. Sankar Nath
Member	Prof. P. V. S. Raju Dr. V. K. Soni Mr. Sikandar M Jamadar Mr. Sanjay Bist Ms. Samanti Sarkar Dr. Pankaj Kumar Dr. Rajiv Chattopadhyay Mr. Sunny Chug

5. General IMS Activities

To achieve the objectives the IMS involves in carrying out the following work.

- Encourages research activity.
- Organizes lectures, meetings, symposia, discussions etc.
- Arranges to publish suitable pamphlets, books, periodicals, brochures etc.
- Promotes Co-operation in scientific work.
- Encourages the members to foster common interests of the Meteorological professions
- Give awards and fellowship to distinguished scientists.

6. Sponsor Scientific Events and Organization of Symposia/Conferences

To Sponsor Scientific Events

- The Society sponsored for the first time a scientific event in April 1970. This was a symposium on Satellite Meteorology held at Pune.
- Later on it sponsored the International Symposium on Monsoons which held in March 1977 at New Delhi.
- It also sponsored the National Symposium on Early Results of Monsoon Experiments held at New Delhi in March 1981.

Organisation of Scientific Symposia

- With a beginning in 1976 the Society has organised the following National Symposia/Seminars so far:
- Seminar on Weather Modification New Delhi February **1976**
- Symposium of Local Severe Storms Calcutta February **1982**
- Symposium on Tropical Cyclones and Disaster Preparedness Bhubaneswar January **1984**

Annual National Symposia Series on Tropical Meteorology (TROPMET)

- Monsoon Variability, Satellite Application and Modelling, Ahmedabad, February **1992**
- Meteorology for National Development, New Delhi, February **1993**
- Climate Variability, Pune, February **1994**
- Advanced Techniques in Meteorology, Hyderabad, February **1995**
- Meteorology and Natural Disasters, Visakhapatnam, February **1996**
- Symposium on Monsoon, Climate and Agriculture, Bangalore, February **1997**
- Meteorology beyond 2000, Chennai, **1999**
- Ocean & Atmosphere, Cochin, February **2000**
- Meteorology for Sustainable Development, Mumbai, February **2001**
- Forecasting & Mitigation of Meteorological Disasters: Cyclones, Floods & Droughts, Bhubaneswar, February **2002**
- Role of Meteorology in National Development, Pune, **2006**
- Advances in Meteorology and their Applications, Bhopal, **2007**

- Meteorology, Atmospheric Science, Weather & Climate and allied services and disaster management, Kolkata **2010**
- Meteorology for Socio-economic Development, Hyderabad, **2011**
- National Symposium on Frontiers of Meteorology with special reference to the Himalayas. Dehradun **2012**
- National Symposium on Weather & Climate Extremes, Chandigarh - **2015**
- National Symposium on Tropical Meteorology: Climate Change and Coastal Vulnerability, Bhubaneswar **2016**
- National Symposium on Tropical Meteorology: Understanding Weather and Climate Variability: Research for Society, Varanasi **2018**
- National Symposium on Tropical Meteorology: Land, Ocean and Atmosphere Interactive Processes in the Context of Weather and Climate, Visakhapatnam **2019**
- National Symposium on Tropical Meteorology on “Weather and Climate Services over Mountainous Regions” at NESAC, Shillong during 14 - 17 December **2020**.
- National Symposium on Tropical Meteorology on “Advances in Weather and Climate Prediction and Climate Change Projection over South Asia: Applications in Water and Agriculture Sectors” at IISER, Bhopal during 29th November - 02 December **2022**
- National Symposium on Tropical Meteorology on “Changing Dynamics of Arid Region and Impact on Weather and Climate over Indian Subcontinent” at Birla Institute of Scientific Research, Jaipur, India during 22 to 24 November **2023**

International TROPMET (INTROPMET) Organised by IMS

- International Symposium on Asian Monsoon & Pollution over Monsoon Environment, (INTROPMET-1997) New Delhi, December 2-5, **1997**
- International conference on monsoon (ICOM) and WMO Workshop on forecasting monsoons from days to years, New Delhi. March 21-26, **2001**
- International conference on Seismic Hazard with particular reference to Bhuj Earthquake of January 26, 2001. New Delhi, 3-5 October, **2001**
- International Symposium on Natural hazards (INTROPMET 2004) February 24-27, 2004, Hyderabad.
- Monex-25, Celebrating 25th Anniversary of Summer Monsoon Experiment-1979 (Monex-25 and its Legacy), New Delhi, 3-7th February, 2005



On behalf of NSF, Jay Fein accepts a bouquet expressing thanks from the Indian research community for NSF's support of MONEX-1979. Also pictured are (left to right) Late D. R. Sikka, V. S. Ramamurthy (India Department of Science and Technology), S. K. Dube (Indian Institute of Technology), and Peter Webster (Georgia Institute of Technology). IMS function, Delhi 2005.

- International symposium on Challenges & Opportunities in Agro-meteorology (INTROPMET – 2009), New Delhi, 23-25 February **2009**.
- International Tropical Meteorology Symposium on Monsoons- Observation, Prediction and Simulation (MOPS) (INTROPMET -2013), Chennai, originally scheduled in 2013 but was organized during 21-24 February, **2014**.
- International Tropical Meteorology Symposium on Advancements in Space-based Earth Observations and Services for Weather and Climate (INTROMET- 2017), 03-07 November, **2017**, Ahmedabad.
- Virtual International Symposium on Tropical Meteorology (INTROMET-2021) on “Changing Climate: Consequences and Challenges” at CUSAT, Cochin, India during 23 - 26 November **2021**.

A Brief Report of TROPMET-2022, 29th November - 02 December, 2022, Bhopal Chapter

Under the aegis of the local chapter of the Indian Meteorological Society (IMS), the four-year national symposium TROPMET-2022 concluded successfully on 2 December at the Indian Institute of Science Education and Research (IISER), Bhopal. TROPMET is a series of national conferences organized annually by the IMS. Every fourth year, the TROPMET is organized at the international level with the name INTROMET. The recently concluded TROPMET-2022, from 29 November to 2 December, focused on weather and



climate prediction, including applications in the water and agricultural sectors. The climate varies naturally in space and time. Today's concern is the occurrence of climate changes due to human activities. These changes are manifested as an increase in temperature

and extreme weather events such as floods, droughts, heat waves, dust storms, heavy precipitation events, etc. These weather events need constant monitoring to reduce their potential impacts on society. Since observation stations are not available at every spatial point of interest, modelling efforts are required to help assess the situation. Also, process studies are essential to understand the phenomena in greater depth. Keeping these facts in mind, TROPMET-2022 made successful efforts to bring together climate scientists, agricultural scientists, local government bodies, academicians, policymakers and disasters, and other related experts to discuss and share information for the benefit of society.

TROPMET-2022 was organized at Visitor Hostel Auditorium and three seminar halls in parallel sessions at IISER Bhopal. More than 400 participants have presented their work. It was attended by senior scientists, eminent academicians, young researchers, early career scientists, noticeable industry representatives, state government officials, and media personals actively participated in the symposium. The opening ceremony of the symposium was graced with the presence of distinguished guests by Dr. Akhilesh Gupta (Guest of honor, Secretary, SERB, New Delhi), Prof. Siva Umamathy (Director, IISER Bhopal), Professor Sunil Kumar (Chief Guest, Vice-Chancellor, Rajiv Gandhi University of Technology, Bhopal), and Dr. Rupa Kumar Kolli (Chairman IMS).

