

## **A Report from Indian Meteorological Society and its Local Chapters (October 2021 to March 2022)**

### **1. IMS-IMD Azadi ka Amrit Mahotsav Lecture Series**

To commemorate the 75th anniversary of Independence of India, our country is currently celebrating Azadi ka Amrit Mahotsav. This celebration will continue till 15<sup>th</sup> August 2023 and it is an intensive countrywide campaign to visualise and inform citizens about the cultural, social, political and economic progress of our country during the past 75 years. IMS is also participating in this Mahotsav by showcasing its commitment to disseminate knowledge of meteorology and allied sciences and its application 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., among the scientific workers, public and policy makers.

IMS is celebrating this Mahotsav by organising a series of popular lectures and discussions to foster and encourage communication and exchange of knowledge, ideas, resources for adapting climate variability and change, climate risk management, disaster risk reduction, detection and attribution of extreme events, severe weather forecasting and improvement of prediction models for various application in climate-based services and support; and improvement of observations, data management and infrastructure during the last 75 years. This lecture series will provide an opportunity to know about the availability of data and products to scientists engaged in impact studies in various sectors viz., agriculture, human health, water availability and environmental sciences and those who are eager to use climate data in order to examine the present and future relationships of important parameters in their sectors with the climatic variables.

(i) The first talk of the series was delivered by Dr. R. R. Kelkar on 18 October, 2021 entitled 'Progress of Meteorological Services after Independence'.

(ii) The second talk of the series was delivered by Prof. Sulochana Gadgil on 6 November, 2021

entitled 'Monsoon Science: Achievements and Challenges'.

(iii) The third talk of the series was delivered by Prof. S. K. Sash on 28 Jan, 2022 entitled 'Role of Academic Institutions in the Development of Trained Manpower in Atmospheric and Oceanic Sciences'.

### **2. International Symposium on Tropical Meteorology, INTROMET-2021**

The International Symposium on Tropical Meteorology (INTROMET-2021) was conducted at the Cochin University of Science and Technology (CUSAT), Kerala during 23-26 November 2021. The inaugural and the valedictory functions were conducted in hybrid mode. The Technical Sessions of the Symposium was organised in three parallel virtual Halls (Hall-1: Pampa, Hall-2: Periyar, Hall-3: Nila) hosted at the Advanced Centre for Atmospheric Radar Research (ACARR), CUSAT. The INTROMET-2021 received 537 abstracts from across the national and international delegates. There were 13 plenary talks, 38 lead talks, and 28 invited talks, in addition to 114 oral and 272 poster presentations. The symposium had 17 Technical Sessions, 3 Early Career Researcher's Sessions and an interactive session on the National Weather Service. Nationally and Internationally reputed scientists became part of the Symposium as Session Chairs, Lead and Invited speakers. Young and leading scientists from all major States, National and International Institutions participated as oral and poster presenters.

Among the highlights of the Symposium were three elegant memorial lectures on behalf of the three eminent Atmospheric Scientists of Indian origin, viz., Prof. P.R. Pisharoty, Prof. R. Ananthkrishnan and Ms. Anna Mani, and the release of special Postal Covers on their behalf. A special session that widely attracted the interests of both the scientists and the common public was the interactive assembly of the National Weather Services which revealed largely the weather services rendered by

various organisations under the Ministry of Earth Sciences, Govt. of India.

The Inaugural session of INTROMET-2021 was conducted in virtually connected two parallel physical venues (1) at ACARR, CUSAT and (2) Mahika Hall, Prithvi Bhavan MoES, New Delhi from 10 AM on 23rd November 2021. Dr. Mrutyunjay Mohapatra, DGM, IMD & President, IMS presided over the Session. Dr. M. Ravichandran, Secretary, MoES and DST was the Chief Guest on this occasion. Dr. M. Rajeevan, former Secretary, MoES was the Guest of Honour. Dr. D. R. Pattanaik, Secretary, IMS New Delhi, Prof. K.N Madhusoodanan, Vice Chancellor, CUSAT, Prof. K. Mohankumar, Chairman of INTROMET-2021, CUSAT and Dr. Abhilash S, Director, ACARR, CUSAT & Secretary of IMS Cochin chapter were among the speakers in the opening ceremony. Dr. M. R. Rameshkumar, retired Chief Scientist, NIO, Goa, released the abstract volume. In this Session, Dr. M. Ravichandran was bestowed with the prestigious IMS Fellowship.

The Plenary Session-1 on Day-1 was jointly chaired by Prof. P. V. Joseph and Prof. K. Mohankumar. Dr. M. Mohapatra, DGM, IMD spoke on the Recent Advances in Multi Hazards Early Warning System in India. Dr. M. Rajeevan, Former Secretary, MoES gave his talk on the Role of Oceans on the Variability of Indian Monsoon.

The subsequent Technical Sessions were conducted in parallel in 3 Halls. In Hall Pampa, TS-1A on Changing Climate–Observations, Attribution and Model Projections (CHC) was chaired by Dr. R. Suresh, Scientist-F/Director, IMD (Retd.) and Dr. D. S. Pai, Head, Climate Research & Services, IMD. There were 2 Lead talks, 2 Invited talks and 4 oral presentations in this Session. In Hall Periyar, TS-1B on Climate Variability and Extreme Weather Events (CVE) was chaired by AVM (Dr.) Ajit Tyagi, IMS Fellow & Dr. D. R. Pattanaik, IMD. There were 2 Lead talks, 1 Invited talk and 6 oral presentations in this Session. TS-1C on Aerosols, Air Pollution and Climate Sensitivity (AAP) was held in Pampa Hall which was chaired by Prof. Usha K. Aravind, School of Environmental Studies, CUSAT and Dr. K. Satheesan, Head, Department of Atmospheric Sciences, CUSAT. There were 1 Lead

talk, 2 Invited Talks and 4 oral presentations in this Session.

The next Session on Day-1 was dedicated for the releasing of special postal covers in honour of three distinguished meteorologists from Kerala, namely Prof. P. R. Pisharoty, Prof. R. Ananthakrishnan and Ms. Anna Mani. Chief Guest of the function was Ms. Mariamma Thomas, Indian Postal Service (IPoS), Postmaster General, Central Office, Kerala region. Pro-Vice Chancellor of CUSAT Prof. P. G. Sankaran presided over the event. Prof. K. Mohankumar, Chairman of INTROMET-2021, Dr. M. R. Rameshkumar, Chairman of the scientific and technical committee of INTROMET-2021 and Dr. Abhilash S, Secretary of LOC, INTROMET-2021 were present during the function.

