



INDIA METEOROLOGICAL DEPARTMENT  
(Ministry of Earth Sciences)

JUL – SEP 2018

Volume 11

Number 3

## In this issue

हिंदी पखवाड़ा / हिंदी दिवस 2018 > P1

हिंदी पखवाड़ा / हिंदी दिवस 2018 > P2

Important Events/New Projects/Seminar/ Training > P3

Workshops / Orientation Programme > P4

Lectures/ Awards & Recognition > P5

Infrastructure Development & Installation > P6

Inter Agency Meeting > P7

Inter Agency Meeting > P8

Research & Publication/ Media Interaction > P9

Visits /Visitors > P10

Weather Summary > P11

Significant Weather Systems > P12

## Important Events / Activities

### हिंदी पखवाड़ा / हिंदी दिवस 2018

भारत मौसम विज्ञान विभाग के महानिदेशक के कार्यालय, नई दिल्ली तथा उप-कार्यालयों में हिंदी पखवाड़ा 1-15 सितम्बर, 2018 के दौरान मनाया गया। भारत मौसम विज्ञान विभाग के मुख्यालय में हिंदी दिवस समारोह 14 सितम्बर, 2018 को आयोजित किया गया। रंग बिरंगे फूलों से सजे और संगीतमय वृष्टि सभागार में इस कार्यक्रम का आयोजन किया गया। हिंदी दिवस समारोह की अध्यक्षता डॉ. मृत्युंजय महापात्र, वैज्ञानिक 'जी' ने की। इस समारोह की विशेष बात रही कि हमारे देश के प्रसिद्ध कवि एवं गज़लकार श्री नरेश शान्दिल्य जी इस समारोह के मुख्य अतिथि एवं विशिष्ट अतिथि कवि डॉ. अमरनाथ जी थे। वृष्टि सभागार में उपस्थित सभी लोगों का सुश्री रेवा शर्मा, उपनिदेशक (राजभाषा) ने स्वागत, अभिवादन और अभिनन्दन किया। समारोह का शुभारंभ दीप प्रज्ज्वलन से हुआ।



डॉ. मृत्युंजय महापात्र, वैज्ञानिक 'जी' एवं मुख्य अतिथिगण दीप प्रज्ज्वलित करते हुए



डॉ. मृत्युंजय महापात्र, वैज्ञानिक 'जी' हिंदी दिवस समारोह के दौरान संबोधित करते हुए

हिंदी दिवस समारोह का शुभारम्भ माँ सरस्वती का आशीर्वाद लेते हुए सरस्वती वंदना की गई। सरस्वती वंदना को मधुर स्वर श्रीमती पूनम सिंह, श्रीमती वंदना, श्री अशोक कुमार और श्री कुमार प्रतीक ने दिया। इस समारोह के आयोजन के लिए मौसम विज्ञान के महानिदेशक ने डॉ. देवेंद्र प्रधान, वैज्ञानिक 'जी' (उपकरण) की अध्यक्षता में समारोह समिति का गठन किया। समारोह समिति की बैठक दिनांक 23 जुलाई, 2018 को हुई जिसमें हिंदी पखवाड़ा के दौरान हिंदी लेखन, हिंदी टाइपिंग, हिंदी रूपांतरण, हिंदी मुहावरे एवं लोकोक्ति, हिंदी वाद विवाद तथा हिंदी स्वरचित कविता प्रतियोगिताएं आयोजित करने का निर्णय लिया गया।

### Swachhta Pakhwada

Swachhta Pakhwada was observed during 1-15 July, 2018 at IMD HQ and sub-offices of IMD spread all over India. During Swachhta Pakhwada, the head of IMD and sub-offices suggested various steps for maintaining cleanliness in the office and cleanliness pledge was taken and entire officers and staff participated in "Shramadaan" by removing of unwanted bushes and cleaning the office/observatory and tree plantation.



Tree plantation at M. C. Ahmedabad

Published by

India Meteorological Department,  
Mausam Bhawan, Lodi Road,  
New Delhi - 110 003

Tel. : 011- 24651287

Telefax : 91-11-24699216 &

91-11- 24623220

email : newsletter\_imd@yahoo.com

edited by

Dr. D. R. Pattanaik

compiled by

Staff of Editorial Office



## हिंदी पखवाड़ा / हिंदी दिवस 2018

हिंदी दिवस समारोह समिति के अध्यक्ष डॉ. देवेन्द्र प्रधान, वैज्ञानिक 'जी' ने स्वागत भाषण प्रस्तुत किया तथा एक वर्ष के दौरान हिंदी अनुभाग द्वारा किए गए महत्वपूर्ण कार्यों के बारे में संक्षेप में बताया। उपमहानिदेशक (प्रशासन) श्री गजेंद्र कुमार, वैज्ञानिक 'ई' ने भी मंचासीन अतिथियों के लिए स्वागत भाषण प्रस्तुत किया।

