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मौसम विज्ञान विभाग समाचार IMD NEWS

INDIA METEOROLOGICAL DEPARTMENT
(Ministry of Earth Sciences)



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Important Event/ Activities

Pre-cyclone exercise and releasing CDs on Early Warning System of Tropical Cyclones



Dr. K. J. Ramesh, D. G., IMD, Dr. M. Mohapatra, Scientist 'G' alongwith other invited delegates releasing the CDs on "Early warning System of Tropical Cyclones"

Pre-cyclone Exercise for the season October to December was held on 4th October, 2017 at India Meteorological Department (IMD) and simultaneously at various sub-offices of IMD to take stock of preparedness for ensuing cyclone season and to share new initiatives and latest products related to cyclone warning services with various stake holders. The participants included officers from Ministry of Home Affairs, Ministry of Surface Transport, Ministry of Shipping, Ministry of Railways, Central Water Commission, National Disaster Management Agency, National Institute of Disaster Management, Indian Air Force, Indian Navy, All India Radio, Doordarshan, Vigyan Prasar, NCMRWF and officers from National Weather Forecasting Centre, IMD. Dr. M. Mohapatra, Scientist 'G' gave a presentation on Cyclone Warning Services of IMD. During the meeting Dr. K. J. Ramesh, D. G., IMD released the documentary film on "Early warning System of Tropical Cyclones" in eight regional languages (Tamil, Gujarati, Malayalam, Odiya, Telugu, Kannada, Marathi and Bangla). The same are available on RSMC website at the link <http://rsmcnewdelhi.imd.gov.in/images/documentary-film.pdf>.

- **International workshop** on Strengthening Early Warning for Disaster Risk Reduction for Himalayan Agriculture jointly organized by UNESCO, IMS and IMD at Palampur during 25-26 October, 2017.
- **IMD hosted an International seminar** on 'WMO/UKMO Aviation Seminar' under Voluntary Co-operation Programme (VCP) of WMO in New Delhi during 13-17 November, 2017. Nineteen trainees from 14 countries participated in the seminar.
- **XIth Annual Review Meeting of GKMS and VIIIth ARM of FASAL** was organized at Indira Gandhi Krishi Vishwavidyalaya, Raipur during 15-18 November, 2017 to review the progress on content of Wx forecast for agriculture, agromet advisory, dissemination & feedback mechanism and prepare the roadmap for future. The officers of AASD & AMFUs under GKMS/ FASAL schemes participated.
- **Dissemination of Agromet Advisories** to the users' community through SMS and IVRS technology is being continued in the country through Kisan Portal and under PPP mode. At present Agromet Advisories are reaching to 22.60 million farmers in the country through SMS directly.



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Important Events

Hon'ble Member of Parliament (Rajya Sabha) Shri Amar Shankar Sable visited IMD, Pune on 5th December, 2017 and had meeting with senior officials.

Secretary's visit at RMC, Kolkata



Dr. M. Rajeevan, Secretary, MoES with officials of IMD

Dr. M Rajeevan, Secretary, MoES visited RMC Kolkata on 27th November, 2017. He had meetings with officials of RMC, Kolkata and was apprised of work of different units. He explained the vision of the Ministry for the future.

Vigilance Awareness Week (30th October to 4th November, 2017) was observed & pledge administered on 30th October, 2017 and Rashtriya Ekta Divas pledge was administered on 31st October, 2017 amongst officers and staff members at Delhi H.Q. and all sub-offices of IMD across the country.

Shri Bikram Singh, Scientist 'E' was one of the panellists in technical session of the workshop on "Rejuvenation of Naini Lake" organized by Government of Uttarakhand and UNDP and Inaugurated by Hon'ble Governor, Govt. of Uttarakhand on 27th November, 2017. Shri Bikram Singh also gave a presentation on Rainfall analysis of Uttarakhand.

RMC, Mumbai office participated in Inter-school Science Exhibition with Meteorological exhibits on 8th December, 2017 organized at SIES Institute, Mumbai and Holy Family School, Andheri, Mumbai.

Dr. V. Vizaya Bhaskar, Scientist 'E' acted as a member of the Techno-Commercial committee for services of five years comprehensive maintenance contract for Online SO₂ analyzers installed at IITM, Pune.

New Projects / Schemes / Programmes Approved / Initiated / Completed

Inputs from India Meteorological Department were provided for the report of Working Group - 5 on "Data/Information for Informed Decision Making by Multiple Stakeholders" for sustainable development of mountains of Himalaya: Climate and Cryosphere Sector to G. B. Pant National Institute of Himalayan Environment and Sustainable Development, Ministry of Environment, Forest and Climate Change, Govt. of India for submission to Niti Aayog on 11th October, 2017.

Second Meeting for finalisation of Detailed Project Report on Modernisation of Weather and Climate Services was held at Ministry of Earth Sciences (MoES) on 20th October, 2017. The Meeting was presided by Secretary, MoES and was participated by all the Project Directors (PDs) and sub-project leaders. Dr. M. Mohapatra, Scientist 'G' gave a presentation on status of various projects under the scheme.

Forecast Demonstration Project on land falling cyclones commenced from 15th October, 2017. The project will be conducted during 15-30 November, 2017. During the period, RSMC New Delhi will prepare a detailed bulletin on prognosis & diagnosis and data & products availability over the region. Daily reports are available on RSMC website at the link: <http://rsmcnewdelhi.imd.gov.in/images/FDP/15oct.pdf>.

Human Resource Development Activities

Aeronautical Met. Station (AMS) at Kishangarh made operational w. e. f. 24th October, 2017.

Aeronautical Met. Station (AMS) at Jalgaon made operational w. e. f. 23rd December, 2017.

"**Electronic sunshine recorder**" was installed at CWC Visakhapatnam.

Shri M. M. Saklani, Met. 'B' and **Shri D. K. Verma**, Met. 'B' visited three AWS viz., Bharsar, Dhanauri & Roorkee from 11-12 October, 2017 for upgradation with new GPRS based data logger.

Dr. M. Mohapatra, Scientist 'G' evaluated Ph. D. Thesis of a scholar from IIT Delhi. The Ph.D. thesis evaluation report was submitted to IIT Delhi on 13th October, 2017.

WORKSHOPS

Dr. K. J. Ramesh, D. G., IMD New Delhi was guest of honour at the workshop on "Delivering of Agro Meteorological Advisory Services at Block/Village level through SMS to farmers of Odisha" organized by Department of Agriculture and Farmer's Empowerment, Govt. of Odisha at IMAGE, Bhubaneswar on 10th October, 2017. Dr. (Mrs.) Kamaljit Ray, Scientist 'G', Dr. K. K. Singh, Scientist 'F', Dr. S. C. Sahu, Scientist 'F' and from Agromet Division, IMD, New Delhi also participated in the workshop.

Shri Anand Sharma, Scientist 'F' organized and participated in the UNESCO, IMS and IMD International workshop on "Strengthening Early Warning for Disaster Risk Reduction for Himalayan Agriculture" at Palampur Agricultural University on 25 and 26 October, 2017. Shri Anand Sharma, Scientist 'F' was the International Coordinator and National Organizing Secretary of the workshop. He also delivered lead talk on "Extreme Weather events with respect to Himalayas" and "Agromet Services and its Outreach".