The above function was followed by R. Ananthakrishnan Memorial Public Lecture by Prof. J. Srinivasan, IISc, Bangalore on the topic ‘What Can We Learn From the Simulation of the Monsoons for the Past 20,000 Years by Climate Models’?. The Session was chaired by Prof. P. V. Joseph, Director, IMD (Retd.) and former Emeritus Professor CUSAT and Prof. P. N. Sen, Director IMD (Retd) and former Emeritus Professor, University of Pune.

Plenary Session on Day-2 (24/11/2021) was jointly chaired by Prof. A. Jayaraman, former director of the National Atmospheric Research Laboratory (NARL) Gadanki and Dr. Radhika Ramachandran, former Director of Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO. Prof. Brian Mapes, University of Miami, USA spoke on Convection Thresholds and Climate Reasoning in the Western Indian Ocean. This was followed by the talk of Dr. Andrew Turner, University of Reading, UK. He spoke on The Effects of Climate Change on the Global and Regional Monsoons. The Technical Session TS-2A on Changing Climate – Observations, Attribution and Model Projections (CHC) was held in Pampa Hall jointly chaired by Dr. Rupa Kumar, the Executive Director of the International CLIVAR Monsoon Project Office (ICMPO) and Dr. Swadhin Behera, Director of Application Laboratory in Japan Agency for Marine-Earth Science and Technology.





Presentation of IMS Fellow to Dr. M. Ravichandran

(JAMSTEC). This Session had 1 Lead talk, 2 Invited talks and 5 oral presentations TS-3A on Data Assimilation Techniques and Numerical Weather Prediction (DAP) held at the same Hall was chaired by Prof. A.Chandrasekhar, Professor and Dean of Academics at Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram. There were 2 Lead talks, 1 Invited talk and 4 oral presentations in this Session. Technical Session TS-4A: Early Career Researcher's Session on Our Changing Climate was chaired by Shri Anand K. Sharma, Additional Director General and Scientist-G at Regional Meteorological Centre, IMD, New Delhi. There was 1 Lead talk and one Invited talk in this Session.

In Periyar Hall, TS-2B on Climate variability and extreme weather events (CVE) was chaired by Dr. K. J. Ramesh, former DGM, IMD and Dr. C. Gnanaseelan, Scientist-G, from Indian Institute of Meteorology, Pune. There were 2 Lead talks, 1 Invited talk and 3 oral presentations in this Session. TS-3B: Water Resources, Agriculture and Climate Change (WAC), also held in the same hall on Day-2 was Chaired by Prof. N. V. Umamahesh, Department of Civil Engineering, NIT, Warangal and Dr. K. K. Singh, Scientist-G, IMD, New Delhi.

This Session had 1 Lead and Invited talks each and 3 oral presentations. TS-4B on Early Career Researcher's Session on Earth Observations, chaired by Dr. R. S. Maheshkumar, Scientist-E IITM, Pune and Dr. Ananda Kumar Das, Scientist-E IMD, New Delhi. In this Session there was one Lead talk and 5 oral presentations. In parallel with the above session, in Hall Pampa, TS-2C on Aerosols, Air Pollution and Climate Sensitivity (AAP) was chaired by Dr. Suresh Babu, Head of the Aerosols and Radiative Forcing Section at the SPL, VSSC and Dr. Bindu. G, Nansen Environmental Research Centre (NECRI), India. In this Session there were 2 Lead and 1 Invited talks and 4 oral presentations. TS-3C on Stratospheric Processes and their Role in Weather and Climate (SPC) held in the same hall was jointly chaired by Dr. Amit Kumar Patra, Director, NARL, Gadanki and Prof. M. K. Satheesh Kumar, Adjunct Professor of Manipal Academy of Higher Education, Manipal. There were 1 Lead talk, 2 Invited talks and 3 oral presentations in this Session. TS-4C on Early Career Researcher's Session on Monsoon Variability was chaired by Dr. Rajeev Kumar Mehajan, Scientist-G/Advisor, SERB and Dr. S. I. Laskar, Scientist-E, IMD. This Session had 1 Lead and Invited talks each.



Release of INTROMET 2021 Souvenir



INTROMET 2021 Abstract Volume



The Special attraction of Day-2 was the Ms. Anna Mani Memorial Public Lecture held by Dr. C. R. Sreedharan, Retd. DDGM, IMD. His talk was entitled 'Down the Memory Lane with Ms. Anna Mani: The Passionate Perfectionist'. The Session was chaired by Prof. K. Mohankumar, founder Director, ACARR, CUSAT.

The Plenary Session on Day-3 (25/11/2021) held in Pampa hall was chaired by Prof. K. Mohankumar and Dr. M. R. Rameshkumar. Dr. M. Ravichandran,

Secretary, MoES, Govt. of India delivered the first talk on Teleconnection Between the Arctic and Indian Monsoon Extreme Rainfall. Dr. R. Krishnan, IITM, Pune spoke on Role of Ocean on Climate-Atmosphere Perspectives. Dr. A.K. Sahai, IITM, Pune talked on the topic Subseasonal Prediction in the Changing Climate. In the fourth talk in the Plenary Session, Land Surface Modeling Studies over the Indian Region was discussed by Prof. A. Chandrasekhar, IIST, Thiruvananthapuram.