हिंदी दिवस समारोह के अवसर पर विभागीय हिंदी गृह पत्रिका 'मौसम-मंजूषा' के 27वें संस्करण का विमोचन मंच पर आसीन महानुभावों द्वारा किया गया।



**मंच पर आसीन महानुभावों द्वारा 'मौसममंजूषा' के 27वें संस्करण का विमोचन**

सुश्री रेवा शर्मा, उपनिदेशक (राजभाषा) ने माननीय गृह मंत्री श्री राजनाथ सिंह द्वारा देशवासियों को भेजे गए संदेश को सभी श्रोताओं को पढ़ कर सुनाया। इस समारोह के मुख्य अतिथि श्री नरेश शान्दिल्य जी एवं विशिष्ट अतिथि डॉ. अमरनाथ जी को शॉल से सम्मानित किया गया।

वर्ष 2017-18 में हिंदी में सबसे अधिक पत्राचार करने के लिए कल्याण अनुभाग के प्रमुख श्री चरण सिंह, वैज्ञानिक 'ई' को राजभाषा चलशील्ड प्रदान की गई।



**श्री चरण सिंह, वैज्ञानिक 'ई' राजभाषा चलशील्ड प्राप्त करते हुए**

श्रीमती सरिता जोशी सहायक निदेशक (राजभाषा) ने सांस्कृतिक कार्यक्रम के लिए मंच का संचालन किया। सांस्कृतिक कार्यक्रम के आरंभ में श्रीमती पूनम सिंह, अशोक कुमार, दीपिका, कुमार प्रतीक, वंदना, सैमसन ने 'तेरी है जमी तेरी आसमान' गीत गाया।



**सांस्कृतिक कार्यक्रम के दौरान कलाकार**

सुश्री प्रतीक्षा प्रधान ने राग बहार पर शास्त्रीय गीत और डॉ. देवेन्द्र प्रधान, वैज्ञानिक 'जी' ने देश भक्ति गीत गाया। श्री अनूप कंडारी, सुमेश वर्मा, देवर्ष्यान्जलि, रामनाथ गुप्ता, विवेक मित्तल, शिखा वर्मा, कुमार प्रतीक द्विवेदी, याशिका, अशोक कुमार, वंदना, कुलविंदर सिंह, अरुणा चौहान ने 'लो कर दिया न कचरा' हास्य व्यंग्य नाटक प्रस्तुत किया।



**सांस्कृतिक कार्यक्रम के दौरान कलाकार नाटक प्रस्तुत करते हुए**

डॉ. डी. आर. पटनायक ने 'ओह रे ताल मिले' गीत गाया और कार्यक्रम का अंत सभी कलाकारों द्वारा 'कंधों से मिलते हैं कंधे' समूह गीत से हुआ। दर्शकों ने सभी कार्यक्रमों का खूब आनंद उठाया और करतल ध्वनि से कलाकारों और सांस्कृतिक कार्यक्रमों को सराहा।

अंत में कार्यक्रम के अध्यक्ष डॉ. मृत्युंजय महापात्र ने विभाग में राजभाषा हिंदी की प्रगति पर अपने विचार प्रस्तुत किए और मुख्य अतिथि और विशिष्ट अतिथि का धन्यवाद किया। कार्यक्रम के सभी कलाकारों को पुरस्कार प्रदान किए गए और धन्यवाद जापान के उपरांत कार्यक्रम का समापन हुआ।

## Important Events

**Dr. M. Rajeevan**, Secretary, MoES inaugurated Mumbai Weather Live App, jointly designed by **RMC-Mumbai and IITM-Pune**, during 12<sup>th</sup> MoES Foundation Day on 27<sup>th</sup> July, 2018 at Vigyan Bhawan, New Delhi.

**Chardham Yatra Weather Forecast and Sector-wise Nowcast issued for Chardham Yatra - 2018** on daily basis.

**Weather Forecast and Sector wise Nowcast and Warnings for "Mansarovar Yatra - 2018"** issued for the use of yatis and concerned government officials on daily basis.

**Weather forecast and warning** issued for Tehri Dam Catchment areas on daily basis.

**Dissemination of Agromet Advisories** to the users' community through SMS and IVR technology is being continued in the country through Kisan Portal and under **PPP mode**. At present Agromet Advisories are reaching to **33.56 million farmers** in the country through SMS directly.