INTROMET-2017



Dr. M. Rajeevan, Secretary, MoES, Dr. K. J. Ramesh, D. G., IMD and other officers from different organization, lighting the lamp during the symposium

Dr. K. J. Ramesh, D. G., IMD participated in International Tropical Meteorology Symposium (INTROMET-2017) on 7-10 November, 2017 at Ahmedabad Under the auspices of Indian Meteorological Society, New Delhi Organised by Indian Meteorological Society - Ahmedabad Chapter and Space Applications Centre, ISRO. On this occasion Dr. K. J. Ramesh, D. G., IMD was awarded with IMS fellowship. On this occasion, **Dr. M. Mohapatra**, Scientist 'G' delivered lead Talk on 9th November, 2017 on "Satellite Observations for Nowcasting and Short Range Weather Prediction in International Conference, INTROMET-2017".

Shri M. M. Saklani, Meteorologist 'B' participated in workshop on "Disaster Resilient Infrastructure in the Himalayas: Opportunities and Challenges" organized by Uttarakhand State Disaster Management Authority, Govt. of Uttarakhand from 21-22 November, 2017.

Dr. K. K. Singh, Scientist 'F' attended workshop on "Climate Smart Agriculture in Asia: Beyond Pilot Evaluation and Models" held at Hanoi, Vietnam from 21-23, November, 2017. Objective of the workshop was to bring together key stakeholders to discuss and exchange learnings in Asia and presented India's effort in providing climate services for agriculture and support system along with future plan.

SEMINAR

Agrometeorology for Sustainable Development

Dr. K. J. Ramesh, D. G., IMD, A. K. Sahai, Head, CR&S, Dr. N. Chattopadhyay, Scientist 'F', Dr. K. K. Singh, Scientist 'F', Dr. S. D. Attri, Scientist 'F', Dr. S. C. Bhan, Scientist 'F', Shri K. Santosh, Scientist 'F', Shri R. Balasubramanian, Scientist 'D', Mrs. Priyanka Singh, Sc. 'B', Ms. A. B. Bandgar, Sc. 'B' and Dr. S. Khedfekar, Sc. 'B' etc. attended National Seminar on "Agrometeorology for Sustainable Development with special emphasis on Agrometeorological Practices for Climate Resilient



Dr. K. J. Ramesh, D. G., IMD & other officials released a book during seminar

Farming and Food Security (AGMET-2017)" held during 12-14 October, 2017 at Chaudhary Charan Singh Haryana Agricultural University (CCS HAU), Hisar. Dr. A. K. Sahai, Head, CR&S delivered a lead talk on "Climate Product and Services" during the National Seminar.

Dr. S. D. Attri, Scientist 'F', AASD delivered lead talk on "Climate Change and Sustainable Development" in National Seminar organized by MDU Rohtak on 24th November, 2017.



Dr. S. D. Attri, Sc. 'F' during the National Seminar

Dr. S. C. Sahu, Scientist 'F', M.C. Bhubaneswar, attended the seminar on "A look into Futuristic CNS/ATM Systems" convened by Airports Authority Officer's Association (India) at new Integrated Building, B.P.I. Airport, Bhubaneswar on 27th November, 2017.

Shri Anand Sharma, Scientist 'F', AASD, participated in the International Seminar on "Resilient Hindu Kush Himalaya" at Kathmandu, Nepal from 3-6 December, 2017 and made a presentation on "Disaster Risk Reduction & Climate Change Adaptation".

अंतर मंत्रालय/ अंतर विभागीय हिंदी संगोष्ठी

गृह मंत्रालय, राजभाषा विभाग के आदेशानुसार भारत मौसम विज्ञान विभाग द्वारा वैज्ञानिक एवं तकनीकी तथा राजभाषा हिंदी से जुड़े विभिन्न विषयों पर पूर्वोत्तर भारत में अंतर मंत्रालय/ अंतर विभागीय हिंदी संगोष्ठी का आयोजन 4 - 5 दिसम्बर, 2017 तक शिलांग में किया गया जिसमें विभाग के



और विभागेतर कुल 36 कार्मिकों ने भाग लिया। दो दिन तक चलने वाली इस संगोष्ठी का आयोजन मेघालय के पाइन वुड होटल के स्टेट कन्वेंशन सेंटर में किया गया। 4 दिसम्बर, 2017 की प्रातः उद्घाटन समारोह की अध्यक्षता महानिदेशक महोदय डॉ. के. जे. रमेश ने की। इस समारोह के मुख्य अतिथि पूर्वोत्तर पर्वतीय विश्व विद्यालय शिलांग के कुलपति प्रोफेसर श्री एस. के. श्रीवास्तव थे। अंतरिक्ष अनुप्रयोग केंद्र शिलांग के निदेशक श्री पी. एल. एन. राजू और केंद्रीय हिंदी निदेशालय शिलांग के क्षेत्रीय निदेशक डॉ. ब्रजेन्द्र सिंह विशिष्ट अतिथि के रूप में आमंत्रित थे।



डॉ. के. जे. रमेश, महानिदेशक, भा. मौ. वि. वि., श्री पी. एल. एन. राजू, निदेशक, अंतरिक्ष अनुप्रयोग केंद्र शिलांग, डॉ. ब्रजेन्द्र सिंह, क्षेत्रीय निदेशक, केंद्रीय हिंदी निदेशालय, शिलांग और अन्य अधिकारीगण अंतर मंत्रालय/ अंतर विभागीय हिंदी संगोष्ठी के दौरान

Dr. Jayanta Sarkar, Scientist 'F' delivered lecture on "Weather forecasting in Gujarat state at KVK, Vadodara" on 22nd Dec., 2017 with regards to Farmers awareness program (FAP).

Dr. S. D. Attri, Scientist 'F' participated and addressed the farming community in FAP organised by KVK Vadodara on 22nd December, 2017 which was also attended by Director (Ext), Dean (Ag.), Senior officers of AAU Anand and KVK, Director MC Ahmedabad and 300 farmers.



Dr. S. D. Attri, Sc. 'F' addressing the farmer at Vadodara

Dr. K. K. Singh, Scientist 'F' and Dr. Kripan Ghosh, Scientist 'E', AASD delivered lecture in Training programme cum workshop on "Use of Extended Range Forecast For Development of CRM Tool in Agriculture" during 23-30 Dec., 2017 at University of Agriculture & Horticultural Sciences, Shivmogga, Karnataka.

TALK/LECTURES

Shri J. R. Prasad, Scientist 'E', RMC Nagpur delivered a lecture on the topic "Weather and Climate variability in and around Nagpur" in WHO Workshop to be held during 31 October to 3 November, 2017 at CSIR-NEERI Nagpur.

Dr. N. Chattopadhyay, Scientist 'F' delivered lecture on "Genesis and future strategies of Agromet Advisory Services" in the country in the "National Training Programme on Fundamentals of Agricultural Meteorology" organized by Mahatma Phule Krishi Vidyapeeth, Department of Agricultural Meteorology, Centre of Advance Faculty Training (CAFT) in Meteorology, Pune on 8th November, 2017.