**Winners of IMS Biennial Awards (2019-2020).**

S. No	Name of the Award	First Author	Full Paper
1	Best Paper Published on Monsoon Research	M. M. Nageswararao	M. M. Nageswararao, M. C. Sannan & U. C. Mohanty, (2019) : Characteristics of various rainfall events over South Peninsular India during northeast monsoon using high-resolution gridded dataset (1901–2016), Theoretical and Applied Climatology, Vol. 137, 2573–2593.
2	Best Paper published on Atmospheric Observations & Technologies	Munn Vinayak Shukla	Munn Vinayak Shukla and Pradeep K. Thapliyal (2020) : "Development of a Methodology to Generate In-Orbit Electrooptical Module Temperature-Based Calibration Coefficients for INSAT-3D/3DR Infrared Imager Channels," in IEEE Transactions on Geoscience and Remote Sensing, Vol. 59, 240-246. DOI: 10.1109/TGRS.2020.2998523.
3	Best Paper published on Weather and Climate Services	Sourabh Bal	Sourabh Bal and Sahar Sodoudi , (2020) : Modeling and prediction of dengue occurrences in Kolkata, India, based on climate factors. International Journal of Biometeorology, Vol. 64, 1379–1391. <a href="https://doi.org/10.1007/s00484-020-01918-9">https://doi.org/10.1007/s00484-020-01918-9</a> .
4	Best paper published on Application of Satellite data and Remote Sensing in Meteorology	Raghu Nadimpalli	Raghu Nadimpalli, Akhil Srivastava, V. S. Prasad, Krishna K. Osuri, Ananda K. Das, U. C. Mohanty and Dev Niyogi, (2020) : "Impact of INSAT-3D/3DR Radiance Data Assimilation in Predicting Tropical Cyclone Titli Over the Bay of Bengal," in IEEE Transactions on Geoscience and Remote Sensing, Vol. 58, 6945-6957. DOI: 10.1109/TGRS.2020.2978211
5	Best paper published on Modelling study on Atmospheric and Oceanic Sciences	Sudarsan Bera	Sudarsan Bera and Thara V. Prabha, (2019) : Parameterization of Entrainment Rate and Mass Flux in Continental Cumulus Clouds: Inference From Large Eddy Simulation. J. Geophys. Res. Atmos., Vol. 124., 13127-13139. <a href="https://doi.org/10.1029/2019JD031078">https://doi.org/10.1029/2019JD031078</a> .
6	Best paper published in VayuMandal	N. UmaKanth	N. UmaKanth, G. Ch. Satyanarayana and D. V. Bhaskar Rao, (2019): Analysis and Prediction of Thundrstorms over Andhra Pradesh using INSAT 3D and MODIS Satellite Data. VayuMandal, Vol. 45, No. 1 (jan-Jun), 30-48.

**Winners of IMS Young Scientist Award for 2019 and 2020.**

S. No	Name of the Award	First Author	Full Paper
1	Best Paper Published in Tropical Meteorology (2019)	Raju Mandal	Raju Mandal, Susmitha Joseph, A. K. Sahai, R. Phani, A. Dey, R. Chattopadhyay and D. R. Pattanaik, (2019) : Real time extended range prediction of heat waves over India. Sci Rep 9, 9008. <a href="https://doi.org/10.1038/s41598-019-45430-6">https://doi.org/10.1038/s41598-019-45430-6</a>
2	Best Paper Published in Tropical Meteorology (2020)	Vimal Mishra	Vimal Mishra, Anukesh Krishnankutty Ambika, Akarsh Asoka, Saran Aadhar, Jonathan Buzan, Rohini Kumar and Matthew Huber, (2020) : Moist heat stress extremes in India enhanced by irrigation. Nature Geoscience, Vol. 13 (11), 722–728.

The IMS-OSI joint session (TS-5A) on Role of Ocean in Climate (ROC) held at the same hall was chaired by Professor S. K. Dash, Former Professor and Head, Centre for Atmospheric Sciences, IIT Delhi and Dr. A. K. Mitra, Head and Scientist-G, NCMRWF. There were 1 Lead and Invited talk each and 6 oral presentations. TS-6A on Tropical Cyclones in Changing Climate (TCC) was chaired by Dr. C. M. Kishtawal, Group Director, Atmospheric and Ocean Sciences Division at Indian Space Research Organisation and Dr. Anand. P, Scientist, NPOL. One Lead, 2 Invited and 3 Oral presentations were held in this Session.

On Day-3, in Periyar Hall, TS-5B on Monsoons: Seasonal Variability, Prediction, and Predictability (MPP) was Chaired by Dr. V Sathyamoorthy, Senior Scientist, VSSC and Dr. G Srinivasan is chief scientist at the Regional Integrated Multi-hazard Early warning System (RIMES). There were 2 Lead and Invited talks each followed by 3 oral presentations. The Session TS-6B on MPP was chaired by Prof. C. K Rajan, former Professor and Head, Dept of Atmospheric Sciences, CUSAT and Dr. Anandakumar Karipot, Professor & Head of Department of Atmospheric & Space Science at the Savitribai Phule Pune University. There were 2 Lead and Invited talks each followed by 2 oral presentations.

TS-5C on Clouds, Convection and Precipitation Processes (CCP) was held in Pampa Hall on the same day. Prof. Someshwar Das former professor Central University of Rajasthan and former Scientist-G and advisor, NCMWRF and Dr. Suhas. E, IISER, Pune chaired the Session. This technical session included two lead talks, one invited talk and 4 oral presentations. TS-6C on Clouds, Convection and Precipitation Processes (CCP) was chaired by Prof. D. V. Bhaskar Rao, Professor and Director at Centre for Atmospheric Science, K. L. University and Dr. Deepa Elizabeth George, Associate Professor & HOD of Dept. of Electronics & Communication Engineering, ToCh Institute of Science & Technology. One Lead talk, 2 invited talks and 4 oral presentations were part of this Session.

There was a Special Session on National Weather Services chaired by Dr. M. Mohapatra, DGM, IMD

and Dr. T. Srinivas Kumar, Director, INCOIS. Dr. Balakrishnan Nair, Scientist-G, Head of Ocean Sciences at INCOIS delivered a talk on the overview of ocean forecast and services. Dr. R. K. Jenamani, Scientist & in-charge of impact-based forecasting services in IMD discussed the observations network of IMD. Dr. D. R. Pattanaik, Scientist-F and Head, NWP and in-charge of extended prediction, IMD delivered a talk on the extended range forecast system and seamless forecasting services of IMD. Dr. Soma Sen Roy, Scientist-F, IMD, talked about Nowcast scale Warning services for thunderstorms and lightning in India.

This was followed by Prof. P. R. Pisharoty Memorial Public Lecture by Prof. B.N. Goswami, DST Distinguished Scientist & Former Director, IITM, Pune on the topic Advancing the Skill of Long-Range Forecasts of Indian Monsoon Rainfall: Prospects and Challenges. The Session was chaired by Dr. R. K. Datta and Dr. P. C. Joshi, IMS Fellows.

The Plenary Session on Day-4 was chaired by Dr. G. Viswanathan, Director of Indian Space Research Organisation Radar Development (ISRAD) Unit, Dept. of Space, Bangalore and Dr. Geetha Ramkumar, Scientist-SG, Head of Atmospheric Dynamics Branch,, SPL, VSSC. Dr. Swadhin Behera, JAMSTEC, Japan talked on Ocean and Climate Informatics towards Developing a Sustainable Planet. Dr. Thamban Meloth, NCPOR, Goa delivered his talk on the Antarctic Cryosphere in a Changing Climate followed by a talk on Local Climatic Controls on Health - Example of Typhoid in Surat and Ahmedabad by Prof. Raghu Murtugudde, University of Maryland, USA.

