



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



Day-1: 23 November 2021 (Tuesday)

INAUGURAL SESSION (09:30– 11:15 Hrs IST)

PLENARY SESSION 1

Date: 23 November 2021 (Tuesday)
Time: 11:30-13:15 Hrs IST
Venue: Hall 1 (PAMPA)

Chairs: Prof. P V Joseph & Prof. K. Mohankumar

SN	Presenting Author	Institute	Title
1	Dr. M. Ravichandran	Secretary, MoES Govt. of India	Teleconnection between the Arctic and Indian monsoon extreme rainfall
2	Dr. M. Rajeevan	Former Secretary, MoES	Role of Oceans on the Variability of Indian Monsoon
3	Dr. M. Mohapatra	DGM, India Meteorological Department	Recent Advances in Multi Hazards Early Warning System in India

TECHNICAL SESSION: ORAL PRESENTATIONS

TS-1A: Changing Climate – Observations, Attribution and Model Projections (CHC)
Date: 23 November 2021 (Tuesday)
Time: 14:10-16:30 IST
Venue: Hall 1 (PAMPA)

Chairs: Dr. R. Suresh, IMD & Dr. D. S. Pai, IMD

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. P. Swapna	IITM, Pune	Projections of future changes in climate
2		Dr. Semeena V	CEH, UK	Land-Atmospheric coupling and extreme rainfall events over Tropical Africa
3	Invited	Dr. Kanhu Charan Pattnayak	University of Leeds, UK	Modelling stable water isotope fractionation to understand the effect of industrial deforestation on moisture recycling over the Indian subcontinent
4		Dr. Kieran Hunt	University of Reading, UK	Western disturbances and climate change - past, present, and future



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

5	Oral	Dr. Alok K Mishra	IISER, Bhopal	Atmospheric water budget as a constraint on precipitation response over agro-climatic zones in India under higher warming conditions Regional Earth system model assessments
6		Dr. C D Jain	NARL	Local emission and long-range transport impacts on the CO, CO ₂ , and CH ₄ concentrations at a tropical rural site
7		Rahul M	IMD	Operationalization of district level impact based forecast for heavy rainfall over goa-outcomes and scope of improvement
8		Dr. Vijaykumar P	Universiti Malaysia sabah	Mini-cloudburst events in Kerala and the structural changes in monsoon clouds

TS-1B: Climate Variability and Extreme Weather Events (CVE)

Date: 23 November 2021 (Tuesday)

Time: 14:10-16:30 IST

Venue: Hall 2 (PERIYAR)

Chairs: AVM (Dr) Ajit Tyagi, IMS Fellow & Dr. D. R. Pattanaik, IMD

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Subimal Ghosh	IIT, Mumbai	Extreme rainfall and floods in a changing climate
2		Dr. Beena Balan Sarojini	ECMWF, UK	Earth system variability and predictability: observational impacts and challenges
3	Invited	Dr. Ramesh Kumar Yadav	IITM, Pune	Relationship between Azores High and Indian summer monsoon
4	Oral	Dr. Ajil Kottayil	CUSAT	Drivers of extreme rainfall over the south west coast of India
5		Arun Kumar V H	RMC, IMD, Guwahati	Towards impact based forecasting in Kerala- Methodology and Implementation
6		Dr. Ranjith Kumar Paul	ICAR-IASRI	Modelling sub-divisional rainfall in India using Deep Learning Techniques
7		Hemlata Bharwani	IMD	Performance of flash flood guidance system over South Asian region
8		Dr. Jayanti Pal	Central University of	Changes in SST, wind and sub-surface Ocean temperature associated with IOD during



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

			Rajasthan	warming scenario
9		Dr. M M Nageswararao	NOAA, USA	Predictability of extreme rainfall events over India during summer monsoon season by using NCEP GEFSv12 Model in the present global warming era

TS-1C: Aerosols, Air Pollution and Climate Sensitivity (AAP)

Date: 23 November 2021 (Tuesday)

Time: 14:10-16:30 IST

Venue: Hall 3 (NILA)

Chairs: Prof. Usha K. Aravind, CUSAT & Dr. K. Satheesan, CUSAT

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Suresh Babu	VSSC	Aerosol - cloud interaction and indirect effect of aerosols over South Asia
2	Invited	Dr. M Venkat Ratnam	NARL	Changing patterns in aerosol vertical distribution over South and East Asia
3		Dr. Thirthankar Banerji	BHU	Long-term pollution exposure and mortality in an urban environment over IGP
4	Oral	Dr. Aditi	MoES	Role of air pollutants formation of fog in an urban environment of India
5		Dr. Chinmay Jena	IMD	Air quality early warning system and evaluations of PM2.5 during winter 2020 over India
6		Dr. Litta A John	Weathernews Inc., Japan	Machine Learning regression technique applied to improve visibility prediction at airports in China
7		Prashant Kumar Chauhan	BHU, Varanasi	Study of three different dust storms characteristics and their radiative properties over Indo-Gangetic Basin
8		Dr. Pratibha Bhagavanrao Mane	Fergusson College, Pune	Intricate interactions between stratospheric aerosol layer and different types of clouds
9		R Elavarasi	SRM Institute of Science and Technology	Trends and variability of back trajectories of aerosols over southern peninsular India