There were various highlight plenary and keynote lectures by eminent scientists such as Dr. Akhilesh Gupta, Dr. Kalachand Sain (Director, Wadia Institute of Himalayan Geology), Dr. Rajeev Mehajan (Advisor, Ministry of Science and Technology, GoI), Prof. Ravi Shankar Nanjundiah (Professor, Divecha Centre for Climate Change, IISc. Bengaluru), Dr. R. Krishnan (Director, Indian Institute of Tropical Meteorology, Pune), Dr. M. Rajeevan (Former Secretary, Government of India, Ministry of Earth Sciences), Prof. S. K. Dash (Ex-Professor, IIT Delhi), Dr. Nabanshu Chattopadhyay (Ex-Deputy Director General of Meteorology, Agricultural Meteorology Division, IMD Delhi), Professor U. C. Mohanty (Emeritus Professor, IIT Bhubaneswar), Sri Nilesh M. Desai (Director, SAC-ISRO, Ahmedabad). The valedictory ceremony witnessed the presence of Chief Guest Dr. K. Ravichandran, IFS (Director, IIFM, Bhopal) and Guest of honor Shri Nilesh M Desai (Director, SAC-ISRO, Ahmedabad), Prof. S. K. Tandon (Adjunct Professor, IISER Bhopal) and Dr. Pankaj Kumar (Convenor TROPMET-2022 and Associate Professor IISER Bhopal). During the conference, many scientific papers were presented and discussed. The eminent scientists also discussed one side event how to integrate climate science at the undergraduate level. The successful execution of this national symposium will help to bridge the gap between different sectors. It will be a noticeable change in the techniques related to forecasting weather and climate-related extreme events in India and especially in the entire Madhya Pradesh, including Bhopal, which will be ultimately beneficial for the agriculture and water sector, industry, trade, etc., TROPMET-2022 has been successful in meeting its objectives. A welcome feature of TROPMET-2022 is the active participation of brilliant young researchers from around the country and the opportunity provided for the next generation to benefit from their interaction with senior scientists. Taking advantage of a large number of IMS members attending the TROPMET-2022 sessions, the IMS has also organized an Open General Meeting on 1 December 2022 at the venue, where a major issue discussed was the potential role of IMS to help integrate climate science in the curricula at the undergraduate level. For more details on TROPMET-2022, please visit <https://conf.iiserb.ac.in/TROPMET/>.

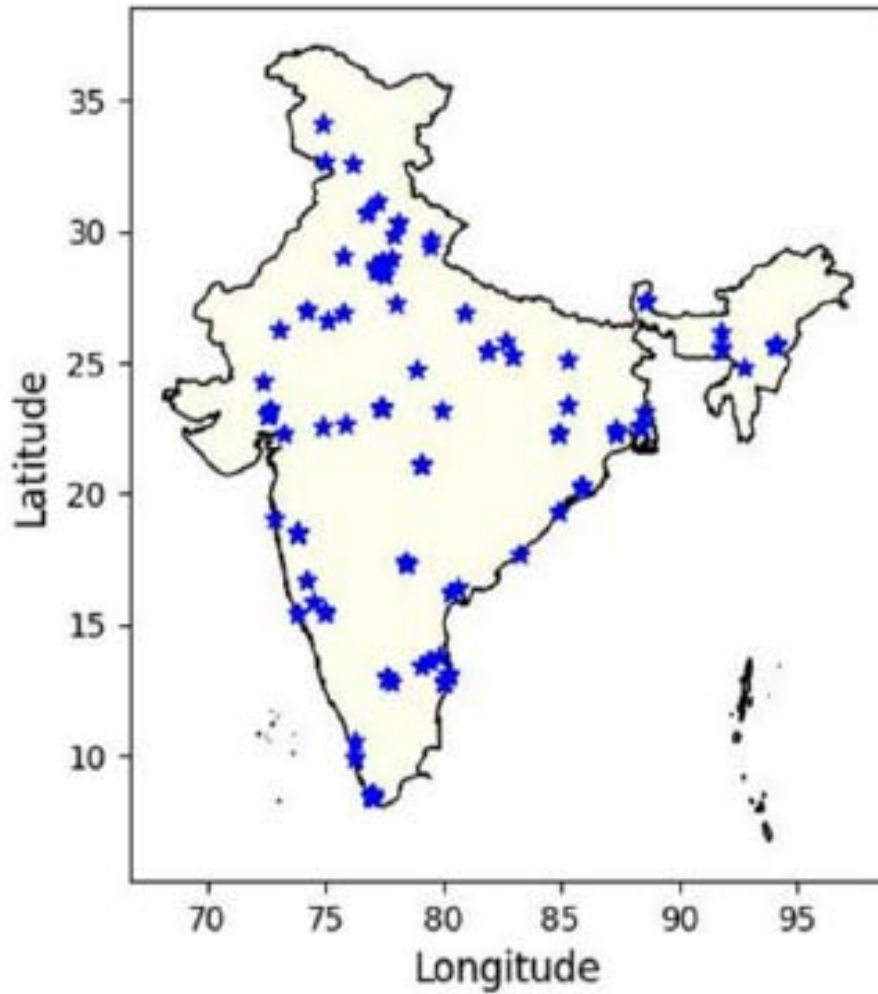


Figure: Location of participants taking part in TROPMET-2022

Total abstract received	~470
Category	Approx. Count
Plenary Speakers	7
Keynote Speakers	26
Invited Speakers	36
Oral Talks	148
Lightening Talks	95
Poster Presentation	137
NOC members	49
LOC members	24
Volunteers	68
Total	590



IISER, Bhopal

TROPMET-2022 INAUGURAL CEREMONY





Souvenir cum Abstract Book Release & IMS Awards Presentation





IMS General Body Meeting



Press and Media Coverage



Section on DD News Madhya Pradesh



News Section in Dainik Bhaskar



Dainik Bhaskar Online



Director, IISER Bhopal, DPL News



Dr. Akhilesh Gupta, DPL News



मौसम की पूर्वानुमान तकनीक आपदा से मौते रोक सकती है, तबाही नहीं





आकाशवाणी भोपाल का लोकप्रिय कार्यक्रम

नमस्कार भोपाल

दिनांक 3 दिसंबर 2022 सुबह 7:20 से

भोपाल गैस भावना की बरती पर गैस पीठियों के लिए प्रयास करने वाली चिंगारी ट्रस्ट की स्वीछा बी से बातचीत

भारतीय मौसम विज्ञान बोसाइट्टी
IMS ड्राफ्ट भोपाल में घन र्दी
छापीय संगीछी 2022 की
जाणकारी टुपेगुएट के
ऐपवनेन प्रौढेनर ढकल कुकार ने

अंतरराष्ट्रीय दिव्यांगजन दिवस के उद्देश्य और आगोजन की जाणकारी ढेरीय
ढुनवस एवम विकलांग केंद्र के ढोढेनर
इंघार्लैंड ऑट्टरवनी अरसम ढोढोती से
ठीकी प्रवृत्त अरसमर्दी का ढुनः प्रवर्नर दिवस 3
दिसंबर 2022 को 11:20 बजे शिथिल ढारती के एम
एन केर 103.5 केरसुडुन का सुन का ढकला है

कार्यक्रम ढोढेनर: लजेस ढु

प्रस्तुतकर्ता: संतोष ढिलीढोस

कार्यक्रम में शामिल हुए नीलेश एम देसाई

BREAKING NEWS जबलपुर

संदेश: August Every Year. Note: All Times

प्राकृत से छेड़छाड़ का अस्सर, 70 सालों से तापमान में बढ़ोतरी

100 से अधिक कोवर्षों के ढे सुगुनी ढकला, ढुनः, ढोढेनरी दिव्यांग के सार ढवर्ती के ढुन में कासुड

भोपाल में दिवस का जनासु ढोढेनर का अस्सर

रौन साल से ला नीना बना है विलेन, अधिक ठंडक की यही वजह, कम होने के आसार नहीं

9 मासाण केरुड ढकले, सरासु ढुनरी 2022

2016 की याद दिला गया नवम्बर



Dr. Rupa Kumar Kolli

Acti
Go to

7. IMS Publications

To popularize Meteorology and Atmospheric Sciences, the Indian Meteorological Society (IMS) brings out the Research journal "Vayu Mandal", which is the official Bulletin of IMS. This is brought out twice a year since 1971 to encourage research work and provide information on latest developments in the atmospheric sciences. At present the Chief Editor, Managing Editor and Executive Editor are given below.