TS-7A on Ocean-Land-Atmosphere Interactions (OLA) was chaired by Dr. P. C. Pandey, IIT Gandhinagar and Prof. H. S. Ram Mohan (Retd) CUSAT. There were two lead talks and 4 oral presentations in this session. TS-8A on Coastal and Marine Ecosystems in Changing Climate (CME) was chaired by Dr. Balakrishnan Nair, INCOIS. This session contained one Lead and Invited talk each followed by 5 oral presentations. In Periyar Hall on Day-4 TS-7B on Radars and Satellites in



Observations and Prediction (RSO) was chaired by Dr. P. Mohanan, Professor at Dept. of Electronics, CUSAT and Dr. K. Rajendran, Senior Principal Scientist in CSIR Fourth Paradigm Institute (CSIR-4PI), Bangalore. There were 2 Lead and 1 Invited talk followed by 2 oral presentations. TS-8B on Climate Change Impacts and Adaptation (CCA) was chaired by Dr. C. A. Babu, Director of School of Marine Sciences, CUSAT and Dr. Jayanarayanan (AFFILIATION). This Session had 1 lead talk followed by 7 oral presentations. TS-7C on Geo-spatial Techniques and Earth Observations (GTE) was in Hall Pampa was Dr. Raj Kumar, NRSC. There were 2 Lead and 1 Invited talk and 7 oral presentations. TS-8C on Disaster Management and Climate Change (DMC) was chaired by Dr. Gireesh Gopinath, KUFOS. This session had 2 Lead talks and 5 oral presentations.

INTROMET-21 had an excellent Poster Session on all the themes of the conference. Since the event was online, the posters were displayed on the website of the conference. The participants could access the posters from the EPOSTER section of the website. There were awards for best posters as well.

The Valedictory Session of INTROMET 2021 was held in hybrid mode. Distinguished personalities were present in two separate venues arranged at Cochin and New Delhi. The chief guest for the Session was Dr. L. S. Rathore, former DG, IMD. Prof. K. Mohankumar, welcomed the gathering. Dr. Abhilash S. gave a presentation on INTROMET-2021's summary report. Dr. Mrutyunjay Mohapatra, DGM, IMD delivered the Presidential Address. Dr. L. S. Rathore, AVM (Dr.) Ajit Tyagi, Dr. M. R. Rameshkumar, Dr. Ananda Kumar Das, Dr. Keshava Murthy, Dr. P C Joshi and Dr. D. R. Pattanaik spoke on the occasion. Feedbacks from the participants were collected and recommendations of the conference were finalised. Dr. M.G. Manoj, Treasurer of LOC, INTROMET-2021 expressed the vote of thanks.

The response from the participants, various stakeholders, the media and public was positive and encouraging. The event went on smoothly with rich participation of eminent scientists from around the

globe and in-depth deliberations on diverse topics on Changing Climate: Consequences and Challenges, which ensured the grand success of INTROMET-2021.

### **3. Seventh WMO International Workshop on Monsoons (IWM-7) 22-26 March 2022, New Delhi**

The International Workshop on Monsoons (IWM) is a major quadrennial symposia/workshops series under the World Weather Research Programme (WWRP) of WMO. IWM is organized by the WWRP Working Group on Tropical Meteorological Research (WGTMR) with co-sponsorship across WWRP and the World Climate Program (WCRP Monsoon Panel, GEWEX/CLIVER Monsoon Panel, S2S). IWM is conducted to address monsoon impacts as a part of the societal challenges prioritized by the WWRP: High Impact Weather, Water, Agriculture, Urbanisation and new Technologies in monsoon regions around the world.

The Seventh IWM was jointly organized by IMD, MoES, Government of India and the WWRP Working Group on Tropical Meteorology Research (WGTMR) in cooperation with the CLIVAR/GEWEX Monsoons Panel of the World Climate Research Programme (WCRP), the International Monsoons Project Office (IMPO) hosted by the Indian Institute of Tropical Meteorology (IITM) and the Indian Meteorological Society (IMS) at New Delhi, India. The IWM-7 was initially planned for March 2021. However, due to the pandemic at global level, it was postponed and finally arranged in the virtual mode during 22-26 March 2022.

Monsoon rainfall is the lifeline for more than half the world's population, for whom agriculture is the main source of livelihood. The traditional way of defining "monsoon" was an apparent seasonal shift of prevailing winds between winter and summer. Thus, the monsoon covers many parts of the globe all tropical continents, and in the tropical oceans in the western North Pacific, eastern North Pacific, and the southern Indian Ocean, tropical Asia, Africa, and the Indian Ocean. Extensive research is being conducted in the past by scientists across the

globe to increase the understanding of monsoon predictability, improve the accuracy of predictions, and refine projections of the impact of man-made climate change on monsoonal systems worldwide. This has the potential to provide significant socio-economic returns by maximizing the benefits of monsoon rainfall and reducing the impact of extreme events. The IWM-7 provided an excellent forum to discuss these recent developments on monsoon modelling, its prediction, new technologies and tools used for prediction of extreme rainfall events, field experiments and finally the benefits of monsoon prediction to the society.

Though the event was organised from 22 to 26 May, 2022 the formal opening session was organised on 23rd March, as it is celebrated as the World Meteorological Day across the globe. The inaugural addresses were delivered (through recorded video) by Dr. Jitendra Singh, Hon'ble Minister of Earth Sciences, Govt. of India and Prof. Petteri Taalas, Secretary General, WMO during the formal inauguration of IWM-7 on 23 Mar 2022.



Dr. Jitendra Singh Hon'ble Minister of Earth Sciences, Govt. of India.



Prof. Petteri Taalas, Secretary General, WMO.

### 3.1 Other speakers during Inaugural function of IWM-7

**Prof. Chih-Pei Chang**, Professor Emeritus, Department of Meteorology, Naval Postgraduate School, California Co-chair of ISC, IWM7, highlighted that the most recent CMIP6 projected 21<sup>st</sup> Century Land Monsoon Rainfall is 50% larger than CMIP5, and the range of change is also 50%. The most crucial challenge seems to be the prediction of internal variability to reduce uncertainties in projections.