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



RELEASING OF SPECIAL POSTAL COVERS (16:45– 17:30 Hrs IST)

GENERAL ANNOUNCEMENTS

Date: 23 November 2021 (Tuesday)
Time: 17.30-18:30 Hrs IST
Venue: Hall 1 (PAMPA)

PROF. R. ANANTHAKRISHNAN MEMORIAL PUBLIC LECTURE

Date: 23 November 2021 (Tuesday)
Time: 18:30-19:30 Hrs IST
Venue: Hall 1 (PAMPA)

Chairperson: Prof. P. V. Joseph & Prof. P. N. Sen

Title: What can we learn from the simulation of the monsoons for the past 20,000 years by climate models?

By

Prof. J. Srinivasan

*Former Director, Divecha Centre for Climate Change
IISc, Bangalore*



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

Day-2: 24 November 2021 (Wednesday)

PLENARY SESSION 2

Date: 24 November 2021 (Wednesday)
Time: 09:30-11:15 Hrs IST
Venue: Hall 1 (PAMPA)

Chair & Co-Chair : **Prof. A. Jayaraman, NARL & Dr. Radhika Ramachandran, SPL**

SN	Presenting Author	Institute	Title
1	Prof. Brian Mapes	University of Miami, USA	Convection ‘thresholds’ and climate reasoning in the western Indian Ocean
2	Cmdr. M. K. Singh	Indian Navy	Changing climate: Consequences and Challenges in the Maritime Sector
3	Dr. Andrew Turner	University of Reading, UK	The effects of climate change on the global and regional monsoons

TECHNICAL ORAL PRESENTATIONS

TS-2A: Changing Climate – Observations, Attribution and Model Projections (CHC)
Date: 24 November 2021 (Wednesday)
Time: 11:30-13:15 IST
Venue: Hall 1 (PAMPA)

Chairs: **Dr. Rupa Kumar Kolli, WMO & Dr. Swadhin Behera**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. K. Rajendran	CSIR-4PI	Progress in the simulation of Indian summer monsoon, variability and teleconnections over different generations of IPCC climate models
2	Invited	Dr. Sabin. T. P	IITM, Pune	Climate change, monsoons, IPCC-AR6 assessment of regional monsoons
3		Dr. Sooraj K P	IITM, Pune	Dynamics of rainfall extremes in the context of Indian Summer Monsoon



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

4	Oral	Naga Rajesh A	SRM Institute of Science and Technology	Quantification of double-ITCZ bias in CMIP6 models
5		Santanu Halder	IITM, Pune	Quantification of Enhancement in atmospheric CO ₂ background due to Indian biospheric fluxes and fossil fuel emissions
6		Saumya Singh	BHU, Varanasi	Performance evaluation of regional climate model ensemble for simulating extreme temperature over India
7		Neethu C	CSIR- 4PI	Projections of heat waves over seven temperature homogeneous zones of India from CMIP6 models
8		Sanjeeb Kumar Sahoo	IIT, Delhi	High-resolution downscaled future Indian summer monsoon rainfall projections over the India

TS-3A: Data Assimilation Techniques and Numerical Weather Prediction (DAP)

Date: 24 November 2021 (Wednesday)

Time: 14:10-16:00 IST

Venue: Hall 1 (PAMPA)

Chairs: **Dr. A. K. Sahai , IITM & Prof. A. Chandrasekhar, IIST**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. A. K. Mitra	NCMRWF	Seamless Modelling and Data Assimilation at NCMRWF
2		Dr. P Mukhopadhyay	IITM, Pune	Recent developments and future prospect of NWP in India
3	Invited	Dr. Govindankutty	IIST	Assessment of Predictability of Tropical Cyclones over Bay of Bengal using Ensemble-based Methods
4	Oral	Dr. Trisanu Banik	IMD	Explicit lightning forecasting Over North Eastern India Preliminary results Explicit lightning forecasting over North Eastern India Preliminary results
5		Imranali M Momin	NCMRWF	Evaluation of global NEMO based ocean analysis in the Tropical Indian Ocean
6		Dr. Gibies George	MoES	Use of Aeolus Horizontal Line of Sight Wind Observations in a Global NWP system
7		Dr. Prashant Kumar	SAC	Fostering the need of L-band radiometer for extreme oceanic wind research



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



TS-4A: Early Career Researcher's Session on Our Changing Climate
Date: 24 November 2021 (Wednesday)
Time: 16:20-18:00 IST
Venue: Hall 1 (PAMPA)