## New Projects / Schemes / Programmes Approved / Initiated / Completed

**Shri L. Ramesh Babu**, Sc. 'E', P. V. Kustagi, Met. 'A' and N. Venkatesh, S.A. inspected the new site location of upcoming New South Parallel Runway (NSPR) on 30<sup>th</sup> July, 2018 alongwith Project Manager Shri P. Ravichandran.

**Shri L. Ramesh Babu**, Sc. 'E', Shri S. M. Metri, Sc. 'E' and Principal Nodal Officer Dr. H. Venkatesh met Vice Chancellor of UAS, Dharwad and member of Parliament Shri Prahalad Joshi, in connection with establishment of new office of AMFU at Dharwad on 10-11 September, 2018.

## Human Resource Development Activities

### Seminar

**Dr. S. L. Singh**, Sc. 'F', Shri Kuldeep Srivastava, Sc. 'E' and Shri Shankar Nath, Sc. 'E' took part in the seminar on the Steering Committee of Open WIS Association on 9<sup>th</sup> August, 2018.

**Shri Kuldeep Srivastav**, Sc. 'E' participated in the seminar on the Technical Committee of Open WMO Information System (WIS) Association on 12 and 27 September, 2018.

**Shri Bikram Singh**, Sc. 'E' inspected Chinyalisaur Airport (District Uttarkashi) for provision of Aeronautical Met. Services under UDAN Scheme on 21<sup>st</sup> September, 2018.

### Trainings

**The WMO's Tropical Cyclones Forecasters Training 2018** was conducted by Regional Specialised Meteorological Centre

(RSMC), New Delhi during 2-13 July, 2018 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 case studies with practical examples in these aspects. The training also included a few lectures on Synergized Standard Operation Procedure (SSOP) by the experts from United Nations-Economic & Social Commission for Asia and the Pacific (UN-ESCAP) and RSMC, New Delhi. There were 22 participants including 2 from WMO/ESCAP Panel member countries, viz., Bangladesh and Thailand, 5 from Typhoon Committee member countries including Cambodia, Lao PDR, Philippines, Thailand and Vietnam, 9 from Area Cyclone Warning Centres (ACWCs), Cyclone Warning Centres (CWCs) and coastal Meteorological Centres (MCs) of IMD and 6 from RSMC New Delhi.



Group Photograph of WMO's RSMC Training Participants

**Dr. N. Chattopadhyay**, Sc. 'F', Dr. K. Ghosh, Sc. 'E' and Shri R. Balasubramanian, Sc. 'D' attended the Orientation Training on "Preparation and dissemination of Agromet Advisories at Block level" from 6-7 July, 2018 at KVK, Aurangabad, Maharashtra for sensitization of Scientists of KVKs on establishment of District Agromet Unit (DAMU) under GKMS.

**Shri P. N. Bhor**, Met. 'A', participated in a one week training programme at ATI, Mysore on "Evaluation of Training (EOT)" from 16-20 July, 2018.

**Shri J. P. Sapate**, S. A. and Shri A. G. Nemade, S. A. are nominated for Pre Antarctic Training for 38<sup>th</sup> Indian Scientific Expedition to Antarctica commenced from 23 July to 18 August, 2018.

**Dr. K. Ghosh**, Sc. 'E' was on tour to RMC Nagpur on 25<sup>th</sup> July, 2018 to impart training for the officers of RMC Nagpur to use Agromet - DSS - Software developed by Agromet Division of IMD powered by RIMES (The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia).

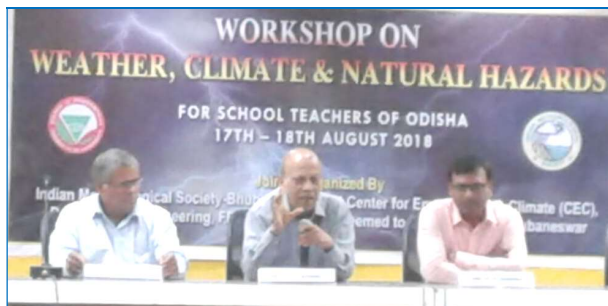
**Shri Vigin Lal F.**, Sc. 'B' attended a National Level Training on Extreme Weather Events during 6-10 August, 2018 organized by National Institute of Disaster Management at NIDM, Andhra Pradesh.

## Workshops

**Shri H. R. Biswas**, Sc. 'E', M. C. Bhubaneswar attended the workshop conducted by South Asia Sustainable Impact Platform on "Scaling Climate-Smart Agriculture in Odisha-Practices, Policies and Institutions" on 18<sup>th</sup> July, 2018 held at The New Marrion, Janpath, Bhubaneswar.