**Dr. Ajit Tyagi**, Member of WMO/WWRP Working Group on Tropical Meteorology & Co-chair, International Scientific Committee of IWM7, highlighted that through the series of IWM in the last 25 years, transfer of technology from researchers to forecasters has been brought out, with commendable improvement in forecasts. This is the 7<sup>th</sup> series of IWM being organized by IMD, MoES, Government of India jointly with WMO, WWRP, WCRP and IMS.

**Dr. M. Ravichandran**, Secretary, Ministry of Earth Sciences (MoES) Government of India and Chairman NOC, IWM7 addressed in his welcome message the need to understand the extreme weather events under the climate change and to pursue the Monsoon Mission of the Govt. of India. The knowledge gained from this IWM7 needs to be integrated into the models for better services.

**Dr. M. Mohapatra**, The Director General of Meteorology (DGM), India IMD, in his welcome speech informed that this IWM7 will bring capacity of the knowledge transfer from older generation to the younger generation (senior scientists to younger research scholars) and help us for better understanding the current research about the monsoons in India and other parts of the world and plan for future research and better progress.

**Dr. Estelle De Coning** : Head of WWRP, WMO addressed with the message that the Monsoon systems has huge impact on both economic and social, and accompany to the high impact weather events, and also links to meteorology, climatology, hydrology, agriculture, and water resource management at all-time scales. This information is

much needed by the decision maker for early warning & early actions. To establish much needed dialogue between scientists and users on monsoon information, this workshop IWM7 is most important one.

**Dr. Michael Sparrow**, Head, World Climate Research Division (WCRP), WMO addressed the gathering with the message that the present IWM7 is a hub to bring global scientists together and continue to expend research on “global monsoons in current & future projections and improvements of its predictability”. We will continue to focus on research in Sub-seasonal to seasonal (S2S), and climate future projects of global monsoons with more international and national partners.

**Dr. D. R. Pattanaik**, Head, Numerical Weather Prediction Division, Secretary, IMS & Coordinator IWM7 proposed the formal vote of thanks. He thanked Dr. Jitendra Singh, Hon’ble Minister of Earth Sciences, Govt. of India and Prof. Petteri Taalas, Secretary General, WMO for spending their valuable time and addressing the gathering though recorded video messages. He also thanked IOC & NOC of IWM-7, WMO, MoES, IMD, IMPO, IITM, invited/Oral/short Oral speakers, scientists and all other participants for making this event a great success.

### 3.2 IMS Sir Gilbert Walker Gold Medal

In recognition of outstanding contribution to Monsoon Meteorology, the Indian Meteorological Society (IMS) awarded the Sir Gilbert Walker Gold Medal of IMS for the year 2019-2020 to Prof. (Dr.) P. V. Joseph on the WMO day during the inaugural function of IWM-7 on 23rd March, 2022, in honor of his lifetime contributions towards discovery of new phenomena, understanding of the atmospheric and other processes and developing meteorological services for societal benefits.

The scientists from across the globe presented their new findings during the 5 days workshop with 38 Invited talks, 72 Oral talks and another 68 for short Oral papers during the IWM-7 event on the following eight different themes;

(i) Regional Monsoons,

(ii) Sub-seasonal to Seasonal (S2S) Predictions,

(iii) Modelling monsoon processes,

(iv) Climate Change and Monsoons,

(v) High Impact Monsoon Weather,

(vi) Field Experiments and Observational Campaigns,

(vii) Monsoon Information and Prediction for Societal Benefit and

(viii) New Technologies and Tools.

Participants and speakers from 18 countries took part in the IWM-7 viz., Australia, Brazil, British, Cameroonian, China, Chinese Taipei, French, India, Indonesia, Italy, Japan, Mozambican, Nepal, Russia, South Korea, Sri Lanka, United Kingdom and United States of America. In total, 185 abstracts were received with 55 participants from outside India took part in IWM-7. 24 Technical sessions were conducted during IWM-7. 38 invited talks from different institutes across the globe were delivered in 9 Technical Sessions. Similarly, 72 Oral presentations were arranged in 12 parallel sessions. Further, 68 other papers were presented as short Oral presentation along with e-posters in 3 sessions. All these presentations along with YouTube videos of these talks are available in IWM-7 webpage

<https://mausam.imd.gov.in/IWM7/>

The abstracts of papers presented during IWM-7 were also compiled and released during the inaugural session and the soft copy of the same is available in IWM-7 webpage. An important part of the IWM-7 was the decision to bring out a special issue of journal MAUSAM: Quarterly Journal of Meteorology, Hydrology & Geophysics, published quarterly by IMD based on the invited talks and some of the Oral talks delivered by eminent scientists across the globe after following the peer review process under one editorial team with chief guest editor Prof. Chih-Pei Chang.

As in the previous IWM sessions, a training workshop was also organised in conjunction with IWM-7, to offer short courses to NMHS



Release of IWM-7 Abstract Book during the Inaugural Function of IWM-7.



Screen shot of the Valedictory Function, IWM-7.

forecasters, focused on the sub-seasonal to seasonal (S2S) prediction of monsoons. However, this time the training workshop was organised online in advance of IWM-7, during 1-12 November 2021 entitled “Sub-seasonal to Seasonal (S2S) Prediction of Monsoons”. More details about the training workshop along with the recordings of the talks by resource persons are available at <https://impo.tropmet.res.in/iwm7training.php>.

#### 4. VayuMandal

IMS, NC agreed in principle the proposal for making the journal VayuMandal online similar to the journal Mausam.

#### 5. Declaration of Election Results for IMS National Council 2022-2024

Following are the new office bearers of IMS NC for 2022-2024:

**President:** Dr. Rupa Kumar Kolli  
Email: rkolli.wmo@gmail.com

**Immediate Past President:** Dr. M. Mohapatra  
Email: mohapatrainmd@gmail.com

**Vice- Presidents:** Dr. D. R. Pattanaik  
Email: drpattanaik@gmail.com

Dr. N. Subash, Email: nsubashpdfsr@gmail.com

**Secretary:** Dr. R. K. Giri  
Email: rk.giriccs@gmail.com

**Joint Secretary:** Dr. Ananda Kumar Das  
Email: akuda.imd@gmail.com

**Treasurer:** Dr. Sankar Nath  
Email: saulnov07@gmail.com

#### Council Members:

Prof. P. V. S. Raju	Dr. Vijay Kumar Soni
Mr. Sikandar M. Jamadar	Mr. Sanjay Bist
Ms. Samanti Sarkar	Dr. Pankaj Kumar
Dr. Rajib Chattopadhyay	Mr. Sunny Chug

#### 5. IMS Ahmedabad (IMSA) Chapter

Ahmedabad chapter is one of the active chapters of IMS dedicated in spreading awareness of meteorology and allied subjects in different parts of the society. Although IMSA activities in the last year were severely affected by the Covid-19

pandemic, yet they organized a good number of events with the help of digital platforms. All the events were highly successful and it all happened because of the active support and well wishes of the members.