Chair & Co-Chair: **Shri Anand K. Sharma & Dr. N. Khare, MoES**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Ajaymohan	NYU, Abu Dhabi	How climate models got so accurate that they earned a Nobel Prize?
2	Invited	Dr. M C R Kalapureddy	IITM, Pune	Cloud radar technique inferred cloud vertical structure prospective on early identification of ISM vigor
3	Oral	Anjumol Raju	SPL	An atmospheric inverse modeling approach for assessing CO ₂ and CH ₄ fluxes over the peninsular India using measurements from Thumba
4		Arulalan T	IMD	Prediction of Western Disturbances Tracks using NWP models
5		Sisma Samuel	ISRO	Intraseasonal variation of tropical deep convective clouds associated with sea surface temperatures
6		Dr. Sudarsan Bera	IITM, Pune	Properties of Convective Clouds in Dry and Wet Environment of Monsoon using LES and Observations
7		Sudheesh T M	Indian Navy	Planetary boundary layer height over kochi using 449 MHz wind profiling radar
8		K. Sunil Kumar	IITM, Pune	Storm properties of tropical cyclones over two distinct test beds as observed by GPM DPR

TS-2B: Climate Variability and Extreme Weather Events (CVE)
Date: 24 November 2021 (Wednesday)
Time: 11:30-13:15 IST
Venue: Hall 2 (PERIYAR)

Chairs: **Dr. K. J. Ramesh, IMD & Dr. C. Gyanaseelan**

SN	Talks	Presenting Author	Institute	Title
1		Dr. D R Pattanaik	IMD	Climate change and extreme weather events



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

2	Lead	Prof. Someshwar Das	CURAJ	Challenges in predicting Extreme Weather over the South Asian Region
3	Invited	Dr. Susmitha Joseph	IITM, Pune	Recent changes in the spatio-temporal characteristics of Monsoon Intraseasonal Oscillations
4	Oral	Dr. Manish K Joshi	Genesis Ray Energy, India Pvt. Ltd.	Changes in characteristics of hot extremes over India and their driving mechanisms
5		Deepanshu Aggarwal		How well Indian High-Resolution Regional Reanalysis represents Extreme Rainfall Events over Northwest India
6		Nitha T S	IMD	Impact based forecasting over Mumbai – computation of impact matrix at city level for heavy rainfall events during SW Monsoon 2020; A preliminary study and observations
7		Sruthin Vijay	KUFOS	Variability of Extremes and Floods over India

TS-3B: Water Resources, Agriculture and Climate Change (WAC)

Date: 24 November 2021 (Wednesday)

Time: 14:10-16:00 IST

Venue: Hall 2 (PERIYAR)

Chairs: Prof. N. V. Umamahesh, NIT & Dr. K K Singh, IMS

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. S D Attri	IMD	Implications of Climate Change and Management Strategies
2		Prof. D Nagesh Kumar	IISc	Climate change and its impact on water resources of a river basin
3	Invited	Mr. Raju Mandal	IITM, Pune	Implementation of IITM-IMD extended range forecasts in the Kharif rice yield prediction on experimental basis
4	Oral	Loveleen Chopra	University of Kashmir	Assessing glacier recession and dynamics under changing climate in Kishtwar basin, Western Himalaya
5		Dr. Surendra	IITM, Pune	Climate change impacts on the hydrological



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

		Pratap Singh		response of a Himalayan region dominated by glacier melt runoff
6		Dr. Venu Gopal Kurnool	Ground Water Department	Uncertain rains, river flows and inter basin transfer for meeting water scarcity in climate change
7		Dr. Anjani Kumar	ICAR	Linking nitrous oxide emission and functional soil microbes from rice soil exposed to elevated carbon dioxide: a modelling approach

TS-4B: Early Career Researcher's Session on Earth Observations

Date: 24 November 2021 (Wednesday)

Time: 16:20–18:00 IST

Venue: Hall 2 (PERIYAR)

Chairs: Dr. R. S. Maheshkumar, MoES & Dr. Anand Ku Das, IMD

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Sreerexha T	EUMETSAT, Germany	An overview on the potential of satellite data for weather forecasting applications
2	Oral	Dr. Kandula V Subrahmanyam	ISRO	Characterization of convective clouds using multi-frequency spaceborne radar observations
3		M Santosh	VSSC	Improved estimation of planetary boundary layer height over low and mid-latitudes using COSMIC-2 radio occultation
4		Seetha C J	SRM Institute of Science and Technology	Changes in the ENSO- Monsoon relationship and associated circulation features on multidecadal timescale
5		Harish M N	Indian Institute of Horticultural Research	Effect of conservation agriculture and foliar P fertilization on yield and water productivity of maize in a maize wheat cropping system in Indo Gangetic plains region
6		K Abhishek	IIT, Kharagpur	Biochar presents a natural climate solution through agricultural management practices
7		Achu A L	KUFOS	A spatially explicit deep-learning model for landslide susceptibility mapping in western ghats of southern india
8		Manpreet Kaur	IITM, Pune	Synoptic to Large-scale features of Monsoon 2021 in a Multi-physics Framework for Extended Range