Chief Editor: Dr. A. K. Sahai, IITM, Pune, atul.sahai360@gmail.com

Managing Editor: Dr. R. K. Giri , rk.giriccs@gmail.com, IMD, New Delhi

Executive Editor: Dr. Raghavendra Ashrit, rgashrit@gmail.com, NCMRWF

The article can be submitted to :

Executive Editor

Vayu Mandal
Indian Meteorological Society
Room No. 605, VI Floor, Satellite Meteorological Building,
Mausam Bhavan Complex, Lodi Road, New Delhi-110 003.
Email: vayumandal.ims@gmail.com

8. IMS Awards and Fellows

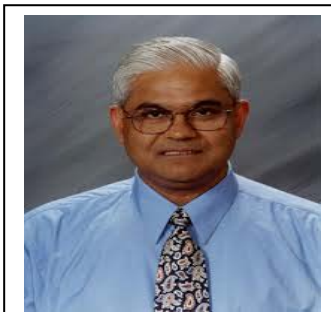
8.1 IMS International Award: "Sir Gilbert Walker Gold Medal"

IMS has instituted "Sir Gilbert Walker Gold Medal" in 2001 to be given biennially to an eminent Indian or foreign scientist of international recognition in the field of monsoon studies. There is no bar on the age and nationality. Now the Prize money for this award is Rs. 100000/- and a gold plated silver medals (100gm weight) and a Citation. The selection will be made by a judging committee with IMS President and minimum two Fellows of IMS as members. Sir Gilbert Walker, the legendary meteorologist who did pioneering and monumental work on long range forecasting of Indian monsoon, was the Director General of India Meteorological Department for 20 years (1904-1924).

"List of Sir Gilbert Walker Gold Medal Awardees" so far are:

- (1) Prof. J. Shukla, COLA, USA
- (2) Late Prof. P. K. Das, Former DGM, IMD
- (3) Prof. U. C. Mohanty, IIT Delhi
- (4) Late Shri. D. R. Sikka, Former Director, IITM, Pune
- (5) Late Prof. T. N. Krishnamurti, Professor FSU, USA
- (6) Prof. (Mrs) Sulochana Gadgil, IISC, Bangalore
- (7) Prof. R. N. Keshavmurty, Former Director IITM, Pune.
- (8) Prof. P. V. Joseph, UGC Visiting Prof./Emeritus Prof., CUSAT, Cochin
- (9) Dr. M. N. Rajeevan, Former Secretary, MoES

Sir Gilbert Walker Gold Medal Awardees of IMS



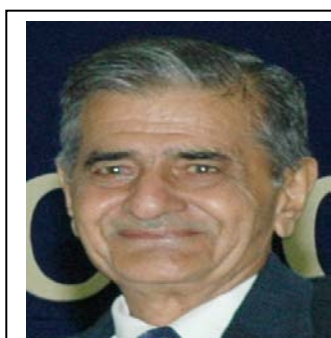
Prof. J Shukla is a Distinguished University Professor at George Mason University, USA, where he founded the Department of Atmospheric, Oceanic, and Earth Sciences and Climate Dynamics PhD Program. Prof. Shukla's scientific contributions include studies of: the dynamics of monsoon depressions; the climate variability; the influences of SST on seasonal variability; the intraseasonal and inter-annual variability of monsoons; the predictability and prediction of monsoons, tropical droughts, and ENSO.



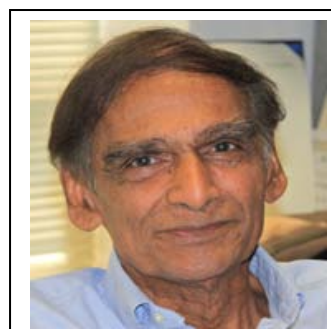
Late Prof. P. K. Das, former Director General of Meteorology, India Meteorological Department (during 1979-1983) passed away on 14 January, 2011 at the age of 84. He had joined the IMD in 1949. Prof. Das made pioneering research and contributions to Meteorology, in particular to the development of Numerical Weather Prediction in India. He worked on cloud physics with Sir John Mason at Imperial College, London. He also worked with Prof. Jule Charney, Prof. Norman Philips and Ed Lorenz of the MIT and Reid Bryson at the University of Wisconsin.



Prof. U. C. Mohanty worked at IIT Delhi before shifting to IIT Bhubaneswar as Visiting Professor, in the School of Earth Ocean and Climate Sciences (SEOCS). He has made outstanding contribution in the field of tropical meteorology, in particular, Asian summer monsoon dynamics, tropical cyclone research, numerical weather prediction in tropics, mesoscale modeling of extreme weather events over Indian monsoonal regime, extended range prediction of Indian summer monsoon and regional climate modeling.



Late Prof. D. R. Sikka, Former Director of IITM (1986-1992) is an international expert on monsoon in particular and on Tropical Meteorology in general. His knowledge and experience of last six decades are considered brilliant. He never retired from the limits of his scientific capability. He was very active even at the age of more than eighty. He was spearheading many important projects/missions of Ministry of Earth Sciences, Department of Science & Technology related to Atmospheric Sciences.



Late Prof. T. N. Krishnamurti, at present is Professor Emeritus in the Department of Meteorology, Florida State University, where prior to his retirement he was the Lawton Distinguished Professor of Meteorology. He has specialized in studies of monsoon, hurricanes and numerical weather prediction and more recently on multi-model super-ensemble forecasts for global weather (including hurricanes) and climate. He has published over 250 papers and two textbooks.



Prof. Sulochana Gadgil, Worked at the Centre for Atmospheric and Oceanic Sciences (CAOS) in Bangalore, India for most of her career. She has studied the how and why of monsoon, including farming strategies to cope with rainfall variability and modeling ecological and evolutionary phenomena. Her research led to the discovery of a basic feature of the sub-seasonal variation in the monsoon cloud bands. She demonstrated monsoon is a manifestation of the seasonal migration of a planetary scale system.



Prof. R. N. Keshavamurthy was born on 6th May 1936. He did M.Sc. in Physics and Ph.D. in Physics/Atmospheric Science. He joined IMD in the year 1959 and later he joined IITM, Pune as Senior Scientist in the year 1968. Other important positions held by him was Associate Professor and Professor at Physical Research Laboratory, Ahmedabad (1978-1992), Director of Indian Institute of Tropical Meteorology, Pune (1992-1996) and Member, WMO/ICSU Joint Scientific Committee of the World Climate Research Programme (WCRP) during 1987-1990.



Prof. P. V. Joseph was born on 29th December 1932 in Kerala, Prof. Porathur Vareed Joseph did his Master's degree in Physics in 1953 from the University of Madras. In 1957, he joined the India Meteorological Department (IMD) at Colaba and Alibag Observatories, Bombay. During 1980 to 1989 he was Director of the Meteorological Training School of IMD / WMO at Pune. In 1983 he obtained PhD degree in Physics from the University of Poona for research on monsoon variability. The IMS conferred upon Prof. (Dr.) P. V. Joseph – the Life Time Achievement Award of the IMS in 2016.



Dr. M. N. Rajeevan was born on 27 July 1961 in Kanyakumari, Tamil Nadu. He did his Post-graduation in Physics from Madurai Kamaraj University (1983) and Ph.D. in Physics (1997) from University of Pune. He started his career with TIFR, Mumbai, in IR Astronomy Group in 1983 & IMD in 1985 as Meteorologist at Ahmedabad and subsequently became Director at National Climate Centre, IMD, Pune. He got much recognition awards, like START Young Scientist Award (2001), 20th Biennial Mausam Award (2001), Young Scientist Award in Atmospheric Sciences by MoES (2007), Fellow of IASc, INSA and NASI, Member of the International Academy of Astronautics.



**INDIAN METEOROLOGICAL SOCIETY
Sir Gilbert Walker Gold Medal
Dr. Madhavan Nair Rajeevan**

Born on 27 July 1961 in Kanyakumari, Tamil Nadu, Dr. Madhavan Nair Rajeevan did his Post-graduation in Physics from Madurai Kamaraj University (1983) and Ph.D. in Physics (1997) from University of Pune.