(i) Under the umbrella of “Azadi Ka Amrit Mahotsav”, IMSA in collaboration with ISRS-AC, ISG-AC, Scanpoint Geomatics Limited organized a one-day workshop on November 20, 2021 in Lok Jagruti (LJ) University, Ahmedabad to celebrate the World GIS Day.

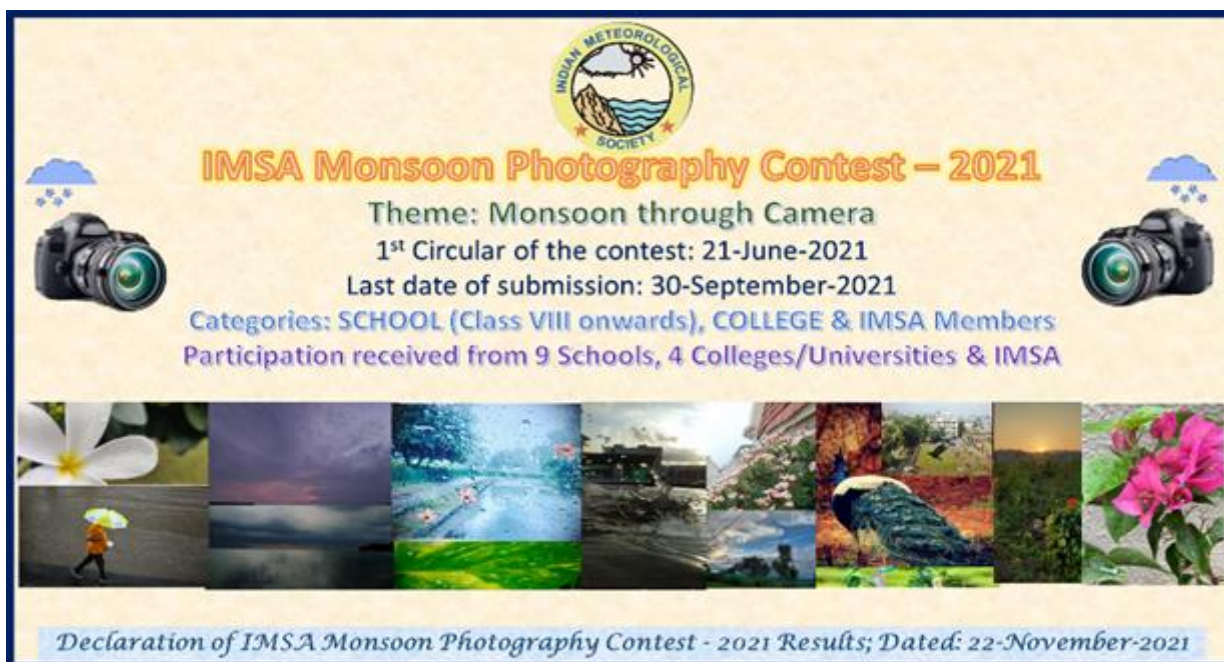
(ii) Following the tradition of IMSA, the Annual Monsoon talk was organized on November 22, 2021. This time the talk was delivered online by Dr. Akhilesh Gupta, Senior Advisor and Head, Policy Coordination & Programme Management Division, Department of Science and Technology, New Delhi on “Recent results from climate research in India and way forward”. During this event, Chairman IMSA announced results of IMSA Monsoon Photography Contest-2021. More than fifty members of IMS attended the event.

(iii) Like the last year, this year too IMSA celebrated Antarctica Day on December 01, 2021 in collaboration with ISRS-AC and ISG-AC. An online talk on “India’s Voyage to Antarctica” was delivered on this occasion by Shri. Ajay Dhar, Retired Scientist, Indian Institute of Geomagnetism.

(iv) A popular webinar on “Physics Nobel Prize – 2021: Complexity in Climate Science” by Prof. B.N. Goswami was organized on December 3, 2021 in collaboration with Space Education and Research Foundation (SERF) and R. K. University, Rajkot. A good number of participants including researchers and students attended the webinar.

(v) Monsoon Issue of IMSA newsletter “E-Megha” was published in December 2021.

(vi) An online panel discussion on “Role of groundwater on agriculture and air pollution” was organized on March 22, 2022 to jointly celebrate World Meteorological Day and World Water Day. The panelists included Dr. V. M. Tiwari, Director NGRI, Hyderabad; Prof. S. N. Tripathi, IITKanpur; Dr. Prakash Chauhan, Director, NRSC, Hyderabad and Prof. V. K. Sehgal, Principal Scientist, IARI, New Delhi.