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



TS-2C: Aerosols, Air Pollution and Climate Sensitivity (AAP)

Date: 24 November 2021 (Wednesday)

Time: 11:30-13:15 IST

Venue: Hall 3 (NILA)

Chairs: Dr. Suresh Babu & Dr. Bindu. G, NANSSEN

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Vinoj V	IIT, Bhubaneswar	Atmospheric Aerosols and Air Pollution Over the Indian Region: A Meteorological Perspective
2		Dr. V K Soni	IMD	Recent advances in Air Quality Monitoring and Forecasting over Indian Region
3	Invited	Dr. Sobhan Kumar Kompalli	SPL, VSSC	Microphysical properties of black carbon aerosol in the south asian outflow results from ICARB2018
4	Oral	Dr. V Ravi Kiran	NARL	An empirical method for source apportionment of black carbon aerosol, results from aethalometer observations at five different locations in India
5		Sanatan Binisia	IIT, Bhubaneswar	Large scale modulation of aerosol loading by Madden Julian Oscillations over Northern Arabian Sea
6		Sarin T S	IIT, Bhubaneswar	Impact of Aerosol Outflow from IGP on SST over the Bay of Bengal.
7		Dr. P T Rakesh	IGCAR	Formulation and incorporation of a dense gas diffusion scheme in FLEXPART for chemical gas dispersion

TS-3C: Stratospheric Processes and their Role in Weather and Climate (SPC)

Date: 24 November 2021 (Wednesday)

Time: 14:10-16:00 IST

Venue: Hall 3 (NILA)

Chairs: Dr. A K Patra, NARL & Prof. M. K. Satheesh Kumar, Manipal University

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Bernard Legras	LMD, France	The Asia Summer Monsoon Anticyclone and Transport to Stratosphere



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

2	Invited	Dr. K. Kishore Kumar	VSSC	Detangling the Stratospheric Processes Influencing the Tropospheric Weather and Climate
3		Dr. Siddharth Das	VSSC	Diurnal variability of lower and middle atmospheric water vapour over the Indian Monsoon Region: Results inferred from COSMIC and TIMED/SABER measurements
4	Oral	Pankaj Kumar	IIT, Kharagpur	Stratospheric control of surface ozone variability in Antarctica and its tropical teleconnection
5		Dr. T V Lakshmi Kumar	SRM Institute of Science and Technology	Tropospheric warming and stratospheric cooling in response to global warming using Coupled Model Intercomparison Project CMIP - 6 models
6		Remya R	SDMA, Kerala	Influence of High Latitude Sudden Stratospheric Warming on Tropical Weather, Observed from a 205 MHz Stratosphere Troposphere Radar and Surface Meteorological Parameters
7		Dr. Alladi Hemanth Kumar	NARL	Variability in the UTLS chemical composition during different modes of the Asian Summer Monsoon Anti-cyclone
8		Veenus Venugopal	SPL	Role of Sudden Stratospheric Warming induced Brewer-Dobson Circulation changes in the thermal structure and compositions in the upper troposphere and lower stratosphere region

TS-4C: Early Career Researcher's Session on Monsoon Variability

Date: 24 November 2021 (Wednesday)

Time: 16:20–18:00 IST

Venue: Hall 3 (NILA)

Chairs: **Dr. Rajeev Mehajan, SERB & Dr. S. I. Laskar, IMD**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Francis. P. A	INCOIS	Interannual variability of Indian Summer Monsoon and its Links to Oceans
2	Invited	Dr. Nachiketa Acharya	Pennsylvania State University	A Machine Learning approach to predict Indian Monsoon Onset



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

3	Oral	Arijeet Dutta	IISER, Pune	Circum-global teleconnection associated with early summer North Atlantic Oscillation and its implication for Indian summer monsoon
4		Jyoti Sonar	IMD	Critical analysis of performance of southwest monsoon in last one decade
5		Krishna Mishra	IMD	Synoptic and dynamical analysis of Extremely Heavy Rainfall during 2016-2020 Southwest Monsoon Season
6		Akshay Deoras	University of Reading, UK	Understanding the prediction and structure of Indian monsoon low-pressure systems in Subseasonal-to-Seasonal prediction models
7		Sahadat Sarkar	IITM, Pune	GFS model fidelity in capturing the transition of low pressure area to monsoon depression
8		P P Musaid	SRM Institute of Science and Technology	Asian summer monsoon anticyclone and its relationship with tropical easterly and subtropical westerly jets

PROF. ANNA MANI MEMORIAL PUBLIC LECTURE

Date: 24 November 2021 (Wednesday)

Time: 18:30-19:30 Hrs IST

Venue: Hall 1 (PAMPA)

Chairs: Prof. Sulochana Gadgil & Prof. G. S. Bhat

Title: Down the Memory lane with Ms Anna Mani: The Passionate Perfectionist

By

Dr C. R. Sreedharan

Retd DDGM, India Met Department, Pune



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



Day-3: 25 November 2021 (Thursday)