Dr. Rajeevan started his career with Tata Institute of Fundamental Research, Mumbai, in IR Astronomy Group in 1983. He joined India Meteorological Department in 1985 as Meteorologist at Ahmedabad and subsequently became Director at National Climate Centre, IMD, Pune.

Known as 'Monsoon Man of India' his prominent contributions include the study of dynamics and energetics of Indian Summer Monsoon and its prediction on seasonal scale. He has contributed immensely on understanding the role of land-surface processes on monsoon variability, regional climate models, study of the cloud radiative forcings over monsoon region, analysis of active break spells in Indian Summer Monsoon and understanding the physical processes associated with extreme weather events.

The statistical models for long range predictions of southwest monsoon developed by Dr. Rajeevan still form the basis for seasonal prediction of southwest monsoon over India. High resolution gridded data set of rainfall and temperature developed by him has been among the most widely used dataset for climate applications for different weather sensitive sectors of economy.

Dr. Rajeevan joined the National Atmospheric Research Laboratory (NARL), Department of Space, Tirupati as Senior Scientist in 2008 and served there up to 2012. At NARL, he was involved in developing a weather modelling group for generating weather forecasts for the Rocket Launching Station of Indian Space Research Organization (ISRO). He helped the ISRO to establish an independent weather prediction unit for their day-to-day operations.

In 2012, he moved to the Ministry of Earth Sciences (MoES) as Advisor and Program Director, and got an opportunity in steering the National Monsoon Mission, to improve the skill of monsoon forecasts over the country. After about three years, he moved to the Indian Institute of Tropical Meteorology (IITM) Pune as its Director. While at IITM Pune, he was appointed Secretary to the Government of India in MoES. He served MoES as its Secretary for nearly five and a half years. After his retirement in July 2021, he moved to the National Centre for Earth Science Studies (NCESS) as a distinguished scientist of MoES.

Dr. Rajeevan has a brilliant research record with more than 140 research papers published in national and international journals. He has successfully guided 7 Ph.D. students, 5 M. Tech. students, and 10 M.Sc. students.

Dr. Rajeevan has been very active in international collaborations, but he preferred to carry out much of his core research within the country, and all his research papers came out from India while working in different institutions. Dr Rajeevan is a truly a “Self-Made” personality as he used the limited opportunities very effectively to deliver significant contributions to the Society.

His persistent scientific contributions brought him much recognition and awards, like START Young Scientist Award (2001), 20th Biennial Mausam Award (2001), Young Scientist Award in Atmospheric Sciences by MoES (2007), Fellow of IASc, INSA and NASI, Member of the International Academy of Astronautics.

In recognition of his outstanding contributions in education and research in general and advancing the scientific understanding of the dynamical aspects of the Indian monsoon and its multi-scale variability in particular, , the Indian Meteorological Society is privileged to confer upon Dr. M. Rajeevan, the prestigious Sir Gilbert Walker Gold Medal on this day of 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS

IMS Fellowship proposed to be given in TROPMET 2023



Prof. Vadlamudi Brahmananda Rao INDIAN METEOROLOGICAL SOCIETY FELLOWSHIP

Prof. Vadlamudi Brahmananda Rao (LM-899) was born on 16th October 1941. Prof. Rao is an Emeritus Professor at National Institute of Space Research (INPE), Brazil. He has been working on observational as well as theoretical aspects of both South American and Indian monsoons. He has been an Academic Coordinator for postgraduate research on climate change in Brazil. He obtained his M.Sc. degree in Meteorology and Oceanography in 1963 and Ph.D. in Meteorology in 1968 from Andhra University. Spanning six decades of experience dedicated to high-quality research and teaching, the main areas of interests of Prof. Rao are tropical meteorology; upper atmospheric physics; dynamic instability and geophysical fluid dynamics.

Prof. Rao went to Brazil in 1971 and is considered a pioneer there from India. He initiated teaching and research in meteorology for the first time at the masters and doctoral level in Brazil. He guided 21 Ph.D. theses and 26 master's theses in Brazil. He published over 130 research papers in high-impact peer-reviewed international scientific journals. He taught meteorology and oceanography from 1963 onwards till date first at Andhra University, and later at INPE, Brazil. While in Brazil, he was in charge of a National Project on climate research and helped to develop their National Plan.

Prof. Rao has been awarded many prestigious awards such as the Merit Certificate (2004), INPE, Brazil, Adalberto Serra Prize of the Brazilian Meteorological Society (2000) and Distinguished Researcher Award (1994), INPE, Brazil. A paper based on a Master's thesis guided by him won WMO Young Scientist Award in 1998.

Prof. Rao has been actively involved in the various activities of IMS-Visakhapatnam Chapter and is currently engaged in mentoring the academic and research activities of the Department of Meteorology and Oceanography, Andhra University.

In recognition of his outstanding contributions leading to better understanding of a wide-ranging aspects of tropical meteorology; upper atmospheric physics; dynamic instability and geophysical fluid dynamics, the Indian Meteorological Society is privileged to confer upon Prof. Vadlamudi Brahmananda Rao the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Rupa Kumar Kolli)
President, IMS



Dr. Raj Kumar
INDIAN METEOROLOGICAL SOCIETY
FELLOWSHIP

Dr. Raj Kumar (LM-230) was born on 3rd February, 1962 in Lucknow, Uttar Pradesh. He completed his higher education leading to Ph.D. from Lucknow University. He held many important leadership positions in ISRO, Government of India, like the Director National Remote Sensing Centre (2021- 22), Deputy Director, EPSA, SAC (2016-20), Group Director GHCAG, SAC (2015-17), AOSG (2014-15), Head, Geophysical Retrieval Division (2014) and Oceanic Science Division (2010-14).

His main contributions in technical management include Science Lead, ISRO-NASA NISAR Project, Alternate Principal, Committee on Earth Observation Satellites (CEOS), Chairman, Committee Atmosphere Applications and Research (MoES-ISRO), Programme Director, Meteorology and Oceanography Programme (MOP)-III, Project Director, Meteorology and Oceanography Programme (MOP)-II, Oceansat-3 Utilization Project, Scatsat-1, Utilization Project, Alert and Forewarning Service, DMSP, Convenor, Joint Science and Cal-Val Team ISRO-NASA-NOAA, Deputy Project Director, Oceansat-2 Scatterometer Cal/Val, Meteorology and Oceanography Programme (MOP) –II and Principal Investigator, DOD, SATCORE-1/II, MOP-I/II.

He has received many outstanding recognitions and awards like Satish Dhawan Award-2017 for contribution in Remote Sensing, Hari OM Ashram Prerit Dr Vikram Sarabhai Award-2008 for Space Applications (Physical Research Laboratory), P R Pisharoty Memorial Award-2006 for contribution in Meteorological/Oceanographic Remote Sensing and ISRO' Team Excellence Award 2009 for Oceansat-2 Scatterometer.

His professional contributions spanning over 40 years are well-documented by more than 120 research publications in national and international peer-reviewed journals and marked by his supervision of ten young researchers for their Ph.D. degrees. He is also a senior member of IEEE.

Dr. Raj Kumar has significantly contributed for the promotion of IMS activities including as a Secretary of IMS Ahmedabad Chapter (IMSA) during 1991-93. During his time, a national Tropical Meteorology Symposium under the auspices of IMS, named as TROPMET-92, was organized which has culminated into the TROPMET series as IMS annual flagship events. The International Tropical Meteorology Symposium (INTROMET-2017) was also organized at Ahmedabad during his tenure as Chairman of IMSA (2016-18).

In recognition of his outstanding contributions leading to noteworthy achievements in developing various techniques related to understanding Earth System, processes and interactions using earth observation data, and its applications towards societal benefits as well as studies in Planetary sciences, the Indian Meteorological Society is privileged to confer upon Dr. Raj Kumar the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22 November, 2023

(Rupa Kumar Kolli)
President, IMS



Dr. Atul Kumar Sahai
INDIAN METEOROLOGICAL SOCIETY
FELLOWSHIP

Dr. Atul Kumar Sahai, born on 17 March 1961, served as a senior scientist at the Indian Institute of Tropical Meteorology (IITM), Pune for more than two decades and retired as Scientist G in 2021. He obtained his M. Sc. and Ph.D. degrees from the University of Allahabad. Dr. Sahai has made significant contributions to the understanding and prediction of climate variability on different time scales over India. He is currently serving as a Consultant at IITM for India's National Monsoon Mission.