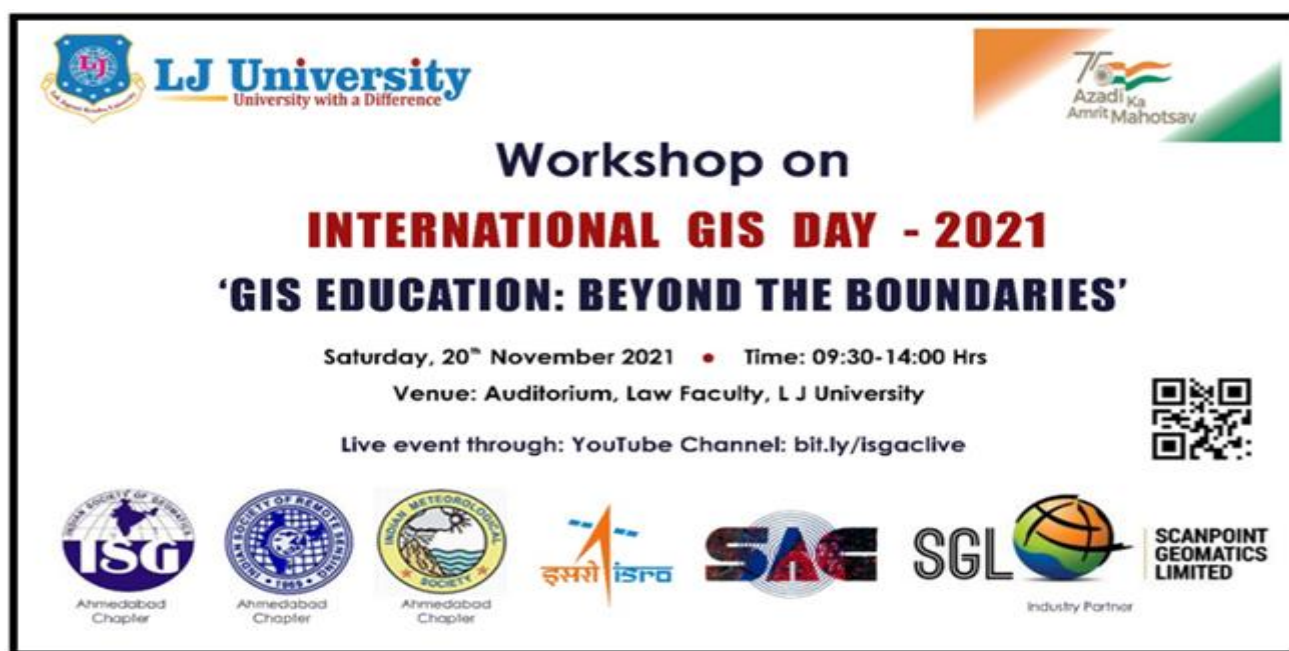


**INDIAN METEOROLOGICAL SOCIETY**

## IMSA Monsoon Photography Contest – 2021

Theme: Monsoon through Camera  
1<sup>st</sup> Circular of the contest: 21-June-2021  
Last date of submission: 30-September-2021  
Categories: SCHOOL (Class VIII onwards), COLLEGE & IMSA Members  
Participation received from 9 Schools, 4 Colleges/Universities & IMSA

*Declaration of IMSA Monsoon Photography Contest - 2021 Results; Dated: 22-November-2021*



**LJ University**  
University with a Difference

**75 Azadi Ka Amrit Mahotsav**

## Workshop on INTERNATIONAL GIS DAY - 2021

### 'GIS EDUCATION: BEYOND THE BOUNDARIES'

Saturday, 20<sup>th</sup> November 2021 • Time: 09:30-14:00 Hrs  
Venue: Auditorium, Law Faculty, L J University  
Live event through: YouTube Channel: [bit.ly/ISGactive](https://bit.ly/ISGactive)

ISG Ahmedabad Chapter | University of Applied Sciences Ahmedabad Chapter | Indian Meteorological Society Ahmedabad Chapter | ISRO | SAG | SGL Industry Partner | SCANPOINT GEOMATICS LIMITED

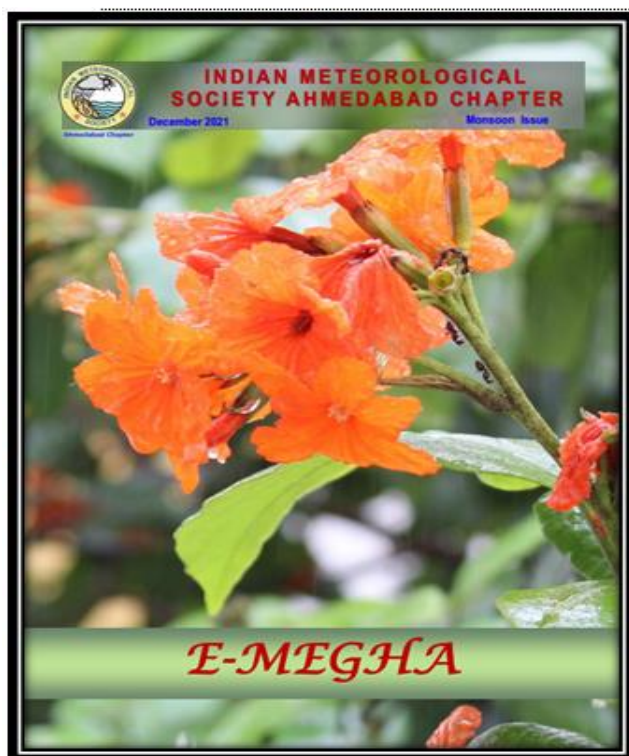
Workshop to celebrate international GIS Day.



Annual Monsoon Talk by Dr. Akhilesh Gupta, DST, New Delhi.



Online panel discussion to celebrate World Meteorological Day and World Water Day.



IMSA Newsletter of Monsoon Issue (left) and Winter Issue (right).

(vii) Winter Issue of IMSA newsletter E-Megha was published in March 2022.

### 6. IMS Guwahati (IMSG) Chapter

(a) Students of Nagaon College (Assam) were given demonstration on surface observatory, AWS & ARG on 04.01.2022.

(b) The following lectures were arranged by IMSG:

(i) Sanjeev Kumar Sinha, Assistant Commandant, 1st Battalion NDRF, Guwahati entitled “Disaster Management - Special Focus to NE state” on 18.10.2021.

(ii) Sri K.N. Mohan, Scientist-G and Head, RMC Guwahati entitled “Journey of Weather Services in NE India” on 19.10.2021.

(iii) Prof. Devesh Walia, Department of Geology,

NEHU, Shillong entitled “Earthquake Activities in NE India” on 20.10.2021.

(iv) Dr. (Prof.) Prasanta Neog, Department of Agrometeorology, Assam Agricultural University, Biswanath Chariali entitled “Agro Advisory Services for the Farmers in NE India” on 21.10.2021.

(v) Sri Naba Bhattacharjee Environmentalist, Chairman - SEAC, Meghalaya and former Commissioner-National Green Tribunal, Prof. Gideon Kharkongor, Associate Professor, Deptt. of Geography, St. Edmund's College and Director NEEDS, Shillong and Sri K. K. Sinha, Waste Management Expert and Director, EECS, Ghaziabad entitled “Environment Monitoring-Cleanliness and Waste Management in NE India” on 22.10.2021.

(vi) Dr. M. Mohapatra, DGM, IMD, Moderator, Dr. B.N. Goswami, Ex. Director, IITM, Panelist, Prof. Prabha Shankar Shukla, Vice-Chancellor, North-Eastern Hill University, Shillong, Panelist, Dr. Rahul Mahanta, Department of Physics, Cotton University, Guwahati, Panelist, Dr. Siraj Ahmed Khan, Dy. Director (Senior Grade), RMRC (ICMR), Dibrugarh, Panelist, Ms. Mandira Buragohain, Project Officer - Knowledge Management and Climate Change, ASDMA, Dispur, Panelist, Sri Sarat Kumar Das, SPO-DM, Govt. of Tripura, Panelist, Dr. (Prof.) Prasanta Neog, Department of Agricultural Meteorology, Biswanath College of Agriculture, Biswanath Chariali, Assam, Panelist and Sri K.N. Mohan, Scientist-G and Head, RMC Guwahati, Panelist entitled “Panel Discussion on Weather and Climate Services - Advancement in NE India” on 23.10.2021.