**Shri Bikram Singh**, Sc. 'E', attended a workshop on 2<sup>nd</sup> August, 2018 at UCOST, Vigyan Dham, Dehradun in connection with "Understanding Mountain People's- approach and Practices to Combating Climate Change in the Indian Himalayan Region" organized by SDFU and IMI, Govt. of Uttarakhand.

**Shri H. R. Biswas**, Sc. 'E', M. C. Bhubaneswar participated in the workshop on 'Weather, Climate & Natural Hazards' organized by India Meteorological Society (Bhubaneswar Chapter) at Siksha 'O' Anusandhan (Deemed to be University) during 17-18 August, 2018 and addressed the Valedictory Session.



**H. R. Biswas, Sc. 'E' during the workshop**

**Shri Bikram Singh**, Sc. 'E' attended a workshop in connection with Sendai framework on 20<sup>th</sup> August, 2018, organized by Dept. of Disaster Management, Govt. of Uttarakhand.

मुख्यालय में दिनांक 24 अगस्त, 2018 को एक दिवसीय हिंदी कार्यशाला का आयोजन किया गया, जिसमें 8 अधिकारियों और 9 कर्मचारियों ने भाग लिया। इसमें सुश्री रेवा शर्मा, उपनिदेशक (रा.भा.), श्रीमती सरिता जोशी, सहायक निदेशक (रा.भा.) और श्री बीरेन्द्र कुमार, वरिष्ठ अनुवादक ने राजभाषा नीति से जुड़े विभिन्न विषयों पर व्याख्यान दिए।

राष्ट्रीय मध्यम अवधि मौसम पूर्वानुमान केंद्र, नोएडा में दिनांक 27 अगस्त, 2018 को आयोजित हिंदी कार्यशाला में सुश्री रेवा शर्मा, उपनिदेशक (रा.भा.) और श्रीमती सरिता जोशी, सहायक निदेशक (रा.भा.) को व्याख्यान देने के लिए आमंत्रित किया गया। सुश्री रेवा शर्मा ने 'राजभाषा नीति' और श्रीमती सरिता जोशी ने 'कम्प्यूटर, सूचना प्रौद्योगिकी और हिंदी' विषय पर व्याख्यान दिया।

**Shri Shankar Nath**, Sc. 'E' participated in a workshop on 29<sup>th</sup> August, 2018 with the subject "SDWAN Security & Next

Generation Firewall". This workshop was organized in CERT-In, New Delhi.

**Dr. S. Balachandran**, Sc. 'F', RMC Chennai, accompanied by Dr. R. Puviyarasan, Sc. 'D', ACWC Chennai, participated in the workshop on the programme for Water as Leverage for Resilient Cities Asia in which Special Envoy for International Water Affairs of the Netherlands Government and other experts participated on 6<sup>th</sup> September, 2018.

चक्रवात चेतावनी केंद्र, विशाखापट्टनम में दिनांक 10 सितम्बर, 2018 को हिंदी कार्यशाला का आयोजन किया गया जिसमें सुश्री रेवा शर्मा, उपनिदेशक (रा.भा.) ने 'राजभाषा नीति' श्रीमती सरिता जोशी, सहायक निदेशक (रा.भा.) ने 'सूचना प्रौद्योगिकी और हिंदी' तथा श्री रामहरि शर्मा, माँ. वि. 'ए' ने 'कम्प्यूटर पर हिंदी में कार्य करने' संबंधी विषयों पर व्याख्यान दिए।

**Shri Bikram Singh**, Sc. 'E' attended one day workshop in connection with Disaster Risk Assessment on 12<sup>th</sup> September, 2018, organized by Dept. of Disaster Management, Govt. of Uttarakhand.

**Dr. K. K. Singh**, Sc. 'F', Dr. S. D. Attri, Sc. 'F' and Mrs. Priyanka Singh, Sc. 'B' attended workshop for CHAMAN phase II launch on 20<sup>th</sup> September, 2018 at NRL, IARI, New Delhi.

**Shri Prabhav**, S. A. attended workshop on the subject "Cyber Threats and countermeasures" held on 20<sup>th</sup> September, 2018.

**Shri Bikram Singh**, Sc. 'E' attended one day workshop in connection with Use of Technology for Reducing Landslide Induced Losses on 24<sup>th</sup> September, 2018, organized by Dept. of Disaster Management, Govt. of Uttarakhand.