Dr Sahai has done pioneering work in developing a Dynamical Ensemble Prediction System for extended range prediction over India under the Monsoon Mission Program of Ministry of Earth Sciences (MoES), Government of India. The system has been found to be very skillful in predicting up to 2-4 weeks in advance, and its potential applications in various socio-economic sectors were convincingly demonstrated. He has published about 170 scientific research papers and guided several students for their Ph. D. and M. Sc./M. Tech degrees. Keeping in view the enormous potential of his work in the emerging area of climate services, Dr Sahai was given unique opportunities to undertake additional responsibilities as Head of Climate Research and Services of the India Meteorological Department Pune (2017-18), and also as Coordinator of India-UK Water Centre (2016-20).

Dr Sahai's exemplary research career has been duly recognized through various awards, viz., IITM Silver Jubilee award (2003 and 2008), Certificate of Merit Award of MoES (2008), IITM Golden Jubilee award (2017), Mausam Biennial Award (2020), etc. He has supported WMO activities in various capacities including as a Member of the Scientific Steering Committee of World Weather Research Programme. He is also serving as an Associate Editor of Journal of Earth System Sciences.

Dr. Sahai has served as the Chairman of Indian Meteorological Society (IMS), Pune Chapter during 2014-2016, and as Vice-President of IMS National Council for two terms (2018-20 and 2020-22). He is currently the Chairman of the IMS Standing Committee on Vayumandal.

In recognition of his outstanding contributions leading to improved understanding of the regional aspects of climate variability and change over India, with clearly demonstrated advances in forecasting and applications, the IMS is privileged to confer upon Dr. Atul Kumar Sahai the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



Prof. V. Geethalakshmi
INDIAN METEOROLOGICAL SOCIETY
FELLOWSHIP

Prof. V. Geethalakshmi (LM-1150) was born 12th May 1965. She obtained her M.Sc. in 1988 and Ph.D. in 1996 in Agronomy from the Tamil Nadu Agricultural University (TNAU). She has published more than 98 research papers in reputed peer reviewed International /National Journals. She is the first woman in the country appointed as the Vice-Chancellor among 70 Agricultural Universities. She is one of the early bird researchers in the field of Agrometeorology and is responsible for the establishment of Agro-Climate Research Centre (ACRC) in TNAU.

Prof. Geethalakshmi is an inspiring teacher in the field of agronomy and agrometeorology. She has contributed enormously for the development of skilled human resources in agro-meteorology, climate modelling, weather advisory, crop modelling, crop insurance and mitigation technologies. She has taught 20 different courses in the field of agronomy and agro-meteorology to the UG/M.Sc., /Ph.D students of TNAU and played a vital role in designing of M.Sc./Ph.D., degree programs in Agrometeorology in the country and TNAU. She has guided 20 Postgraduate, 17 Doctoral students and 4 Post-Doctoral Fellows.

Prof. Geethalakshmi played an instrumental role in the implementation of globally acclaimed research programs namely ClimaRice, ClimaAdapt and AgMIP in India. Her contribution in evolving three nutri-cereal varieties and developing and disseminating eight agro-management technologies, not only ensured the economic security of the rainfed farmers, but also ensured their nutritional security and thereby provided health benefits to the rural community.

Prof. Geethalakshmi is a key player in developing customized weather-based agro-advisory services. She has developed adaptation toolbox and technologies for mitigating climate-change impacts in varied agro climatic zones and Weather Based Crop Insurance Scheme protocols.

Prof. Geethalakshmi served as a co-chair for developing DST Science Technology Innovation Policy 2020 (Agriculture, water, food security), as an international expert in WMO programmes on Agricultural Meteorology and as a national expert for MoEF, DST and SERB.

In recognition of her outstanding contributions to agrometeorological research, her pro-active approach to support the farming community to take right decisions on farm operations, and her dedication to teaching, particularly focusing on empowerment of girls, the Indian Meteorological Society is privileged to confer upon Prof. V. Geethalakshmi the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Rupa Kumar Kolli)
President, IMS



Prof. Kesavapillai Mohanakumar
INDIAN METEOROLOGICAL SOCIETY
FELLOWSHIP

Prof. Kesavapillai Mohanakumar (LM-489) was born on 10 May 1956. He completed his Ph.D. from University of Kerala. He has more than 30 years of teaching experience in postgraduate teaching, including 20 years as a University Professor Grade. He has shown his commitment to the University as a Professor, Researcher and Dean of Faculty, on the whole as an exceptional leader, and is actively involved in innovative curriculum development in Atmospheric and Ocean Sciences.

Prof. Mohanakumar is an internationally reputed researcher in the field of atmospheric sciences and has more than 40 years of research experience in the areas of the middle atmosphere, stratosphere-troposphere coupling, monsoon dynamics and climate change. He has published more than 120 research papers of high quality in very highly rated, peer-reviewed, international journals and visited 28 Countries for academic purposes, and made more than 100 presentations of research findings, gave key note talks, invited lectures and chaired scientific sessions.

As a research guide he has mentored 27 students to obtain their Ph.D. degrees in the field of atmospheric/climate sciences. All these students are well placed in different eminent positions in India and abroad. In addition, he guided dissertation theses of several students from CUSAT and other universities for their M. Sc. and M. Tech. degrees.

Prof. Mohanakumar authored a textbook on “Stratosphere Troposphere Interactions - An Introduction”, published by Springer, which was selected as the best book of the year 2008 for the prestigious award of ASLI Choice for being a comprehensive book on a unique aspect of atmospheric sciences given at the 89th Annual meeting of the American Meteorological Society.

Prof. Mohan Kumar has served on the scientific advisory committees for many decision making bodies of Government of India, such as Ministry of Earth Sciences, Department of Science and Technology, CSIR, ISRO, etc. One of the most important contributions of Prof. Mohanakumar to the Indian scientific community in atmospheric science is establishing the state-of-the-art, indigenously developed Stratosphere Troposphere Radar at Cochin, the gateway of Asian Summer Monsoon.

In recognition of his outstanding contributions leading to a better understanding in the areas of middle atmosphere, stratosphere-troposphere coupling, monsoon dynamics and climate change and his exemplary service as a teacher and mentor in atmospheric sciences, the Indian Meteorological Society is privileged to confer upon Prof. Kesavapillai Mohanakumar the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Rupa Kumar Kolli)
President, IMS



Dr. Dushmanta Ranjan Pattanaik
INDIAN METEOROLOGICAL SOCIETY
FELLOWSHIP

Dr. Dushmanta Ranjan Pattanaik was born in the state of Odisha on 1 March 1970. He completed M.Sc (1991) and M.Phil. (1993) in Physics from Sambalpur University and later M.Tech. in Atmospheric Sciences from Pune University in 1995. He obtained his Ph.D. in 2001 from Pune University, for his *work* at the Indian Institute of Tropical Meteorology (IITM). He joined the India Meteorological Department (IMD) in 1998 and is currently serving as the operational head of IMD's Numerical Weather Prediction Division.

Dr. Pattanaik has made significant contributions in implementing coupled (Atmosphere-Ocean) modelling system in IMD and its operationalization for generation of extended range forecasts. He has been engaged in research on monsoon variability and forecasting, extended range forecasting of extreme weather events, climate variability, climate change etc. He has published more than 100 research papers in peer reviewed international/national journals and also contributed many chapters in books and also worked as Editor of scientific journals Mausam and Vayumandal.