PLENARY SESSION 3

Date: 25 November 2021 (Thursday)
Time: 09:30-11:15 Hrs IST
Venue: Hall 1 (PAMPA)

Chairs: Prof. U. C. Mohanty & Dr. M. R. Rameshkumar

SN	Presenting Author	Institute	Title
1	Dr. R. Krishnan	IITM, Pune	Role of Ocean on climate-atmosphere perspective
2	Dr. A. K. Sahai	IITM, Pune	Subseasonal Prediction in the Changing Climate
3	Prof. A. Chandrasekhar	IIST	Land Surface Modeling Studies over the Indian Region

TECHNICAL SESSION: ORAL PRESENTATIONS

TS-5A: IMS-OSI joint Session on Role of Ocean in Climate (ROC)

Date: 25 November 2021 (Thursday)

Time: 11:25-13:15 IST

Venue: Hall 1 (PAMPA)

Chairs: Prof. S. K. Dash, IIT Delhi & Dr. A. K. Mitra, NCMRWF

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Vinu Valsala	IITM, Pune	Climatic significance of bio-geochemical interaction between Ocean and the Atmosphere
2	Invited	Dr. Anand K Das	IMD	Regional Coupled Modeling of Cyclones over North Indian Ocean
3	Oral	Swaleha Inamdar	IITM, Pune	An overview of the role of oceanic iodine emissions in a changing climate
4		Bijit Kumar Kalita	IISc	Interannual Variability of Mesoscale Eddies in the Bay of Bengal
5		Athira Krishnan	IIT, Kharagpur	Extreme wind-wave projections for the Indian Ocean under a changing climate
6		Akhila R S	IIT, Kharagpur	Influence of climate modes on tropical



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

				cyclone activity in North Indian Ocean
7		Sunanda N	IIT, Kharagpur	Role of eddies on tropical cyclone induced phytoplankton blooms in North Indian Ocean
8		Jiya Albert	IIT, Kharagpur	Ocean warming induced by kelvin wave activity in arabian sea and its implication on enhanced tropical cyclone activity

TS-6A: Tropical Cyclones in Changing Climate (TCC)

Date: 25 November 2021 (Thursday)

Time: 14:10-16:00 IST

Venue: Hall 1 (PAMPA)

Chairs: **Dr. C. M. Kishtawal & Dr. Anand. P, NPOL**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Prof. Prasad Bhaskaran	IIT, Kharagpur	Tropical Cyclones in Changing Climate
2	Invited	Dr. Virendra Goswami	Environment and Peace Foundation	Computational Correlational Studies of Tropical Cyclone Energetic with Dynamical Fluid Motions and Physical features of Meso-Scale Convective Systems to Develop Tropical Cyclone Numerical Forecasting Models-TCNFM
3		Dr. D. Bala Subrahmanyam	SPL	Facts and myths about the vertical structure of marine atmospheric boundary layer under the influence of a tropical cyclone
4	Oral	Dr. Asmita A. Deo	IITM, Pune	Recent changes in Tropical Cyclone activity over Bay of Bengal associated with ENSO
5		Francis Babu	CUSAT	Monsoon Onset and tropical cyclones over the Arabian Sea in changing climate
6		Dr. P K Pradhan	S V University, Tirupati	Decadal variability of environmental dynamics for intensification of tropical cyclones over the Bay of Bengal during post-monsoon season
7		Monica Sharma	IMD	Short to medium range cyclogenesis forecast performance of RSMC New Delhi



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



TS-5B: Monsoons: Seasonal Variability, Prediction, and Predictability (MPP)

Date: 25 November 2021 (Thursday)

Time: 11:25-13:15 IST

Venue: Hall 2 (PERIYAR)

Chairs: **Dr. Sathyamoorthy, VSSC & Dr. G Srinivasan, RIMES**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. D. S. Pai	IMD	Seasonal variability and prediction of south monsoon rainfall over India
2		Dr. R Bhatla	BHU	Assessing the changes in the climatic extremes over Indo-Gangetic Plains using observations and model simulations
3	Invited	Dr. Anupam Hazra	IITM, Pune	Understanding the role of deep convection on seasonal Monsoon rainfall over India
4		Dr. Milind Mujumdar	IITM, Pune	Monitoring of field-scale soil moisture variations in monsoonal environment
5	Oral	Dr. Arathy Menon	University of Reading, UK	Dynamics and evolution of a case study monsoon depression in a high-resolution model simulation
6		Dr. Ashok Kumar Das	IMD	Performance of GFS, NCUM-G, WRF and NCUM-R for Estimating Sub-basin-wise Quantitative Rainfall Forecast for SW Monsoon 2021 over Indian Region
7		Avijit Dey	IITM, Pune	Real-time performance of the Extended Range Prediction System of IITM during Indian Summer Monsoon Season, 2021

TS-6B: Monsoons: Seasonal Variability, Prediction, and Predictability (MPP)

Date: 25 November 2021 (Thursday)