सुश्री रेवा शर्मा, उपनिदेशक (राजभाषा) ने दिनांक 28 सितंबर, 2018 को आई एस टी एम जवाहरलाल नेहरू विश्वविद्यालय (पुराना परिसर) में 'राजभाषा हिंदी की संवैधानिक स्थिति एवं संसदीय राजभाषा समिति के निरीक्षण के दौरान प्रस्तुत की जाने वाली निरीक्षण प्रश्नावली' विषय पर व्याख्यान दिया।

## Orientation Programme

**Dr. Kripan Ghosh**, Sc. 'E' and Mrs. Priyanka Singh, Sc. 'B' participated in Orientation Programme on "Preparation and dissemination of Agromet Advisories at Block level under Gramin Krishi Mausam Seva (GKMS) scheme" for Nodal Officers of Krishi Vigyan Kendras (KVKs) of ATARI Zone IV (Bihar and Jharkhand States), Patna, Bihar during 20-21 August, 2018.

सत्यमेव जयते



Participants attending orientation programme under GKMS

**Dr. S. D. Attri**, Sc. 'F', attended the Orientation Programme for the capacity building on "Preparation and Dissemination of Agromet Advisories at Block level under Gramin Krishi Mausam Seva (GKMS) scheme" for Nodal Officer's of Krishi Vigyan Kendras (KVKs) have been conducted for ATARI Zone Bengaluru (Karnataka, Kerala and Lakshdweep) on 28<sup>th</sup> September, 2018.

**Dr. K. Ghosh**, Sc. 'E' and **Shri R. Balasubramanian**, Sc. 'D' attended the Orientation Programme as resource persons for the capacity building on "Preparation and Dissemination of Agromet Advisories at Block level under Gramin Krishi Mausam Seva GKMS) scheme" for Nodal Officer's of Krishi Vigyan Kendras (KVKs) for the state of 'Rajasthan' from 11-12 September, 2018 at Maharana Pratap University of Agriculture and Technology (MPUAT), Udaipur.

## Lectures

**Shri Anand Sharma**, Sc. 'F', delivered an invited lecture to farmers of Hilly areas of Garhwal, Utrakhand on "Agro advisory: A Boon for Farming Community to Reduce Livelihood Risks" on 21<sup>st</sup> July, 2018 at the Himalayan Action Research Center, Dehradun.

**Shri K. N. Mohan**, Sc. 'F' was on tour to Exitor, United Kingdom to give a lecture on "WMO Commission on Aviation Services" from 23-27 July, 2018.

**Dr. S. D. Attri**, Sc. 'F' delivered invited talk "Global Warming / Climate Change Perspective" in Training of Trainers' Programme on Urban Risk Mitigation: Making Cities Resilient on 25<sup>th</sup> July, 2018 at NIDM New Delhi.

**Dr. M. Mohapatra**, Sc. 'G' chaired the technical session in the afternoon and delivered a lecture on "Observational Programme & Severe Weather Forecasting during the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) centre for weather and climate workshop organized by NCMRWF, Noida on 31<sup>st</sup> July 2018.

**Dr. D. R. Pattanaik**, Sc. 'E' delivered a talk on "Extended/Seasonal Scale Forecasting with coupled models at MoES" and **Dr. A. K. Mitra**, Sc. 'E' on "Satellite Products and Tools" during the workshop.

**Dr. S. D. Attri**, Sc. 'F' participated and delivered lead talk on "Block Level Weather Based Advisory Services at KVKs/

DAMUs" in two days "Orientation Programme for the Preparation and Dissemination of Agromet Advisories at Block Level" under Gramin Krishi Mausam Seva (GKMS) scheme for the Nodal Officers of Krishi Vigyan Kendras (KVKs) of Andhra Pradesh, Telangana, Tamil Nadu and Pondicherry under the jurisdiction of ATARI Zone X at ATARI, Hyderabad during 1-2 August, 2018.

**Dr. Jayanta Sarkar**, Sc. 'F' delivered online expert lecture on "Climate change: Application of Geospatial Techniques in flood Hazards, Mapping, Monitoring & mitigation strategies to GIDM trainees at Gandhinagar on 3<sup>rd</sup> August, 2018.

**Dr. Geeta Agnihotri**, Sc. 'E' attended a talk delivered by Prof. V. Chandrasekhar, University of Colorado at IISc, Bengaluru on 8-9 August, 2018.

**Shri L. Ramesh Babu**, Sc. 'E' alongwith **Shri M. S. Girish**, S.A. and **Smt K. R. Hema**, S.A. briefed **Shri Duleep**, ATC officer, HAL Airport regarding their requirement for upgradation of MET facilities at HAL Airport on 17<sup>th</sup> August, 2018.

**Shri Sonam Lotus**, Sc. 'D' delivered a Lecture on "Role of Science in Poverty Alleviations" to students of NIT Srinagar on 8<sup>th</sup> September, 2018.