Dr. Pattanaik has served as a WMO expert in the area of global and regional climate monitoring, definition of extreme weather and climate events and severe weather forecasting and also as member/co-lead of various teams of WMO. He has been a resource person for training of various departmental and international trainees and has guided three Ph.D. and two M. Tech. theses and several short-term projects in Atmospheric Sciences. He also delivered more than 90 invited talks in workshop/seminar and meetings.

Dr. Pattanaik's scientific contributions were duly recognized by awards like the Certificate of Merit for outstanding contribution in the field of atmospheric science and technology by the MoES, Government of India in 2011 and Young Scientist Award for the best research paper published in tropical meteorology for the year 2014 by IMS and 30th Mausam Award for the best research paper published in 2019.

Dr. Pattanaik's contributions to IMS in various capacities and overall furtherance of meteorology for larger societal benefits in the last 20 years (Since 2001) have been of high professional caliber rendered with dedication and devotion. He worked as the Secretary of IMS for four years (2018-2022) and presently has been elected as the Vice President of IMS for the period 2022-2024.

In recognition of his outstanding contributions in operationalization of extended range forecasting and its applications in various sectors, improved weather and climate forecasting services in various time scales, application of research to operation and operation to services and exemplary support to IMS activities, the IMS is privileged to confer upon Dr. Dushmanta Ranjan Pattanaik the Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



**Dr. Gubbala China Satyanarayana
INDIAN METEOROLOGICAL SOCIETY
ASSOCIATE FELLOWSHIP**

Dr. Gubbala China Satyanarayana (LM-443) was born on 14th September 1979. He has completed his Ph.D in Meteorology from Andhra University. He has published more than 50 research papers in International /National reputed research Journals.

Dr. Gubbala China Satyanarayana organised 2 SERB sponsored training programs on “Computational Meteorology” which empowered 50 young researchers to pursue their academic pursuits. He has completed three government-sponsored projects and conducted weather & climate related community outreach programmes at the school, college, and university level. He has published many articles in different newspapers to give the public the necessary safety precautions to escape from heat stroke, tropical cyclones, thunderstorms, and heavy rainfall events.

Dr. Gubbala China Satyanarayana main research interests are atmospheric modeling and data analysis for research on weather extremes. Dr. Gubbala made significant research contributions on heat waves over India as evident from his publications. He provides weather information as suitable for farmers and other stakeholders in lucid regional language, generate the KLU real time 72-hour weather predictions at 3-km resolution for Andhra Pradesh and Telangana states with those from IMD regional and NCEP GFS global ensemble predictions.

He is presently coordinating with the Andhra Pradesh State Development Planning Society (APSDPS) as a Scientific Advisor. He received several research awards, which include “Best teacher @ K L University”, “Best paper @ Vayumandal”.

In recognition of his outstanding contribution leading to noteworthy contribution in understanding of atmospheric modeling and data analysis for research on weather extremes. The Indian Meteorological Society is privileged to confer upon Dr. Gubbala China Satyanarayana the Associate Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



Dr. Vinoj Velu
INDIAN METEOROLOGICAL SOCIETY
ASSOCIATE FELLOWSHIP

Dr. Vinoj Velu was born on 114th August 1977. He has completed his Ph.D in Atmospheric Science from Indian Institute of Science Bengaluru (IISc). Dr. Velu has so far published 36 research papers in high impact national/international journals with an h-index of 23 (Google Scholar), i10 index of 26 and a total citation count over 1450.

Dr. Velu has made significant contribution to our understanding of natural mineral dust aerosols and their impact on monsoon rainfall. He was the first one globally to show an observational relationship between aerosols over west Asia/Arabian Sea to have an impact on monsoon rainfall on short time scales of about a week using satellite observations and model simulations. Since this important paper (published in Nature Geoscience) in 2014.

Dr. Velu has shown that dust dynamics is quite complex over the Indian region. He also showed that dust aerosols over the Indian region is declining in recent times especially during the pre-monsoon season. He was also the first to make aerosol optical depth measurements over northern Arabian Sea during the peak summer monsoon period of July-Aug 2002 during the ARMEX –II cruise over Arabian Sea. He also actively established and conducted a one-year long aerosol measurement campaign to understand long range transport of aerosols in to Arabian Sea in a remote island. He also takes active interest in working with journalist and school children to popularize meteorology by providing scientific lectures and through other means including training journals in reporting climate stories at ASCI, Hyderabad.

He has received the Roddam Family Medal: Outstanding PhD dissertation at CAOS, IISc Bengaluru, 2011.

In recognition of his outstanding contribution leading to noteworthy contribution Aerosol Cloud Climate Interactions; Satellite Remote Sensing; Monsoon and Climate Change; Climate Modeling; Urban Climate; Land Use and Climate; Air Pollution studies. The Indian Meteorological Society is privileged to confer upon Dr. Vinoj Velu the Associate Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



Dr Swain Debadatta
INDIAN METEOROLOGICAL SOCIETY
ASSOCIATE FELLOWSHIP

Dr. Swain Debadatta (LM-1124) was born on 29th September 1980. He has completed his Ph.D in Atmospheric & Space Sciences , Pune. Dr. Swain has published more than 60 research papers in high impact national/international journals and more than 12 reports and book chapters.

He contributed for the Promotion of activities related to IMS as Jt. Secretary of IMS-Bhubaneswar Chapter and similar activities in 2016,2017, 2018 & 2019 for organizing the national seminars and workshops to popularize the atmospheric science activities. Dr. Swain was also involved in the training programme on “Understanding Weather & Climate” Theme (under Dept. of Science & Technology, Govt. of India, New Delhi) during 2014 and 2015 for Principals, Vice- Principals, School Science Teachers in Odisha.

He received many awards and recognitions as 2021 Outstanding Paper Award by Committee on Space Research (COSPAR, France) for Research Paper published in the Journal: Advance in Space Research (2021) and Young Scientist Awardsat the first Atlantic Radio Science Conference (AT-RASC 2015), Spain, 2015, and by the Union Radio-Scientifique Internationale/ International Union of Radio Science, (URSI), Belgium, 2011.

In recognition of his outstanding contribution leading to noteworthy contribution Satellite & Physical Oceanography, Ocean-Atmosphere Interactions, Remote Sensing applications, Urban Climate studies. The Indian Meteorological Society is privileged to confer upon Dr. Swain Debadatta the Associate Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



Prof. K. V. Subrahmanyam
INDIAN METEOROLOGICAL SOCIETY
ASSOCIATE FELLOWSHIP

Prof. K. V. Subrahmanyam has completed his Ph.D in Atmospheric Science, Cochin University of Science and Technology, *Cochin* and has published more than 50 research papers in high impact national/international journals and presented research papers in more than 70 national conference /workshop programs.

Prof . V. Subrahmanyam made outstanding contribution to the realm of cloud dynamics by employing radar remote sensing techniques and provided the valuable information on the three-dimensional structure of various clouds and associated dynamics over the Indian summer monsoon region, which is the first of its kind. Further, devised a methodology for validating the indigenously developed Doppler Weather Radar observations for monitoring severe cyclones and for nowcasting. At the same time, my contribution to the field of cloud dynamics will help in better representation of vertical structure of various types of clouds and their feedback in weather prediction models.

He received many awards and honors such as Young Researcher Award-2021 by Ministry of Earth Science (MoES), New Delhi and P Krishna Rao Award on “Application of Satellite data and Remote Sensing in Meteorology” by Indian Meteorological Society-2019.

In recognition of his outstanding contribution leading to noteworthy contribution to the realm of cloud dynamics by employing radar remote sensing techniques and provided the valuable information on the three-dimensional structure of various clouds and associated dynamics over the Indian summer monsoon region The Indian Meteorological Society is privileged to confer upon Prof . V. Subrahmanyam the Associate Fellowship of the Indian Meteorological Society on this day, the 22nd November, 2023.

Jaipur, India
22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS

8.3 IMS National Biennial and Annual Awards

The IMS had instituted three biennial research awards from the endowment gifted by the sponsors viz., Dr. B.N. Desai Award, V. Bhavnanayana Award, J. Das Gupta Award, Dr. P. Krishna Rao and Prof. A.D. Vernekar awards. In 2011 IMS re-designed these awards by increasing the prize money by contributing from IMS along with the endowment gifted earlier by the sponsors. These awards are as per the details given below.