Dr. Anupam Kashyapi, Scientist 'F' visited as Guest Faculty for delivering lecture for "PGDDM 1st Semester at Disaster Management Institute, (DMI), Govt. of Madhya Pradesh" on 27th November, 2017 at DMI Hostel, Bhopal.

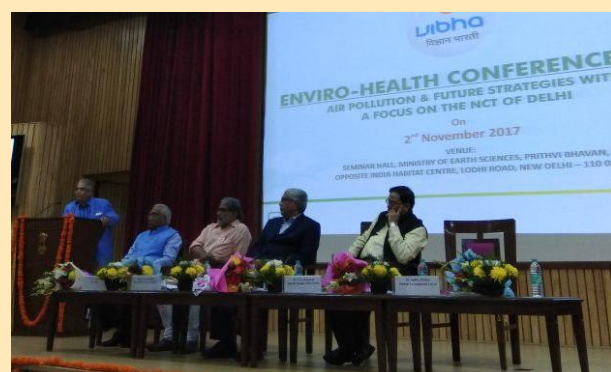
Shri S. C. Bhan, Scientist 'F', AASD, delivered two invited lectures on "Agro Meteorological data Collection Analysis and Management" for ICAR Technical staff held at ICAR-CRIDA, Hyderabad during 11-23 December, 2017.

Shri Anand Sharma, Scientist 'F', AASD, delivered invited lecture on "Early Warning System and Weather Forecasting" at Uttarakhand Academy of Administration, Nainital on 21st December, 2017.

CONFERENCES

Indian Meteorological Society and UNESCO with CSK Krishi Vishwavidyalaya, Palampur organised "The South Asian Conference on Early Warning for Disaster Risk Reduction in Agriculture" during 25-26 October, 2017 at Palampur, Himachal. Dr. M. Mohapatra, Scientist 'G' participated in the inaugural ceremony as distinguished Guest of Honour and delivered a lead talk on the "Weather Forecast and Warning Services for Mountain Regions of India-Problems & Prospects".

Dr. K. J. Ramesh, D. G., IMD participated in Enviro-Health Conference 2017 on "Air pollution and future strategies with a focus on the NCT of Delhi" on 2nd November, 2017 at MoES, Prithvi Bhavan, Lodhi Road, New Delhi".



Dr. M. Rajeevan, Secretary, MoES, Dr. K. J. Ramesh, D. G., IMD and other senior officers of different organisation during the conference

Dr. N. Chattopadhyay, Scientist 'F' had an interaction meeting on Skype (Video Conference) on 8th November, 2017 for the Stakeholders Workshop on Climate Services for agriculture in Bhutan under the Project : "Customization of Climate Services Tool for Bhutan and development of tailored products for the Bhutanese agriculture sector".

Dr. Shashi Kant, Scientist 'B' and Shri P. K. Nath, Met. 'A' attended the Video Conference to review the Steps taken in connection with unseasonal rain under the chairmanship of Chief Minister, Govt. of Odisha at Secretariat, Bhubaneswar on 16th November, 2017 .

Dr. S. D. Attri, Scientist 'F', AASD participated and addressed the gathering as Guest of Honour in National Conference on "Climate Change and Sustainable Clean Environment" held at Central University of Haryana, Mahendergarh, Haryana, during 22-23 November, 2017.

Dr. S. C. Sahu, Scientist 'F', M. C. Bhubaneswar, attended the Video Conference convened by Revenue Minister, Department of Agriculture and Farmers Empowerment, Govt. of Odisha for review of status of disbursement of Agriculture Input Subsidy to farmers affected by Drought/Pest attack/ Unseasonal Cyclonic Rain during 2017 at Secretariat Bhubaneswar on 4th December, 2017.

Scientist 'F' also attended the workshop and delivered lectures. **25 trainees from SAARC visited M. C. Ahmedabad** on 7th December, 2017 and Dr. Jayanta Sarkar, Scientist 'F' delivered lecture to them regarding weather forecasting.

WMO's Tropical Cyclones Forecasters Training 2017



Dr. K. J. Ramesh, DG, IMD, Dr. M. Mohapatra, Sc. 'G', Senior Officers of IMD and participants of RSMC Training 2017

The WMO's Tropical Cyclones Forecasters Training 2017 was conducted by Regional Specialised Meteorological Centre (RSMC), New Delhi during 11-22 December 2017 at India Meteorological Department (IMD), New Delhi. The training aimed at capacity building of the tropical cyclones (TCs) forecasters in the region by understanding the latest developments in observations, monitoring, modeling, prediction and warning services of TCs over the region and carrying out the practical examples in these aspects. There were 19 participants including 3 from WMO/ESCAP Panel member countries viz., Myanmar, Oman and Sri Lanka, 6 from Area Cyclone Warning Centres (ACWCs) and Cyclone Warning Centres (CWCs) of IMD and 9 from National Weather Forecasting Centre & RSMC New Delhi. A Ph. D scholar from Kurukshetra University, Kurukshetra also participated in the training programme. The training programme was inaugurated by Dr. K. J. Ramesh, D. G., IMD on 11th December. The resource persons for this training programme included experts from IMD, National Centre for Medium Range Weather Forecasting (NCMRWF) and Indian Institute of Technology (IIT), Delhi. The programme also included field visit of half day to NCMRWF on numerical weather prediction modelling. On 22nd December, Valedictory function was organised and Dr. K. J. Ramesh, DGM distributed certificates to the participants on successful completion of training.

TRAINING

Dr. N. Chattopadhyay, Scientist 'F', Dr. Lata Vishnoi, Scientist 'B' attended the meeting-cum-discussion on "Data familiarization training and hands - on for IMD Agromet officials for utilization in agromet advisories" at SAC, Ahmedabad on 9th October, 2017. Smt. K. Malathi Meteorologist 'B', Smt. Swati Chandras, S.A., Smt. Vidya R. Choudhary, S.A. and Nivedita Tidke, SRF also attended the above said familiarization training.

RIMC, Kolkata conducted "Instrument Maintenance Training Program" from 23-25 October, 2017 for Maintenance of Observatories all over the region attended by officials of ZIMC, RMC, Kolkata. Dr. Sanjib Bandyopadhyay, Scientist 'F', delivered a talk on new DFPR and Procurement through Gem on this occasion.

Dr. (Smt.) Manorama Mohanty, Scientist 'D' and Shri Ramachandran T., Met 'A' attended "Training programme on Public Procurement for Government Officers" at National Institute of Financial Management, Pali, Faridabad, Haryana, during 23-28 October, 2017.

Dr. A. K. Sahai, Head, CR&S, Pune visited Ahmedabad from 5-7 December, 2017 to attend a training workshop on "Seasonal Climate Forecasting for SOUTH ASIA" organized by SAARC Disaster Management Centre (JU) Gandhinagar, Gujrat and delivered a talk on "Regional Climate Centre - Climate Monitoring and Prediction Products and Services for South Asia". Dr. D. S. Pai, Scientist 'F' and Dr. Somanath Dutta,

FOREIGN VISITS

Shri B. P. Yadav, Scientist 'F', was on foreign deputation to Bangkok (Thailand) to participate in the Expert Group Meeting on "Regional Co-operation in Early Warning for Trans boundary River Basin Floods, Flash Floods and Land-slides in Asia and Pacific" during 9-11 October, 2017.