Time: 14:10-16:00 IST

Venue: Hall 2 (PERIYAR)

Chairs: **Prof. C. K. Rajan, CUSAT & Dr. Anandakumar K, SPPU**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Prof. K Ashok	University of Hyderabad	Decadal Prediction of the Indian Ocean Dipole
2		Dr. P V S Raju	Amity	Indian Summer Monsoon Simulations in



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

			University	Regional Climate Model (RegCM): Performance of parameterization schemes
3	Invited	Dr. Prasanth A Pillai	IITM, Pune	Impact of drop in ENSO prediction skill on ISMR prediction in recent decades
4		Prof. Toru Terao	Kagawa University	GEWEX AsiaPEX Toward Understanding of Variability of the Asian Hydroclimatological System
5	Oral	Carlo Montes	International Maize and Wheat Improvement Center	On the interannual variability of the onset and withdrawal of the monsoon season in Bangladesh
6		Dr. Sreekala P P	CUSAT	On the simulation of northeast monsoon rainfall over southern peninsular India in CMIP5 models
7		Dr. Nirupam Karmakar	IITM, Pune	Understanding the dynamics of northward propagation of convection during boreal summer over Arabian Sea and Bay of Bengal

TS-5C: Clouds, Convection, and Precipitation Processes (CCP)

Date: 25 November 2021 (Thursday)

Time: 11:25-13:15 IST

Venue: Hall 3 (NILA)

Chairs: Prof. Someshwar Das, CURAJ & Dr. Suhas. E, IISER, Pune

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. K. Rajeev	SPL	Radiative Impact of Clouds over Tropics
2		Dr. Thara Prabhakaran	IITM, Pune	Progress from CAIPEEX: understanding the cloud and precipitation microphysics of cloud clusters
3	Invited	Bhupendra Bahadur Singh	IITM, Pune	Links between Asian summer monsoon convection and UTLS water vapor distribution
4	Oral	Dr. Akkiseti Madhulatha	IMD	Life cycle of a Tropical Mesoscale convective system-Insight of Complex Physical Mechanisms using suite of Observations
5		Ambuj Kumar Jha	IITM, Pune	Characteristics of rain events of different durations over a high altitude site in the Western Ghats of India
6		Abhishek k Jha	IITM, Pune	What regulates the growth of monsoon



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

				congestus clouds into deep and Overshooting modes within a day
7		Dr. Mohan S Thota	NCMRWF	Intriguing aspects of rainfall initiation over rain-shadow region during boreal summer monsoon

TS-6C: Clouds, Convection, and Precipitation Processes (CCP)

Date: 25 November 2021 (Thursday)

Time: 14:10-16:00 IST

Venue: Hall 3 (NILA)

Chairs: Prof. D V B Rao, K L University & Prof. Deepa Elizabeth George, TIST

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. T. N. Rao	NARL	Dominant rain microphysical processes in different climatic regions of India
2	Invited	Dr. Sandeep Pattanaik	IIT Bhubaneswar	Influence of cloud parameterization on monsoon low pressure systems
3		Yusuke Yamane	Tokoha University	Synoptic situations producing conditions favorable for severe local storm during the pre-monsoon season in and around Bangladesh
4	Oral	Nischal Sharma		Investigating Winter Extreme Precipitation Events and associated Dynamics over North India
5		Rupraj Biswasharma	Kohima Science College	Simulation of cloud-to-ground lightning flash of premonsoon thunderstorms by using the WRF model in synergy with the lightning detector over the north eastern and eastern part of India
6		Sukanya Patra	IITM, Pune	Observational evidence of cloud to rain transition advancing ground based cloud radar
7		Dr. Murali Krishna	IITM, Pune	Role of dynamical variables on the rain microphysics during wet and dry spells over Western Ghats
8		Dr. Subhadeep Halder	BHU, Varanasi	Changes in Clouds, Convection and Lightning activity over the Indian region



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



SPECIAL SESSION ON NATIONAL WEATHER SERVICES

Date: 25 November 2021 (Thursday)

Time: 16:30-18:00 Hrs IST

Venue: Hall 1 (PAMPA)

Chair & Co-Chair: **M. Mohapatra, DG, IMD & Dr. T. Srinivas Kumar, INCOIS**

1	Dr. D. S. Pai	IMD
2	Dr. Balakrishnan Nair	INCOIS
3	Dr. R. K. Jenamani	IMD
4	Dr. Sunitha Devi	IMD
5	Dr. D. R. Pattanaik	IMD
6	Dr. Soma Sen Ray	IMD

PROF. P. R. PISHAROTY MEMORIAL PUBLIC LECTURE

Date: 25 November 2021 (Thursday)

18:30-19:30 Hrs IST

Venue: Hall 1 (PAMPA)

Chairs: **Dr. R. K Datta, IMS and Dr. P. C. Joshi, IMS Fellow**

**Title: Advancing the Skill of Long-Range Forecasts of Indian Monsoon Rainfall:
Prospects and Challenges**

By

Prof. B. N. Goswami

Former Director, IITM, Pune & DST Distinguished Scientist



INTROMET 2021
International Symposium on Tropical Meteorology
CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)