Shri Sonam Lotus at NIT Srinagar for delivering lecture

**Shri Amit Kumar**, Sc. 'B' delivered lectures on 17<sup>th</sup> September, 2018 to the participants of Asia-Pacific Telecommunity training course (Satellite communication) ALTTC Ghaziabad trainees on Satellite Meteorology.

**Dr. Jayanta Sarkar**, Sc. 'F' delivered lecture on "Meteorological parameters and forecasting" to IIPH trainees at Gandhinagar on 26<sup>th</sup> September, 2018.

## Awards & Recognitions

### MoES AWARD 2017-2018

The **Ministry of Earth Science** celebrated its **Foundation Day** on 27<sup>th</sup> July, 2018 at Vigyan Bhawan, New Delhi. On this occasion, **Dr. Naresh Kumar**, Sc. 'E', **Shri Sonum Lotus**, Sc. 'D' received certificate of merit for their outstanding contributions in the field of "Atmospheric Science & Climate Change" for the year 2017-2018. The awards were also given to the following best employees of the department: **Sh. Ronald john Vaz**, Met. 'B', AMS Mangalore, RMC Chennai; **Ms. Kiran Jaswal** Met. 'A', DGM Office New Delhi; **Shri Pradeep Mishra**, Sc. Asstt., M. O.



**Dr. Naresh Kumar, Sc. 'E' receiving the certificate of merit**



**Shri Sonus Lotus, Sc. 'D' receiving the certificate of merit**

Barapani, RMC Guwahati; Shri Pramod Ramchandra Mhetre, Sc. Asstt., CRS Pune; Shri Dinesh Kushwaha, Mech Gr-II, DGM Office New Delhi; Shri S. N. Satav, Radio Mechanic, DWR Mumbai, Shri Ratna Babu, MTS, MC Raipur, RMC Nagpur, Shri M. Sanal Kumar MTS, MC Trivandrum, RMC Chennai.



**Ms. Kiran Jaswal Met. 'A' receiving the award**

**Shri Sonam Lotus, Sc. 'D'** was awarded "Himalayan Heroes Awards for public service" by the Naropa Community on the occasion of Naropa Festival 20<sup>th</sup> September, 2018 at Hemis, Leh-Ladakh.



**Shri Sonam Lotus, Sc. 'D' receiving Himalayan Heroes Awards**

## Infrastructure Development & Installations

The site for **RADAR installation** at CITH, Mukteshwar, district Nainital, Uttarakhand has been finalized.

**S/Shri S. D. Bankar, S. A.** and **S. D. Doke, S. A.** were on tour to Porbandar Airport for commissioning of DIWE and site selection for DCWIS system from 17-21 July, 2018.

**Shri Manish Ranalkar, Sc. 'E'** was on tour to INS Dega, Vishakapatnam for inspection of AWOS from 22-24 July, 2018.

**S/Shri V. N. Raju, Met. 'A'** and **L. K. Rangarajan, Met. 'A'**, AMO Chennai were on tour to AMS Coimbatore during 26-27 July, 2018 to identify and finalize places for shifting AMS Coimbatore Observatory and Office.

**Shri Manish Ranalkar, Sc. 'E'** and **Shri Rakesh Kumar, Sc. 'B'** were on tour to Chennai for the installation of Drishti Transmissometer from 6-11 August, 2018.

**Shri Uday Shende, Sc. 'D'** was on tour to Hissar for the installation of DIWE from 14-16 August, 2018.

**S/Shri R. M. Kamble, Met. 'A'** and **Pramod Mhetre, S.A.** were on tour to Kannur Airport for installation of Drishti and AWOS system from 2-12 September, 2018.

**S/Shri Uday Shende, Sc. 'D'** and **Rakesh Kumar, Sc. 'B'** were on tour to New Delhi Airport for installation of Laser Ceilometer from 4-13 September, 2018.

**Shri Rakesh Kumar, Sc. 'B'** was on tour to Amritsar Airport for installation of Drishti system from 13-21 September, 2018.

**S/Shri J. D. Indurkar, Met. 'A'**, **Vijay Kumar, S.A.** and **Umesh Dharmadhikari, MTS** were on tour to Talegaon, Dhamdhare for the commissioning of ARG system on 21<sup>st</sup> September, 2018.

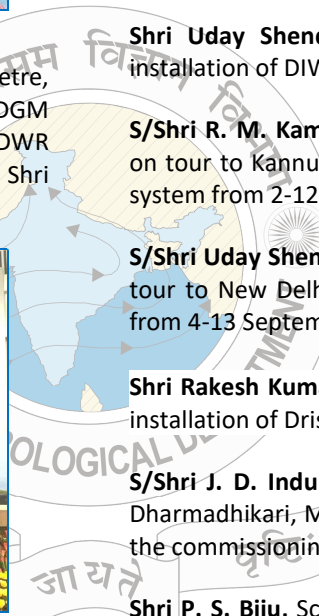
**Shri P. S. Biju, Sc. 'E'** was on tour from 6-15 September, 2018 for Installation of Drishti at Kannur Airport and Pre-Exercises for the installation of Drishti at Kochi, Trivandrum.