Shri Virendra Singh, Scientist 'F', was on foreign deputation to Vladivostok City (Russia) to participate in the "Eighth Asia/Oceania Meteorological Satellite Users Conference (AOMSUC-VIII) and Associated" during 16-21 October, 2017.



Shri K. N. Mohan, Scientist 'F', was on foreign deputation to Bridgetown (Barbados) to participate in the "13th WMO Symposium on Education and Training (SYMET-XII) and Quadrennial Meeting of Directors of WMO Regional Training Centres (RTCs)" during 30 October to 2 November, 2017.

Shri Asok Raja, Scientist 'B', participated in Knowledge Co-Creation Program on "Promotion of Mainstreaming Disaster Risk Reduction" in Japan from 5-18 November, 2017.

Dr. R. K. Jenamani, Scientist 'F', **Shri Vivek Sinha**, Scientist 'F', **Shri Manish Ranalkar**, Scientist 'D', and **Dr. A. K. Mitra**, Scientist 'D', participated in "WMO Aeronautical Meteorological Conference 2017, Aero Meteorological Science 2017 and AVRDP" from 6-10 November, 2017 at Météo-France, Toulouse, France.

Shri R. Bibraj, Scientist 'B' participated in the "Advanced Workshop on "Meteorological Warnings" held at RTC Bet-Dagan, Shefayim, Israel from 6-16 November, 2017.

Dr. A. K. Srivastava, Scientist 'F', participated in the 23rd meeting of "Conference of Parties (COP 23)" held at Bonn, Germany from 6-17 November, 2017.

Shri V. P. Singh, Scientist 'B', **M. C., Bhopal**, **Ms Hemlata Motitram Bharwani**, Scientist 'B', **NWP, New Delhi**, **Shri Thangjala Lhouvum**, Scientist 'B', **Mohanbari**, **Shri S. Prayek**, Scientist 'B', **DWR Machillipatnam**, **Dr. A. Dharma Raju**, Scientist 'B', **M.C., Hyderabad** participated in Knowledge Co-Creation Program for Young leaders on "Disaster Reduction" in Japan during 6-25 November, 2017.

Dr. Somenath Dutta, Scientist 'F' participated in KMA/WMO Regional Workshop on "Impact based Forecasts in RA-II" at Seoul, Republic of Korea during 7-9, November, 2017.

Dr. (Mrs.) Suman Goyal, Scientist 'E', participated in the "RGB Experts and Developers Workshop" in Tokyo, Japan during 7-9 November, 2017.

Dr. S. D. Attri, Scientist 'F', attended "WMO Stakeholders Workshop on Climate Services for Agriculture" held at

Thimphu, Bhutan during 7-9 November, 2017 and gave a presentations on various topic on weather, climate and agromet services, served as Chairman of Sessions including "Recommendations and Concluding".

Dr. P. Guhathakurta, Scientist 'F', attended the "4th Bilateral Meeting of KMA and MoES" held in Seoul, S. Korea from 9-10 November, 2017.

Dr A. K. Sahai, Scientist 'G' and **Dr. D. R. Pattanaik**, Scientist 'E' participated in the Sixth International Workshop on "Monsoon (IWM-VI)" and presented their papers during 13-17 November, 2017 at Singapore.



Dr A. K. Sahai, Scientist 'G', Dr. D. R. Pattanaik, Sc. 'E' and other delegates during the workshop

Dr. S. L. Singh, Scientist 'F', participated in Joint Meeting of the Expert Team on "WIS Centers (ET-WISC) Communications Techniques and systems (ET-CTS) and the Task Team on Global Information Systems Centers (TT-GISC)", at World Meteorological Organisation (WMO), Headquarters, Geneva, Switzerland during 13-17 November, 2017.

Dr. M. Mohapatra, Scientist 'G' participated in International workshop on "Cataloguing and managing information on extreme weather, water and climate events" at Geneva, Switzerland during 20-22 November, 2017.

Dr. K. Sathi Devi, Scientist 'F', attended the "Severe weather forecasting demonstration project (SWFDP)" held at Hanoi, Vietnam from 20-23 November, 2017.

Dr. K. K. Singh, Scientist 'F' attended workshop on "Climate Smart Agriculture in Asia: Beyond pilot evaluation and models" at Hanoi during the period 21-23 November, 2017.



Dr. S. D. Attri, Sc. 'F' at Thimphu, Bhutan



Dr. K. K. Singh and participants

Dr. S. Balachandran, Scientist 'F', attended the "Regional Capacity Development Workshop for multi-hazard risk assessment and early warning systems" at the World Bosai Forum 2017 Sendai, Japan on 27 November, 2017.

Dr. N. Chattopadhyay, Scientist 'F' attended the meeting of "Implementation and Coordination Team (ICT) and Management Group of WMO Commission for Agricultural Meteorology" held in Geneva, Switzerland, during 28-30 November, 2017.



ICT & Management group of WMO Commission

Dr. Ashim Kumar Mitra, Scientist 'D' participated in "International TOVS Study Conference (ITSC)" organised by the EUMETSAT-ITSC-XXI at Darmstadt, Germany during 29 November to 5 December, 2017.

Shri Anand Sharma, Scientist 'F' participated in the International Seminar on "Resilient Hindu Kush Himalaya" at Kathmandu, Nepal during 3-6 December, 2017.

Shri R. Balasubramanian, Scientist 'D' attended the regional workshop on "Moving from Drought monitoring system to management and training programme on Earth observation based Tools for Drought monitoring" held at GISTDA (Geo-Informatics and Space Technology Development Agency, Bangkok, Thailand from 4-8 December, 2018.

Mrs. Suman Goyal, Scientist 'F' participated in 4th International workshop on "Tropical Cyclone Landfall Processes" at Macau, China during 5-7 December, 2017.

Dr. K. K. Singh, Scientist 'F' attended WMO's RA II Region Working Group Chairs' Meeting at Abu Dhabi, United Arab Emirates during 12-14 December, 2017. He is Coordinator for Expert Group on Agriculture Meteorology (EG-AgM) under Working Group on Climate Services for RA II region. He made two presentations on - (i) EG-AgM Work Plan for 2017-2020 for RA-II and (ii) Review of the regional activities in Asia and Implementation of RA II Operating Plan 2016-2019.

Infrastructure Development & Installations

Shri Manish Ranalkar, Scientist 'D' delivered lecture on "Technical details and guidelines on calibration of sensors at Airports" on 13th October for the training conducted on Travelling Standard Kits at AWS Lab, Pashan, Pune from 9-13 October, 2017.

S/Shri P. R. Mhetre, S. A. and Pratap Rasal, S. A. visited Kishangarh airport, Ajmer from 21-27 October, 2017 for "Servicing and Maintenance of CWIS system".