- (i) **IMS Award for Best Paper Published on Monsoon Research (Formerly B.N. Desai Award):** A Citation and cash prize of Rs.15,000/-.
- (ii) **IMS Biennial award for best paper published on Atmospheric Observations & Technologies (Formerly J. Das Gupta Award):** A Citation and cash prize of Rs.15,000/-.
- (iii) **IMS Biennial award for best paper published on Weather and Climate Services (Formerly Bhavnanarayana Award):** A Citation and cash prize of Rs. 15,000/-
- (iv) **IMS Biennial award for best paper published on Application of Satellite data and Remote Sensing in Meteorology (Formerly P. Krishna Rao Award) :** A Citation and cash prize of Rs. 25,000/-
- (v) **IMS Biennial award for best paper published on Modelling study on Atmospheric and Oceanic Sciences (Formerly A. D. Vernekar Award) :** A Citation and cash prize of Rs. 25,000/-
- (vi) **IMS Biennial award for best paper published on Climate Science and Climate Change (Prof. D. V. Bhaskar Rao Award:** Citation and ₹25,000/-).
- (vii) In addition to above five awards, IMS has also introduced another biennial award viz., “**VayuMandal Award**” from (2017-2018) for the best paper published in IMS journal – VayuMandal (Citation & Rs. 15,000/-).

(viii) IMS Young Scientist Award

During 2012 IMS has also instituted a young Scientist award (Below 45 years) to be given annually for the Best Paper Published in Tropical Meteorology with a Citation and award money of Rs. 50,000/-.

Winner of IMS Biennial Awards (2021-2022)

IMS has announced the winner of above mentioned three Biennial awards for the year 2021-2022. They will be awarded the same during the inaugural function of annual National symposium TROPMET, 2023 on 22 November, 2023.

S. No	Name of the Award	First Author	Full Paper
1.	Best paper published on Atmospheric Observations and Technologies	Uriya Veerendra Murali Krishna	Uriya Veerendra Murali Krishna, Subrata Kumar Das, Ezhilarasi Govindaraj Sulochana, Utsav Bhowmik, Sachin Madhukar Deshpande and Govindan Pandithurai (2021) : Statistical characteristics of raindrop size distribution over the Western Ghats of India: wet versus dry spells of the Indian summer monsoon, Atmospheric Chemistry and Physics, Vol. No 21, Page No. 4741-4757.
2.	Best Paper published on Modelling Study on Atmospheric and Oceanic Sciences	Chinmay Jena	Chinmay Jena, Sachin D. Ghude, Rajesh Kumar, Sreyashi Debnath, Gaurav Govardhan, Vijay K. Soni, Santosh H. Kulkarni, G. Beig, Ravi S. Nanjundiah & M. Rajeevan (2021) : Performance of high resolution (400 m) PM2.5 forecast over Delhi, Scientific Reports, Vol. No. 11, Page No. 4104.
3.	Best Paper published on Application of Satellite data and Remote Sensing in Meteorology	Prabir Kumar Das	Prabir Kumar Das, S. K. Mohinuddin, Subrata Kumar Midya, Dilip Kumar Das, Richa Sharma & Soumya Bandyopadhyay (2021) : Can multiscalar meteorological drought indices detect soil moisture droughts? A study of Indian regions, Hydrological Science Journal, Vol. No 66:9, Page No. 1475-1487.

8.4 IMS National Annual Award [IMS Young Scientist Awards (Annual)]

IMS young scientist award for best paper published on Tropical Meteorology. (Citation & Rs. 50,000/-; At least the 1st author should be below 45 years of age)

Winner of IMS Young Scientist Award for 2022

IMS has also announced the winner of young scientist awards for the year 2022. She will be awarded the same during the inaugural function of annual National symposium TROPMET, 2023 on 22 November, 2023.

S. No	Name of the Award	First Author	Full Paper
1	Best Paper Published in Tropical Meteorology (2022)	Chandrima Mallick	Chandrima Mallick, Anupam Hazra, Subodh K. Saha, Hemantkumar S. Chaudhari, Samir Pokhrel, Mahen Konwar, Ushnanshu Dutta, Greeshma M. Mohan, and K. Gayatri Vani (2022) : Seasonal Predictability of Lightning Over the Global Hotspot Regions, Geophysical Research Letters, Vol. No 49(2), Page No. 1-11.

List of “IMS Young Scientist Awardees” so far since its inception in 2012 are:

S. No.	Name	Year
1	Dr. Hemant Chaudhary, IITM, Pune	2012
2	Dr. Randhir Singh, SAC, Ahmedabad	2013
3	Dr. D. R. Pattanaik, IMD, New Delhi	2014
4	Dr. Roxy Mathew, IITM, Pune	2015
5	Dr. (Ms.) P Rohini, IITM, Pune	2016
6	Dr. (Ms) Gayatri Kulkarni, IITM, Pune	2017
7	Dr. Siddarth S Das, VSSC, Trivandrum	2018
8	Shri Raju Mandal, IITM, Pune	2019
9	Dr. Vimal Mishra, IIT Gandhinagar	2020
10	Dr. S. Indira Rani, NCMRWF, Noida	2021
11	Ms. Chandrima Mallick, IITM, Pune	2022



Dr. Hemantkumar Chaudhari



Dr. Randhir Singh Hooda



Dr. D. R. Pattanaik



Dr. Roxy Mathew Koll



Dr. (Ms) P. Rohini



Dr. (Ms) Gayatri Kulkarni



Dr. Siddarth S Das



Dr. Raju Mandal



Dr. Vimal Mishra



Dr. S. Indira Rani



Ms. Chandrima Mallick



**INDIAN METEOROLOGICAL SOCIETY AWARD
FOR BEST PAPER PUBLISHED ON
ATMOSPHERIC OBSERVATIONS AND TECHNOLOGIES
(FORMERLY J. DAS GUPTA AWARD)**

The Indian Meteorological Society (IMS) has a tradition of promoting excellence in the field of Meteorology and Allied disciplines through the institution of various awards. Accordingly, different annual and biennial awards are regularly conferred upon members of the society in recognition of their research accomplishments.

The IMS award on Atmospheric Observations and Technologies (Formerly J. Das Gupta Award) is given biennially to the best research paper published by an IMS member. Keeping with the tradition of IMS, the research paper **entitled “Statistical characteristics of raindrop size distribution over the Western Ghats of India: wet versus dry spells of the Indian summer monsoon”** by **Uriya Veerendra Murali Krishna, Subrata Kumar Das, Ezhilarasi Govindaraj Sulochana, Utsav Bhowmik, Sachin Madhukar Deshpande and Govindan Pandithurai** published in **Atmospheric Chemistry and Physics, Vol. No 21, Page No. 4741-4757, 2021** is adjudged as the Best Paper on Atmospheric Observations and Technologies (Formerly J. Das Gupta Award) among other publications considered for 2021-2022. In this paper, The rainfall distribution is complex over WG region, which is challenging for weather prediction models. The rain microphysical processes are fundamental that affect the parameterization schemes of numerical models. This paper explored the rainfall microphysical mechanisms (raindrop size distributions) during wet and dry spells of the Indian summer monsoon. The study highlights the importance of warm rain process along the WG mountains.

In recognition of the above research accomplishment, the IMS Biennial Award on Atmospheric Observations and Technologies (Formerly J. Das Gupta Award) for the year 2021-2022 is jointly conferred upon **Uriya Veerendra Murali Krishna, Subrata Kumar Das, Ezhilarasi Govindaraj Sulochana, Utsav Bhowmik, Sachin Madhukar Deshpande and Govindan Pandithurai** published in **Atmospheric Chemistry and Physics** on this day of 22nd November 2023.