Day-4: 26 November 2021 (Friday)

PLENARY SESSION 4

Date: 26 November 2021 (Friday)
Time: 09:30-11:15 Hrs IST
Venue: Hall 1 (PAMPA)

Chairs: Dr. G. Viswanathan & Dr. Geetha Ramkumar

SN	Presenting Author	Institute	Title
1	Dr. Swadhin Behra	JAMSTEC, Japan	Ocean and climate informatics toward developing a sustainable plane
2	Dr. Thamban Meloth	NCPOR, India	Antarctic cryosphere in a changing climate
3	Prof. Raghu Murthugude	University of Maryland, USA	Local Climatic Controls on Health - Example of Typhoid in Surat and Ahmedabad

TECHNICAL SESSION: ORAL PRESENTATIONS

TS-7A: Ocean-Land-Atmosphere Interactions (OLA)

Date: 26 November 2021 (Friday)
Time: 11:25-13:15 IST
Venue: Hall 1 (PAMPA)

Chairs: Dr. P.C. Pandey, IIT Kharagpur & Prof. H. S. Ram Mohan, CUSAT

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Subodh Kumar Saha	IITM, Pune	Indian Summer Monsoon Variability and Predictability: Role of Remote and Local Land-surface Processes
2		Dr. S Sijikumar	SPL	Regional Estimate of Greenhouse Gas Fluxes using Inverse Modelling
3	Invited	Dr. Dmitry Sein	Alfred Wegener Institute	Does the full consideration of the water temperature - phytoplankton feedback in climate models significantly affect the characteristics of the upper ocean layer and precipitation in the Northern Indian Ocean
4	Oral	Amal Joy	CUSAT	Soil moisture - Temperature coupling over India



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

5	Archana Rai	IITM, Pune	Evaluation of energy fluxes in the NCEP CFSV2
6	Dr. Liby Thomas	CUSAT	Sensitivity of Sea Surface Temperature on the prediction of August 2018 flood event over Kerala
7	Dr. Smitha A	CUSAT	Warming in the Arabian sea during the recent decades and its impact on surface chl-a concentration

TS-8A: Coastal and Marine Ecosystems in Changing Climate (CME)

Date: 26 November 2021 (Friday)

Time: 14:15-16:15 IST

Venue: Hall 1 (PAMPA)

Chairs: **Dr. Roxy Mathew, IITM & Dr. Balakrishnan Nair, INCOIS**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Smitha B R	CMLRE	Key drivers that regulate the upper layer production in the Northeastern Arabian Sea
2	Invited	Dr. Justin Sentian	Universiti Malaysia Sabah	Future Projection of Surface Temperature and Total Precipitation Over Southeast Asia Under Climate Change Scenarios
3	Oral	V. Adithyan	NIO	Mechanisms and Contributions of wave-surge-tide interactions in the Bay of Bengal
4		Dr. Anitha Gera	NCCR	Upwelling in the eastern Arabian sea using nemo-Pisces model- impact of river runoff
5		Dr. Joshi K	Utkal University	Monitoring of Gulf of Kachchh Coastal Zone with Reference to Land Use Land Cover Change using Geo-Spatial Technology
6		Sudip Kumar Kundu	NIAS, Banglore	Investigating the Roles of Marine Fishery Advisories in the Reduction of Carbon Dioxide under Varying Climate Change Scenarios for the Bay of Bengal
7		Dr. Lincy Davis P	KAU, Thrissur	Assessing above ground carbon sequestration potential of coconut plantation at CRS, Aliyarnagar in Coimbatore
8		Krishna Kumar Sinha		Integration of Human Activities and Ecological Restoration on Climate Change
9		V Seelanki	IIT, Delhi	Chlorophyll distribution over the Indian ocean



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

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TS-7B: Radars and Satellites in Observations and Prediction (RSO)
Date: 26 November 2021 (Friday)
Time: 11:25-13:15 IST
Venue: Hall 2 (PERIYAR)

Chairs: **Dr.P. Mohanan & Dr. K. Rajendran, CSIR-4PI**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. V. K. Anandan	ISTRAC	Radar Meteorology present and future
2		Dr. P K Thapliyal	SAC	Indian Satellite Programs for Meteorological and Oceanographic Applications
3	Invited	Dr. Titu K Samson	Arizona State University, USA	Phased array RADAR for wind measurements
4	Oral	B. Arul Malar Kannan	IMD	Weather Radar Observations vis-a-vis High Wind Speed Recorder data revealing fine-scale features of NIVAR and TAUKTAE Tropical Cyclones
5		Dr. Anoop Kumar Mishra	IMD	Investigation of Changes in Precipitation Patterns in Warming Climate using High Resolution Precipitation Estimates from space
6		Dr. K. Amarjyothi	NCMRWF	Rainfall nowcasting using DWR over Delhi
7		Dr. K. N. Uma	VSSC	Assessment of vertical air motion among reanalyses and qualitative comparison with VHF radar measurements over the two tropical stations