**S/Shri Manish Ranalkar, Sc. 'E'** and **Uday Shende, Sc. 'D'** were on tour to Mundra for Training and maintenance of CWIS from 24-25 September, 2018.

## Inter-Agency Meetings

**Shri Y. K. Reddy, Sc. 'F'**, MC Hyderabad, Regional Director, Agriculture Agromet Services, IMD conducted a meeting with Agriculture Commissioner, Telangana Govt. seeking their support for starting Block Level Agro Advisories at Secretariat on 3<sup>rd</sup> July, 2018.

**Dr. Jayanta Sarkar, Sc. 'F'** attended Weather Watch Group meeting with group of ministers, state government Gujarat at Gandhinagar on 3<sup>rd</sup>, 10<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup> and 31<sup>st</sup> July, 2018.





**Shri Y. K. Reddy**, Sc. 'F', MC Hyderabad, Chairman of TEC for procurement of 10X Band DWRs for IMD conducted a committee meeting on 4 July, 2018 at HQ, New Delhi with IEMs of MoES.

**Shri Bikram Singh**, Sc. 'E' participated in meeting under the chairmanship of Chief Secretary, Govt. of Uttarakhand regarding Monsoon Preparedness on 4<sup>th</sup> July, 2018. Shri Bikram Singh also gave a presentation on "Operational Products Generated by M. C. Dehradun" and the Progress & Forecast for Monsoon Season-2018.

**Dr. M. Mohapatra**, Sc. 'G' participated in the meeting to review inception report for development of Web based Dynamic Composite risk Atlas (Web-DCRA) & Decision Support System Tool for Cyclones and associated impacts including storm surge and Inland Flooding under National Cyclone Risk Mitigation Project (NCRMP) (Phase-II) on 4<sup>th</sup> July, 2018 at NDMA Bhawan, New Delhi.

**Dr. S. L. Singh**, Sc. 'F' on 9<sup>th</sup> July, 2018, participated in the meeting on the use of **GAGAN** in non-aviation sectors/territories held in the Ministry of Civil Aviation, New Delhi (IMG). It was Fourth Inter Ministerial Group (IMG) participated in the meeting on the use of GAGAN.

**Dr. M. Mohapatra**, Sc. 'G' chaired meeting on 16<sup>th</sup> July, 2018 and 1<sup>st</sup> August, 2018 for reviewing of "Satellite Division Web page" to be provided to public on Internet. Shri Amit Kumar, Sc. 'B' attended the meeting as member secretary.

**Dr. A. K. Sahai**, Sc. 'G' and **Dr. N. Chattopadhyay**, Sc. 'F' attended Farmers' Awareness Programme (FAP) organised by AMFU, Kakdwip, West Bengal on "Climate, Weather and Crops" at Namkhana Panchayet, Namkhana on 17<sup>th</sup> July, 2018. They also explained about the role of weather based Agromet Advisory Services at village level with respect to cultivation of cereal/cash crops, horticultural crops, poultry, animal husbandry and fish culture.

**Dr. A. K. Sahai**, Sc. 'G' and **Dr. N. Chattopadhyay**, Sc. 'F' attended Farmers' Awareness Programme (FAP) organized by AMFU, Kalyani, West Bengal on "Weather and crops" at Chakdah block, Nadia, West Bengal on 18<sup>th</sup> July, 2018.

**Dr. K. K. Singh**, Sc. 'F' and **Dr. S. D. Attri**, Sc. 'F' attended the meeting on 18<sup>th</sup> July, 2018 at KAB, New Delhi organized by the office of the DDG (AE). ADGs (AE) and Directors from ICAR-ATARIs of all the eleven zones were present. Progress on steps related to setting up DAMU at KVKs was reviewed for accelerating the work and recruitment of manpower envisaged under GKMS scheme.

**H. R. Biswas**, Sc. 'E', M. C. Bhubaneswar attended the 2<sup>nd</sup> meeting for the year 2018-19 of the state executive committee constituted under the Disaster Management Act, 2005 chaired by Chief Secretary, Govt. of Odisha at Odisha Secretariat on 18<sup>th</sup> July, 2018.

**Dr. Jayanta Sarkar**, Sc. 'F' attended a meeting, with honorable Chief Minister of Gujarat, at Gandhinagar regarding Monsoon 2018 scenario, on 19<sup>th</sup> July 2018.