22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



**INDIAN METEOROLOGICAL SOCIETY AWARD
FOR BEST PAPER PUBLISHED ON
APPLICATION OF SATELLITE DATA AND REMOTE SENSING IN
METEOROLOGY
(FORMERLY P. KRISHNA RAO AWARD)**

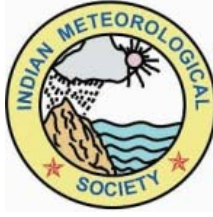
The Indian Meteorological Society (IMS) has a tradition of promoting excellence in the field of Meteorology and Allied disciplines through the institution of various awards. Accordingly, different annual and biennial awards are regularly conferred upon members of the society in recognition of their research accomplishments.

The IMS award on Application of Satellite data and Remote Sensing in Meteorology (Formerly P. Krishna Rao Award) is given biennially to the best research paper published by an IMS member. Keeping with the tradition of IMS, the research paper **entitled "Can multiscalar meteorological drought indices detect soil moisture droughts? A study of Indian regions "** by **Prabir Kumar Das, S. K. Mohinuddin, Subrata Kumar Midya, Dilip Kumar Das, Richa Sharma & Soumya Bandyopadhyay** published in **Hydrological Science Journal, Vol. No 66:9, Page No. 1475-1487, 2021** is adjudged as the Best Paper on Application of Satellite data and Remote Sensing in Meteorology among other publications considered for 2021-2022. In this paper, the potential of multi-scalar meteorological indices in detecting soil moisture drought was studied over Indian mainland during 1980-2015. The analysis indicated that standardized evapotranspiration index is the best index in detecting soil moisture drought events, whereas multivariate moisture anomaly index outperformed the other indices in representing combined drought events, i.e., meteorological or/and soil moisture droughts.

In recognition of the above research accomplishment, the IMS Biennial Award on Application of Satellite data and Remote Sensing in Meteorology for the year 2021-2022 is jointly conferred upon **Prabir Kumar Das, S. K. Mohinuddin, Subrata Kumar Midya, Dilip Kumar Das, Richa Sharma & Soumya Bandyopadhyay** on this day of 22nd November 2023.

22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



**INDIAN METEOROLOGICAL SOCIETY AWARD
FOR BEST PAPER PUBLISHED ON
MODELLING STUDY ON ATMOSPHERIC AND OCEANIC SCIENCES
(FORMERLY A. D. VERNEKAR AWARD)**

The Indian Meteorological Society (IMS) has a tradition of promoting excellence in the field of Meteorology and Allied disciplines through the institution of various awards. Accordingly, different annual and biennial awards are regularly conferred upon members of the society in recognition of their research accomplishments.

The IMS award on Modelling Study on Atmospheric and Oceanic Sciences (Formerly A. D. Vernekar Award) is given biennially to the best research paper published by an IMS member. Keeping with the tradition of IMS, the research paper **entitled "Performance of high resolution (400 m) PM_{2.5} forecast over Delhi" by Chinmay Jena, Sachin D. Ghude, Rajesh Kumar, Sreyashi Debnath, Gaurav Govardhan, Vijay K. Soni, Santosh H. Kulkarni, G. Beig, Ravi S. Nanjundiah & M. Rajeevan published in Hydrological Science Journal, Scientific Reports, Vol. No. 11, Page No. 4104, 2021** is adjudged as the Best Paper on Modelling Study on Atmospheric and Oceanic Sciences (Formerly A. D. Vernekar Award) among other publications considered for 2021-2022. In this paper, they developed a very high resolution advanced operational air quality early warning system to alert the pollution control authorities and general public three days in advance about extreme air pollution episodes. This system operates in a dynamical downscaling framework and assimilates Aerosol optical Depth (AOD) from satellites and surface PM_{2.5} from dense observational network in Delhi to leads substantial improvement in initial condition during every assimilation cycle. The forecast of air quality is to guide decision makers i.e. Commission for Air Quality Management, together with the Central and State government's pollution control board, uses this information to impose public-health restrictions.

In recognition of the above research accomplishment, the IMS Biennial Award on Modelling Study on Atmospheric and Oceanic Sciences (Formerly A. D. Vernekar Award) for the year 2021-2022 is jointly conferred upon **Chinmay Jena, Sachin D. Ghude, Rajesh Kumar, Sreyashi Debnath, Gaurav Govardhan, Vijay K. Soni, Santosh H. Kulkarni, G. Beig, Ravi S. Nanjundiah & M. Rajeevan** on this day of 22nd November, 2023.

22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



INDIAN METEOROLOGICAL SOCIETY YOUNG SCIENTIST AWARD FOR BEST PAPER PUBLISHED ON TROPICAL METEOROLOGY

The Indian Meteorological Society (IMS) has a tradition of promoting excellence in the field of Meteorology and Allied disciplines through the institution of various awards. Accordingly, different annual and biennial awards are regularly conferred upon members of the society in recognition of their research accomplishments.

The IMS Young Scientist Award on Tropical Meteorology is given annually to the best research paper published by a Young Scientist of IMS. Keeping with the tradition of IMS, the research paper **entitled “Seasonal Predictability of Lightning Over the Global Hotspot Regions”** by **Chandrima Mallick, Anupam Hazra, Subodh K. Saha, Hemantkumar S. Chaudhari, Samir Pokhrel, Mahen Konwar, Ushnanshu Dutta, Greeshma M. Mohan, and K. Gayatri Vani**, **Geophysical Research Letters, Vol. No 49(2), Page No. 1-11** is adjudged as the Best Paper on Tropical Meteorology among other publications considered for 2022. The paper indicates that lightning is a major threat which causes numerous fatalities over India and global hotspot regions. The study highlights the possibility of lightning prediction, which is bound to the general tendencies of the phenomena in one season advance as it is strongly tied with slowly varying global predictors.

In recognition of the above research accomplishment, the IMS Young Scientist Award on Tropical Meteorology for the year 2022 is conferred upon **Chandrima Mallick** on this day of 22nd November, 2023.

22nd November, 2023

(Dr. Rupa Kumar Kolli)
President, IMS



CONTACT IMS

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Mausam Bhavan Complex, Lodi Road, New Delhi-110 003
Ph No: 011-49967783*

Email ID: imetsociety@gmail.com : web : <http://imetsociety.org/>



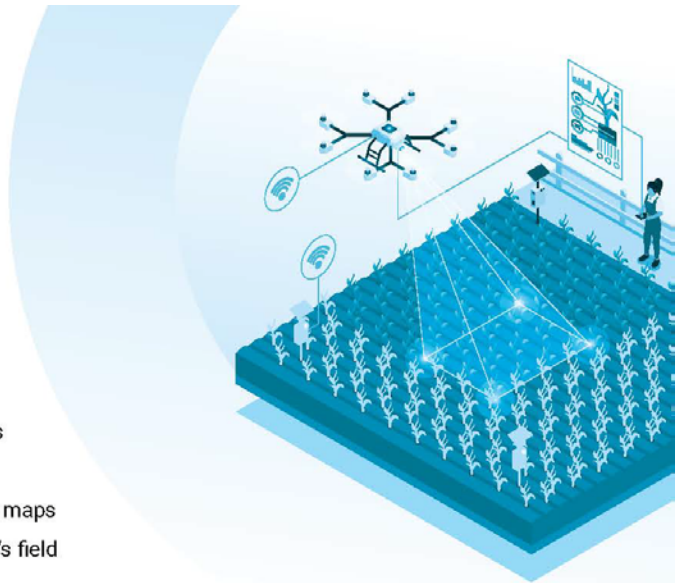
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Farm Details

Ownership details, size, borrowing status



Crop History

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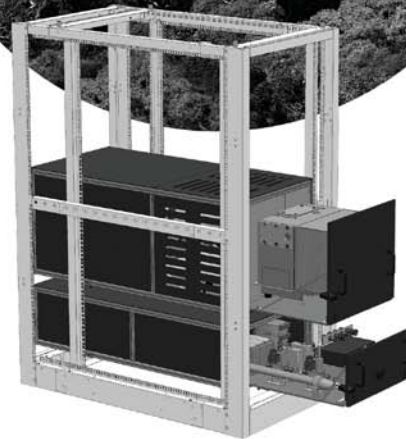


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