TS-8B: Climate Change Impacts and Adaptation (CCA)
Date: 26 November 2021 (Friday)
Time: 14:10-16:00 IST
Venue: Hall 2 (PERIYAR)

Chairs: **Dr. C. A. Babu, CUSAT & Dr. Jayanarayanan, IIT Kharagpur**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. N. Subash	ICAR	Climate change impact and adaptation at Farm level - Linking climate-crop-economic modeling approach



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

2	Oral	Pravat Rabi Naskar	MoES	Characteristics of Summer heat stress in India during 1990-2020 climatology and long term trends
3		Dr. Praveen Kumar	IMD	Projected Changes in Tmax and Tmin in the simulation of high-resolution CMIP6 models under a warming climate
4		Dr. Raju Attada	IISER, Mohali	Thermal Stress over Northwestern India- Climatology, Trends and Extremes
5		Dr. R. Ratan	IMD	Analysis of Relationship Between Meteorological Variables and Malaria Occurrences over Odisha
6		Shuchi Chaki	University of Dhaka, Bangladesh	Development towards Heat Health Warning System Tailored to Human Thermal Stress in Bangladesh
7		A Anchule	BHU	Stratification of aerosols over South Asian megacities
8		Dr. S D Sanap	IMD	Spatiotemporal variability in aerosol optical depth during COVID 19 imposed lockdown Global vs regional vagaries
9		D V Cyril	Kerala State Institute of Languages	Climate change impacts mitigation and adaptation

TS-7C: Geo-spatial Techniques and Earth Observations (GTE)

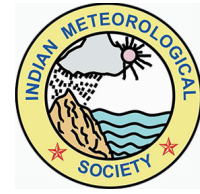
Date: 26 November 2021 (Friday)

Time: 11:25-13:15 IST

Venue: Hall 3 (NILA)

Chairs: **Dr. Raj Kumar, NRSC & Dr. Gopal Iyengar, MoES**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. Gireesh Gopinath	KUFOS	Geospatial Technology for Natural Resources Management
2	Oral	Sagar Vinod Gade	IITM, Pune	Role of LETKF based coupled data assimilation on seasonal prediction of Monsoon
3		Dr. Anish Kumar M Nair	ISRO	Characteristics of Cyclonic and Anticyclonic Circulations at 850 hPa over India and Adjoining Areas
4		Dulal Chakrabarti	IMD	Grid point INSAT cloud climatology over



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

				India and neighborhood using a simple multi layer Convolution Neural Network CNN model
5		Sarath Raj	IIT, Kharagpur	Assessment of spatial and temporal changes of surface urban heat island in the cities of Kerala
6		V. Chahar		Generation of graphical products for weather bulletins and reports using qgis - a new initiative
7		Rahul Saxena	IMD	Scientific aspects of recent developments in South Asia Flash Flood Guidance System
8		Dr. Sunil Kumar A S	CUSAT	Co-seismic Ground Deformation and Ionospheric Perturbations Associated with the Recent Mw 8.2 Alaska Earthquake
9		Dr. Suraj R	Kerala State Remote Sensing And Environment Centre	Estimation of Granite Quarrying in Selected Area of Kanakkari Village, Kottayam District

TS-8C: Disaster Management and Climate Change (DMC)

Date: 26 November 2021 (Friday)

Time: 14:10-16:00 IST

Venue: Hall 3 (NILA)

Chairs: **Dr. K. R. Baiju, MGU & Dr. Gireesh Gopinath, KUFOS**

SN	Talks	Presenting Author	Institute	Title
1	Lead	Dr. R K Jenamani	IMD	Impact-based forecasting in IMD
2		Dr. Kamaljit Ray	MoES	Extreme Weather events and Early Warning
3	Oral	Dr. Sanu Kumar Saha	ICAR	Microthermal environment influencing mustard aphid under companion cropping a climate friendly approach
4		Rohit Magotra	Integrated Research and Action for Development	Impact of Urbanization on Natural Disasters A Case of Gangtok City
5		Anand Shankar	MoES	Application of Artificial Intelligence for the Forecasting of Fog for the JPNI Airport Patna, India.



INTROMET 2021

International Symposium on Tropical Meteorology

CHANGING CLIMATE: CONSEQUENCES AND CHALLENGES (C4-21)

6	Thomas Y. Chen	Academy for Mathematics, Science, and Engineering	Tropical Extreme Weather Event Management and Climate Adaptation via Supervised Computer Vision-based Algorithms
7	Sujith Maji	IITM, Pune	Seasonal Variation of VOCs and OVOCs over Delhi Analysis of fire-impacted periods
8	J Rajkumar	IIT, Kharagpur	High wave and current observation during Tauktae cyclone in arabian sea

VALEDICTORY SESSION (16:30– 18:30 Hrs IST)