Dr. K. J. Ramesh, DG, IMD, Dr. Shubha, Distinguished Scientist from NAL- Bengaluru alongwith Shri S. M. Metri, Scientist 'E', Shri L. Ramesh Babu, Scientist 'D', Shri N. Ramdoss, Met. 'B' alongwith the representatives from KIAL visited Nelamangala in connection with "MET PARKS for the installation of 'Drishti' RVR instruments" on 24th October, 2017.

Shri K. N. Mohan, Scientist 'F' visited H.Q., Delhi from 20-24 November, 2017 in connection with maintenance of "Drishti Transmissometer System to be operational".

Shri Rakesh Kumar, Scientist 'B' visited IGI Airport New Delhi for "Upgradation of the two runways" namely 29 and 11 at the beginning and maintenance from 20-25 November, 2017.

Shri R. R. Mali, Scientist 'F' visited Bhubaneswar from 18-23 December, 2017 to attend a meeting with state Govt. officials and for inspection and installation of "Drishti System" at Bhubaneswar airport. He also visited Mumbai for inspection of Airport system.

Shri M. M. Saklani, Met. 'B' inspected "Three sites for installation of Doppler Weather Radar" in Pithoragarh district from 26-29 December, 2017.

MEETINGS

Dr. K. K. Singh, Scientist 'F' and Dr. Ranjit Singh participated in State level Ravi Productivity meeting - 2017 cum workshop "On delivery of Agro-Meteorological Advisories Services (AAS) at block/village level through SMS to farmers of U.P." held at Krishi Bhavan, Lucknow on 4th October, 2017. The meeting was chaired by Shri Surya Pratap Sahi, Cabinet Agriculture Minister, Govt. of Uttar Pradesh.

Dr. Somenath Dutta, Scientist 'F' attended a meeting on 5th October, 2017 in Remote Sensing Application Centre (MHRAC), Mumbai in connection with the "UNICEF sponsored project on monitoring four major diseases in Maharashtra".

Dr. K. J. Ramesh, DG, IMD, Dr. K. K. Singh, Scientist 'F' and Dr. S. D. Attri, Scientist 'F' participated in the meeting chaired by DG, ICAR and Secretary, DARE along with DDG (Agric. Ext.), ADG (Agric Ext.) and other senior officers of ICAR for discussion of "MoU between both the organizations, establishment of DAMUS at KVKs of ICAR and augmentation of Agromet Advisory Service in the country" on 6th Oct., 2017.

Dr. G. C. Debnath, Scientist 'F', AMO Kolkata attended a meeting regarding "Construction of New ATC Tower and Technical Block" at NSCI Airport organized by RED AAI, Kolkata on 9th October, 2017 and in this regard a joint inspection was also made on 12th October, 2017.



Shri K. S. Hosalikar, Scientist 'F', Smt. Dr. Manorama Mohanty, Scientist 'D' and Shri K. G. Kacha, Met. 'A' attended a meeting, with Director, S.V.P.I. Airport, at Airport, Ahmedabad to discuss the matter regarding "Relocation/construction of new Met. Centre building and installation of DWR at SVPI Airport" on 10th October, 2017.

Shri Bikram Singh, Scientist 'E' attended meetings on 10th October, 16th October, 18th October and 23rd October, 2017 at Secretariat, Govt. of Uttarakhand in connection with Hon'ble Prime Minister visit to Dehradun and Mussoorie on 26-27 October, 2017 and Shri Kedarnath ji on 20th October, 2017 and provided weather briefing. The meeting was chaired by Chief Secretary, Govt. of Uttarakhand.

Dr. K. J. Ramesh, DG, IMD and Shri L. Ramesh Babu, Scientist 'D' AMO Bengaluru participated in a meeting with Shri Arunachalam, General Manager, KIAL and Smt. Pushpa Pandey, Asst. Manager, KIAL regarding the provision of "Drishti RVR instruments" at KIA airport on 16th October, 2017.

Dr. S. D. Attri, Scientist 'F' participated in the meeting chaired by Principle Secretary, Agriculture, Government of Gujarat along with Head, MC Ahmedabad, Director Agriculture and Nodal Officer, Gujarat on 26th October, 2017 for "augmentation of Agromet Services and holding of District Level Stakeholders".

Dr. M. Mohapatra, Scientist 'G' participated in the 3rd Meeting of the Peer Group of Building Materials and Technology Promotion Council (BMTPC) for updation and revision of Vulnerability Atlas of India with respect of earthquakes, wind/cyclones and floods on 1st November, 2017.

11th Arm of GKMS and FASAL at Raipur

Dr. K. J. Ramesh, DG, IMD, Shri R. R. Mali, Scientist 'F' and Dr. P. Guhathakurta, Scientist 'F' were attended the 11th Annual Review Meeting (ARM) of "Gramin Krishi Mausam Seva (GKMS)" and 7th ARM of "FASAL, Scheme" held at Indira Gandhi KrishiVishwavidyalaya (IGKV), Raipur, Chhattisgarh, from 15-18 November, 2017 to review the progress on content of weather forecast for agriculture, agromet advisory, dissemination and feedback mechanism and prepare the roadmap for future. All the officers of AASD participated in the review meeting.



Shri R. R. Mali, Sc. 'F', Dr. P. Guhathakurta Sc. 'F' and other officials during the meeting

Dr. Shashi Kant, Scientist 'B' and Shri P. K. Nath, Met. 'A' attended the meeting on "Crop and Weather Situation in the State" under the chairmanship of Chief Minister, Govt. of Odisha at Secretariat, Bhubaneswar on 15th November, 2017.

Dr. S. K. Peshin, Scientist 'F' attended the meeting on "Present air pollution situation in Delhi" under the chairmanship of Hon'ble Lt. Governor, Delhi on 17th November, 2017 in the conference room, Raj Niwas, Delhi.

User Meet



Dr. K. J. Ramesh, DG, IMD, other officials of IMD and officers of other departments in user meet organized by MC Hyderabad

Dr. K. J. Ramesh, DG, IMD and other officials of IMD attended "User Meet" organized by MC Hyderabad on 23rd November, 2017. Meeting was organized by MC Hyderabad in the presence of Agriculture Commissioner of Telangana, State Agriculture officers, Scientists from CRIDA and local farmers.

RFP meeting in connection with procurement of 11 nos. of C-Band Dual Polarimetric DWRs was arranged through V.C. at MC Bengaluru on 28th November, 2017. The following delegates attended the meeting, Dr. P. Radhakishan, Scientist 'H', LRDE, Bangalore, Chairman, Dr. V. K. Anandan, Scientist 'G', RDR, ISTRAC, ISRO Bangalore.

Shri Virendra Singh, Scientist 'E', Dr. R. K. Giri, Scientist 'E', Dr. A. K. Mitra, Scientist 'D', Shri Amit Kumar, Scientist 'B' and Shri S. K. Mukherjee, Met 'A' attended the "Incremental Preliminary Design Review (PDR) meeting of Multi Mission Data Reception and Processing System (MMDRPS)" at Antrix Corporation Limited ISRO Bengaluru during 29 November to 1 December, 2017.