(vii) Sri K.N. Mohan, Scientist-G & Head and Dr. Sanjay O'Neill Shaw, Scientist-E, Regional Meteorological Centre, L.G.B.I. Airport, Guwahati entitled “Role of Women in Weather Services in RMC Guwahati” on 24.10.2021.

(viii) Dr. Bharati Dutta, Head & Associate Professor(Retd), Deptt. of Geography, DHSK College, Dibrugarh entitled “Environmental Issues: Challenges and Remedies” on 28.02.2022.

## 7. IMS Kolkata (IMSK) Chapter

A Lecture was delivered Professor Parthasarathi Majumder, PhD Brandeis Univ., USA entitled “Low Cost Decentralised Local Lightning Detector” on 9th October, 2021.

## 8. IMS Nagpur (IMSN) Chapter

The following lectures were arranged by IMSN:

(i) “Environment Education: Past, Present and Future” by Dr. P. Sivaswaroop, Regional Director, IGOU, Nagpur.



(ii) “Promoting interdisciplinary research culture in institutions” delivered by Dr Rajshree Vaishnav, Prof. & Head, PG, Education and Dean faculty of interdisciplinary studies, RTM, Nagpur University.



## 9. IMS Pune (IMSP) Chapter

(i) In association with Pune Chapter of Ocean Society of India (OSI), IMSP Executive Council organised the “Annual Monsoon e-Workshop (AMW2021) and National e-Symposium on 'Role of oceans on extreme weather and climate' during



21-23 Feb 2022. The first day of AMW2021 was dedicated to 'A Brain Storming Workshop on Monsoon 2021' and in the remaining two days several sessions of the National Symposium were held. The E-Workshop and the E-Symposium were divided into 8 oral sessions on 5 themes with continuous 3-day interactive poster display. 52 abstracts were received on the 5 themes from various parts of the country. The event included 20 Expert talks and 52 Oral presentations. IMSP received 26 feedbacks on this joint event. For encouraging young participants and organizers, several awards were distributed. There were 16 awardees, 13 for presentations and 3 for significant contribution in organization. This time, IMSP and OSI joined hands in conducting the AMW-2021 E-Workshop cum E-Symposium, and there was a very good synergy of Ocean and Meteorological Societies for working together towards popularizing science in the society. Good efforts by IMSP and various Committees formed for the occasion resulted in great success of this important event.

(ii) Dr. Prabhat Kumar was felicitated by IMSP on 23 Feb 2022 in recognition of his great achievement of obtaining American Meteorological Society (AMS) Award.

(iii) IMSP published recent online issues of Bulletin of IMSP (Oct-Dec 2021, Vol 20, 10-12; Jan-Mar 2022, Vol 21, 1-3), compiled and edited by Mr. Somnath Mahapatra and Dr. J. R. Kulkarni (<https://www.imdpune.gov.in/Links/imsp/index.htm> 1). IMSP thank all the authors of the articles published in its BIMSP.

(iv) IMSP supported the educational visit of 12 students and two teachers of Nashik Cambridge School Visit to IMD Shivajinagar on 11 Mar 2022. It was coordinated by Mr. Sikandar Jamadar.

(v) The WhatsApp group “IMS Pune Chapter” and IMSP Press Reporters Gr have been continuing for scientific discussions related to Earth Sciences communication.

(vi) IMSP felicitated Prof. Ravi Nanjundiah, Director IITM on his superannuation on 30 Oct 2021.

(vii) GBM of IMSP has been conducted on 16 Nov 2021.

(viii) IMSP EC\_2022-24 election process was initiated on 10 March 2022 and the results were declared on 21 April 2022.

(ix) Professor P. R. Pisharoty 13<sup>th</sup> Distinguished Lecture on “Climate Science, Information and Impacts in the 21st Century” was delivered by Prof. V. Ramaswamy, Director, GFDL, USA

## 10. IMS Raipur (IMSR) Chapter

### (i) National Science Day (February 28) celebrated on Feb 20, 2022

National Science day was celebrated at Govt. Higher Secondary School, Lalpur, Raipur under the Chairmanship of Shri. H. A. K. Singh, Head and Director of Met Centre Raipur. Ms. Anjulata Sarswat, Principal, Govt Higher Secondary School, Lalpur was invited as Guest of Honour in the programme. Students of the said school, Teachers and Members of IMS Chapter Raipur were present on this occasion. Speeches were delivered on “Awareness for science and career oriented opportunities in the field of Science”. Drawing and speech competitions were organised on this occasion. Participants included the students of Govt. Higher Secondary School, Lalpur, Raipur.



**(ii) World Meteorological Day (March 23, 2022)**

World Meteorological Day was celebrated on March 23, 2022 at the Meteorological Centre Raipur. Dr. G. K. Das HOD, IGKV Raipur was invited as Chief Guest and Mr. H. A. K. Singh, Head & Director, Met Centre Raipur was the Chairman of the programme. Members of IMSR, Staff members of Met Centre Raipur, PG. Students and faculty members of Agriculture Meteorology, IGKV Raipur participated in this programme. Lectures were delivered on the application of “Meteorological Data and Weather forecast in various sectors including Agriculture”.



**11. IMS Visakhapatnam (IMSV) Chapter**

The Visakhapatnam Chapter of the Indian Meteorological Society Celebrated the World Meteorological Day on March 23<sup>rd</sup>, 2022 at the Department of Meteorology & Oceanography, Andhra University, Visakhapatnam. In this connection, an on line lecture was delivered by Dr. Vijay Tallapragada, Chief Modeling Branch, NCEP NOAA, USA and another lecture by Dr. VSN Murthy, Former Director (In-Charge) of the National Institute of Oceanography, Goa on the focal theme ‘Early Warning and Early action Hydro meteorological and Climate Information for Disaster Risk Reduction’.

Many competitions such as Essay Writing, Elocution and Quiz were conducted for the students of the Department of Meteorology & Oceanography, Andhra University. The winners were awarded prizes on the occasion.