Dr. G. K. Das, Scientist 'D' attended a meeting with Secretary, MoES held at New Delhi on 11th December, 2017 to discuss points related to the "SOP of Operational Tropical Cyclone Forecasting".

Dr. A. K. Sahai, Head, CR&S attended a discussion meeting on "Improving the use of extended range forecast for Risk Management in Agriculture and also to Refine Known Crop Weather Data to improve Crop Advisory Quality" and delivered a lecture on the "Role of MJO etc. in Extended Range Forecast" for the benefit to Scientist, Research Fellows and Staff of Agromet Division of IMD New Delhi on 13-14 December, 2017.

Dr. Sanjib Bandyopadhyay, Scientist 'F', RMC Kolkata attended "10th Meeting of the Standing committee of Eastern Zonal Council" held at Kolkata on 21st December, 2017 organized by Inter State Council Secretariat, Ministry of Home Affairs, Govt. of India. Dr. Bandyopadhyay informed the Council in connection with installation of Radar at MC Ranchi.

Research & Publications

Dr. S. D. Attri, N. Chattopadhyay, Priyanka Singh and K. K. Singh, 2017, "Role of Agrometeorological Advisory Services in Managing Risk under Changing Climate", In: Wani SP, Vijay Sandeep Jakkula and Dharendra Singh (eds.) 2017, Doubling Farmers' Income: KISAN-MITRA. Proceedings of National Workshop on Doubling Farmers' Income through Scaling up: KISAN-MITRA (Knowledge-based Integrated Sustainable Agriculture Network - Mission India for Transforming Agriculture) Patancheru 502 324. Telangana, India: International crops research institute for the semi-arid tropics. p160, ISBN No. 978-92-9066-594-6, Order code: CPE175.

A paper entitled "Climate change, Environmental impacts and sustainable development" by U. S. De and D. M. Rase, has been published in J. Ind. Geophysics Union, 21, 5, 425-430 (September 2017).

A paper entitled "Easterly wave activity and associated heavy rainfall during the pre-monsoon season of 2005" by G. K. Sawaisarje *et al.* has been published in Journal Meteorology and Atmospheric Physics, 1-15, Dec 2017.

A paper entitled "Forecasting of Hailstorm over Dehradun" by Bikram Singh and Rohit Thapliyal has been accepted for Oral presentation in International Tropical Meteorology Symposium 2017 (Intromet-2017).

A paper entitled "Cloud burst events observed over Uttarakhand in the month of June and July 2017 and their analysis" by Rohit Thapliyal and Bikram Singh has been accepted for Poster presentation in International Tropical Meteorology Symposium 2017 (Intromet-2017).

"Tropical cyclone Operational Plan (TCP-21)" was prepared and sent to World Meteorological Organisation for publication on 30th October, 2017. The same is also available at RSMC website at the link: <http://www.rsmcnewdelhi.imd.gov.in/images/pdf/publications/tcp-21/tcp-21-2017.pdf>.

Sixteen (16) papers have been published in quarterly research journal **MAUSAM** Vol. 68 No. 4 (October, 2017).

Awards and Recognition

The certificates of achievement of the three best essays on "Space based Observations for Weather, Environment, Climate and Societal Benefits" were awarded to the winner of the contest by Sh. J. R. Prasad, Sc. 'E', Chairman of IMS, Nagpur Chapter in view of student's event for INTROMET-2017'.



Winners of the essay contest in INTROMET-2017'

The Hourly Weather forecast and Warnings issued by MC Dehradun was appreciated by the Chief Secretary, Govt. of Uttarakhand during VVIP visit to Dehradun, Sri Kedarnath ji and Mussoorie on 20, 26 and 27 October, 2017 to Chief Secretary, Secretary, Protocol and other senior officers of Govt. of Uttarakhand for smooth management of the visit.

Dr. O. P. Sreejith received **B. N. Desai Award** on Monsoon Research during the opening ceremony of the INTROMET Symposium on 7th November, 2017 at Space Application Center, Ahmedabad. In this conference lead author of the paper published in "Nature" in which Dr. A. K. Srivastava is also a co-author was awarded Young Scientist Award.

मौसम केंद्र हैदराबाद में कार्यरत 22 कर्मिकों को हिंदी शिक्षण योजना के अंतर्गत प्रबोध व प्राज्ञ परीक्षा अच्छे अंको से उत्तीर्ण करने पर कुल 48,000/-रु. प्रादेशिक मौसम केंद्र मुंबई, मौसम कार्यालय सांताक्रुज, कोलाबा में कार्यरत 20 कर्मिकों को प्राज्ञ परीक्षा अच्छे अंको से उत्तीर्ण करने पर कुल 34,400/-रु. तथा प्रादेशिक मौसम केंद्र, कोलकाता में कार्यरत 16 कर्मिकों को हिंदी प्रवीण परीक्षा अच्छे अंको से उत्तीर्ण करने पर कुल राशि 21,600/-रु. की नकद पुरस्कार राशि के स्वीकृति पत्र जारी किए गए।

Media Interaction

Dr. S. C. Sahu, Scientist 'F' M.C. Bhubaneswar delivered lecture in the "Training cum Workshop" at NABM (P), All India Radio and Doordarshan, Bhubaneswar on "Meteorological Information & Disaster Management" on 24th October, 2017.



Shri Anand Sharma, Sc. 'F' talk on Lok Sabha TV

Shri Anand Sharma, Scientist 'F' was interviewed by Lok Sabha TV on 28th November, 2017 on the topic Disaster Risk Reduction in Himalayan Agriculture.



Shri Anand Sharma, Scientist 'F' was interviewed by DD Kisan TV for weather forecast on daily basis on 28 and 18 occasions during November and December, 2017 respectively.

Visitors

Prof. Adam H. Sobel, Professor of Applied Physics and Applied Mathematics and of Earth and Environmental Sciences, Department of Applied Physics and Applied Mathematics, Department of Earth and Environmental Sciences, Columbia University, New York, USA visited "CR&S, Pune" office on 7th December, 2017 and had meeting with senior officers of IMD, Pune.

Shri Navin Bhan from UNDP, Fiji attended the meeting regarding Training for Meteorologists of seven pacific island countries on 11th December, 2017.

43 students and 3 faculties from **D. Y. Patil college of Engineering, Ambi** visited **MTI, Pashan, Pune** on 4th October, 2017. Dr. Anupam Kashyapi, Scientist 'F', Dr. D. M. Rase, Meteorologist 'B', Shantanu Waykar, Met. 'A', Shri A. B. Bhole Met. 'A', explained the different activities of MTI such as Mandate of IMD, observatory, instruments etc.

32 Students from Siddhant college of Engineering visited **MTI, Pashan, Pune** on 12th October. Dr Anupam Kashyapi, Scientist 'F', Dr. D. M. Rase, Met. 'B', Shantanu Waykar, Met. 'A', Shri A. B. Bhole, Met. 'A', explained the different activities of MTI such as Mandate of IMD, observatory, instruments etc.

30 students from **New Horizon Public School**, visited **Sat. Met Division** on 25th October, 2017 and 25 students of **Northcap University, Gurugram** visited "Sat. Met. Division" on 31st October, 2017.



Students at M.C. Dehradun

A group of 155 Students alongwith 4 faculty member from **Saint Kabeer Academy, Dehradun** visited "M.C. Dehradun" on 16th November, 2017. Student's along with faculty members were briefed about different instruments of Meteorological observatory and a general lecture on weather and climate was given by the staff members of M.C. Dehradun.

197 students from **DLF public school, Ghaziabad** visited "Satellite Meteorology Division" during the period from 20-23 November, 2017.

30 students from **Shiv Nanda School, Delhi**; 35 students from **DPMI India**, and 15 Scientists from **ICAR** visited "Sat. Met Division" on 21st, 28th and 29th November, 2017 respectively.

A group of 40 Students alongwith 2 faculty member from **Sri Sai Baba International Public School, Rishikesh** visited "M.C. Dehradun" on 12th December, 2017. Students alongwith faculty members were briefed about different instruments of Meteorological observatory and a general lecture on weather and climate was given by the staff members of M.C. Dehradun. Prof. (Dr.) Nitin Raghunath Karmalkar, Hon'ble Vice Chancellor, Savitri bai Phule Pune University visited this office on 21st November and had discussion with all the Heads of Division and delivered a lecture on "Koyana Seismicity".



Students at M.C. Dehradun

Twenty (20) students from **Naval College, Cochin** visited "IMD, Pune" on 4th December.

Twenty One (21) trainees from **Naval base Kochi** visited "IMD, Pune" on 6th December, 2017 for familiarization training.

Total 250 students from **Arunodya Public school New Delhi, DPS R. K. Puram New Delhi** and **Tagor International School** visited "Sat. Met. Division" at H.Q. during December, 2017.

22 Students from **Navy base at Kochi** visited **MTI, Pune** on December. Shri Shantanu Waykar, Met. 'A', Shri A. B. Bhole, Met. 'A', explained the different activities of MTI such as Mandate of IMD, observatory, instruments etc.

Shri M. A. Pachankar, Met. 'A' and **Shri S. Y. Wagmare**, S. A. participated in the 9th **AGROVISION - 2017** held during 10-13 November, 2017 at Nagpur, Maharashtra.



Officials of IMD during 9th AGROVISION - 2017 at Nagpur

Weather Summary

SW Monsoon 2017 End of Season report was released on 11th October. The highlights are given below:

The rainfall over the country as a whole during the monsoon season (June - Sept.) was 95% of its long period average (LPA). Seasonal rainfall over Northwest India, Central India, south Peninsula and Northeast (NE) India were recorded at 90%, 94%, 100% and 96% of respective LPAs.

Out of the total 36 meteorological subdivisions, 25 subdivisions constituting 65% of the total area of the country received normal seasonal rainfall, 5 subdivisions received excess rainfall (18% of the total area), and 6 subdivisions (17% of the total area) received deficient seasonal rainfall.

Monthly rainfall over the country realized as a whole was 104% of LPA in June, 102% of LPA in July, 87% of LPA in August, and 88% of LPA in September.

Southwest monsoon reached parts of southeast Bay of Bengal, south Andaman Sea and Nicobar Islands on 14th May (6 days ahead of its normal date). It advanced over Kerala on 30th May (2 days ahead of the normal schedule) and covered the entire country by 19th July (4 days later than the normal date).

Monsoon withdrawal was delayed and commenced from parts of northwest India on 27th September (with a delay of nearly 3 weeks). It withdrew from some more parts of northwest India on 30th September. As on 11 October, the monsoon has withdrawn from most parts of northwest India except east UP.

Deep Depression over Gangetic West Bengal (9-10 Oct., 2017)

A low pressure area formed over North Bay of Bengal and adjoining south Bangladesh on 8th morning. It lay as a well marked low pressure area (WML) over north BoB and adjoining coastal areas of Bangladesh & West Bengal in the same evening. It concentrated into a depression in the early morning of 9th over Gangetic West Bengal and adjoining north BoB. Moving northwestwards, it intensified into a deep depression (DD) in the morning of 9th. It moved nearly north-northwestwards and weakened into a depression around noon of 10th and into a well marked low pressure area over northeast Jharkhand and adjoining West Bengal in the evening of the same day. It became less marked on 11th. The observed track of the system is presented in Fig. 1.

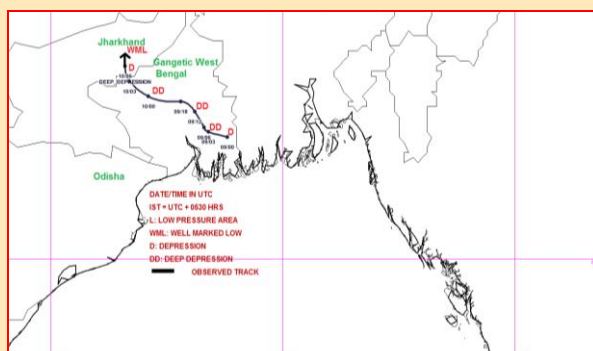


Fig. 1. Observed track of deep depression over Gangetic West Bengal (9-10 October, 2017)

The system caused heavy to very heavy rainfall at isolated places over Gangetic West Bengal and heavy rainfall at isolated places over Bihar on 10th October and heavy rainfall at isolated places over Gangetic West Bengal, Jharkhand and Bihar on 11th October 2017.

Depression over Bay of Bengal (19-22 October, 2017)

A low pressure area (LPA) formed over central BoB in the morning of 15th October. It lay as a well marked low pressure area (WML) over central and adjoining south BoB in the morning of 17th. It further concentrated into a depression in the early hours of 19th over westcentral BoB. Moving nearly northwards, it crossed Odisha coast close to Paradeep in the late evening of 19th. The system started recurving and moved nearly eastwards for sometime from night of 20th. It then moved northeastwards across Gangetic West Bengal and Bangladesh. It weakened into a well marked low pressure area over northeast Bangladesh and adjoining Meghalaya & South Assam in the early morning of 22nd October. The observed track of the system is presented in Fig. 2.

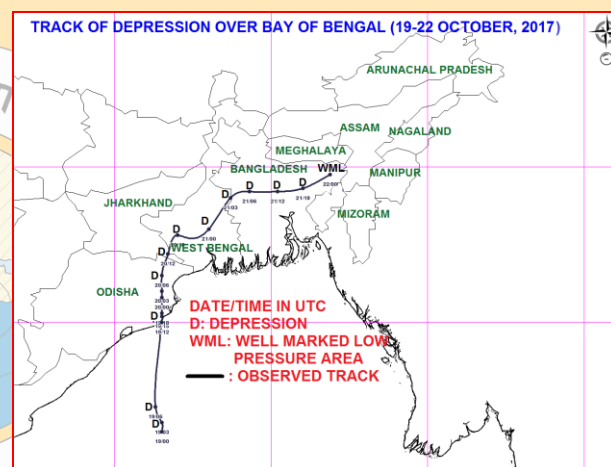


Fig. 2. Observed track of Depression over Bay of Bengal during 19-22 October, 2017

Under its influence, isolated heavy rainfall occurred over Odisha on 18th. It caused isolated heavy rainfall over Gangetic West Bengal and scattered heavy with isolated very heavy rainfall over Odisha on 19th. On 20th, Assam & Meghalaya experienced isolated heavy to very heavy rainfall, Gangetic West Bengal experienced scattered heavy and isolated very heavy to extremely heavy rainfall. The system caused, isolated heavy to very heavy rainfall with extremely heavy falls at one or two places over Assam & Meghalaya and widespread heavy to very heavy rainfall over Nagaland, Manipur, Mizoram & Tripura on 21st October.

IMD mobilised all its resources to track above two depressions and regular warnings w.r.t. track, intensity, landfall and associated adverse weather were issued to concerned central and state disaster management agencies, fishermen, ports, ships, print & electronic media and general public. Advisory bulletins were also issued to Bangladesh by Regional Specialised Meteorological Centre, New Delhi.

Depression over west central Bay of Bengal (15-17 Nov. 2017)

A low pressure area (LPA) formed over southwest Bay of Bengal (BoB) and neighborhood in the morning of 10th November, 2017. It lay as a well marked low pressure area (WML) over southwest BoB and neighborhood in the morning of 13th. It further concentrated into a depression over west central BoB off Andhra Pradesh. Moving nearly north-northeastwards, it weakened into a WML over northwest Bay of Bengal off Odisha Coast. The observed track of the system is presented in Fig. 3. The system caused heavy to very heavy rainfall at isolated places over Odisha and coastal Andhra Pradesh on 15th and heavy rainfall at isolated places on 17th.

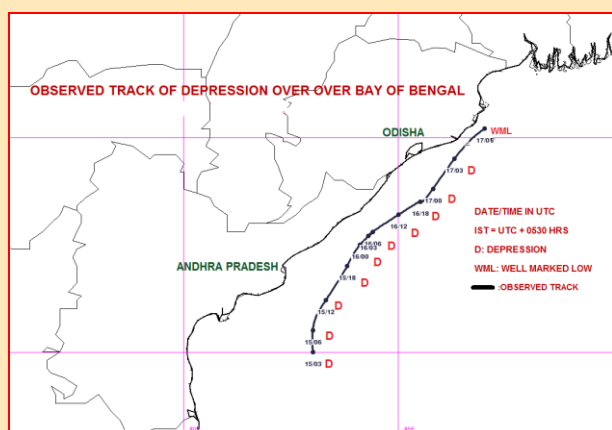


Fig. 3. Observed track of Depression over westcentral Bay of Bengal (15-17 November, 2017)

IMD mobilised all its resources to track the system and regular warnings w. r. t. track, intensity, landfall and associated adverse weather were issued to concerned central and state disaster management agencies, fishermen, ports, ships, print & electronic media and general public.

Very Severe Cyclonic Storm Ockhi over Arabian Sea

A Depression (25 knots or 45 kmph) formed over southwest Bay of Bengal in the morning of 29th Nov. moving westwards, it intensified into a Deep Depression (30 knots or 55 kmph) in the early hrs of 30th. It further intensified into (i) Cyclonic Storm

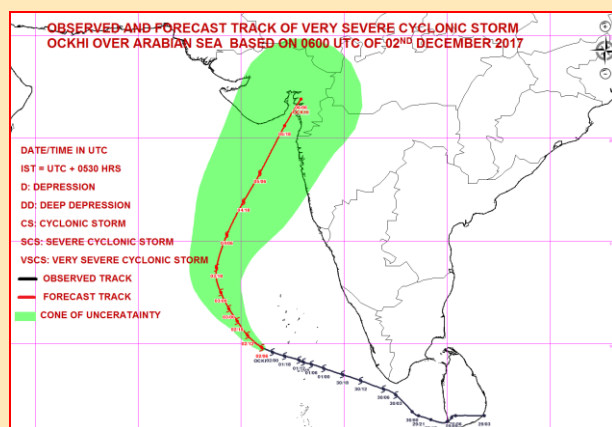


Fig. 4. Observed and Forecast Track of VSCS Ockhi over Arabian Sea based on 0600 UTC of 2nd December, 2017

(35 knots or 65 kmph) in the morning of 30th (ii) Severe Cyclonic Storm (50 knots or 92 kmph) in early morning of 1st December (iii) Very Severe Cyclonic Storm (65 knots or 120 kmph) in the afternoon of 1st Dec. It then continued to move west-northwestwards across Lakshadweep on 1 Dec. The first warning bulletin was issued to Tamil Nadu, Kerala and Lakshadweep at 1200 hrs IST of 29th Nov., 2017 indicating occurrence of heavy rain, strong wind, damage expected, action suggested (including fishermen warning) etc. It was followed by every 3 hourly updates.

Deep Depression over SE Bay of Bengal (6-10 Dec., 2017)

A low pressure area (LPA) formed over Malay Peninsula and adjoining Andaman Sea in the morning of 30th November, 2017. It lay as a well marked low pressure area (WML) over south Andaman Sea & adjoining Strait of Malacca on 1st December, over Sumatra coast and adjoining south Andaman Sea on 2nd, over southeast Bay of Bengal & adjoining south Andaman Sea and equatorial Indian Ocean on 3rd and 4th and over southeast Bay of Bengal (BoB) & neighbourhood on 5th. It concentrated into a Depression (D) over southeast BoB & neighbourhood in the morning of 6th December. It moved northwards till early hours of 8th. Thereafter, it moved north-northwestwards and intensified into a deep depression (DD) in the early morning of 8th over central BoB. Moving nearly northwards, it weakened into D during the night of same day over westcentral BoB. It started moving north-northeastwards from morning of 9th and weakened into a WML over northwest BoB in the evening of 9th December and into a LPA over north BoB & neighbourhood in the evening of 10th.

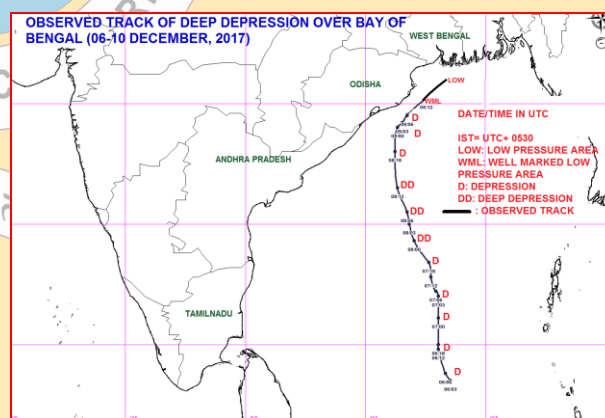


Fig. 5. Observed Track of Deep Depression over Bay of Bengal (6-10 December, 2017)

Under it's influence, light to moderate rainfall at few places with isolated heavy falls occurred over Tamilnadu & Puducherry on 6th and 7th December. Light to moderate rainfall at many places with isolated heavy falls occurred over coastal Odisha and adjoining districts of interior Odisha on 8th. Light to moderate rainfall also occurred at many places over coastal districts of West Bengal, south Assam, Meghalaya, Mizoram and Tripura with isolated heavy falls over Tripura on 9th.