**Dr. N. Chattopadhyay**, Sc. 'F' attended meeting on preparatory discussion on "Organizing Orientation Training Programme for KVKs for West Bengal and Orissa State" at Indian Council of Agriculture Research (ICAR), ATARI (Agricultural Technology Application Research Institute), Kolkata on 20<sup>th</sup> July, 2018.

**Dr. K. K. Singh**, Sc. 'F' and **Dr. S. D. Attri**, Sc. 'F' (AASD) attended Consultation Meeting on Vulnerability and Risk of Agriculture to Climate Change and Variability: A District Level Assessment held on 20<sup>th</sup> July, 2018 at NASC Complex, New Delhi.

**Shri Anand Sharma**, Sc. 'F', had a meeting with Shri Trivendra Singh Rawat, Honorable Chief Minister of Uttarakhand, on 21<sup>st</sup> July, 2018 regarding organizing a workshop on users meet related to Weather base agro advisory services to farmers of Uttarakhand.

**Shri H. R. Biswas**, Sc. 'E', M.C. Bhubaneswar attended the Review Meetings on rainfall situation chaired by Hon'ble Chief Minister, Odisha at Secretariat, Bhubaneswar on 21 and 23 July, 2018.



**Shri H. R. Biswas, Sc. 'E' during the meeting**

**Dr. K. K. Singh**, Sc. 'F' and **Dr. D. R. Pattnaik**, Sc. 'E' attended the meeting of Project Implementation Committee on "Development and Application of Extended Range Forecast System (ERFS- Phase II) for climatic risk management in Agriculture chaired by the Secretary, DAC&FW on 23<sup>rd</sup> July, 2018 at Krishi Bhawan, New Delhi.

**Dr. S. D. Attri**, Sc. 'F' participated in Stakeholders meeting held under the Chairmanship of Additional Secretary, MoEF&CC on 23<sup>rd</sup> July, 2018 at Indira Paryavaran Bhawan, New Delhi to finalize Government of India's response to Final Government Draft of the IPCC Special Report on the impact of Global Warming of 1.5 deg C circulated by the IPCC Secretariat for Government Review.

**Shri R. R. Mali**, Sc. 'E', was on tour to New Delhi from 23-24 July, 2018 regarding meeting of IMD officials with IEM, in connection with finalisation of RFP for procurement of Agro AWS.

**Shri Anand Sharma**, Sc. 'F', attended meeting with Shri Radha Mohan Singh, Honorable Union Minister of Agriculture and



Farmers Welfare, Government of India to provide inputs in connection with short debate in Parliament related to Food and Drought on 24-25 July, 2018.

**Dr. K. J. Ramesh**, DG, IMD, attended a meeting with Professor Sani Abubakar Mashi, Director General/CEO Nigerian Meteorological Agency of Nigeria on 26<sup>th</sup> July, 2018 at New Delhi.

**Dr. S. D. Attri**, Sc. 'F' participated in meeting of Expert Committee for the preliminary selection of candidates "Raman-Chrapak Fellowship 2018" in Atmospheric Sciences, Earth Sciences and Environmental Science at Indo-French Centre for the Promotion of Advanced Research, New Delhi on 31<sup>st</sup> July, 2018.

**Dr. Geeta Agnihotri**, Sc. 'E' and **Shri C. S. Patil**, Sc. 'D', MC Bengaluru attended a meeting with the Additional Chief Secretary and Development Commissioner, Director of Agriculture, Vidhana Soudha, Bangalore on Preparation of contingent crop plan for kharif - 2018 on 2<sup>nd</sup> August, 2018.

**Dr. Jayanta Sarkar**, Sc. 'F' attended a meeting, with honorable Chief Minister of Gujarat, at Gandhinagar regarding Monsoon 2018 scenario, on 7<sup>th</sup> August, 2018.

**Dr. K. Naga Ratna**, Sc. 'D', M.C. Hyderabad, attended the Review Meeting on 7<sup>th</sup> August, 2018 convened by the Chief Secretary (Govt. of Andhra Pradesh), in the Office of the Chief Secretary, Velagapudi, Capital City-Amaravati, to review the GOI institutions for which land has been allotted in Amaravati.

**Shri Virendra Singh**, Sc. 'F' attended the Multi Mission Data Reception and Processing System (MMDRPS) incremental Algorithm Theoretical Basis Definition (ATBD) review meeting at SAC Ahmedabad and officers from Sat Met Division and NWFC attended the same meeting via Videoconferencing at New Delhi on 8<sup>th</sup> August, 2018.

**Shri K. Santhosh**, Sc. 'F', MC Thiruvananthapuram attended a meeting on 9<sup>th</sup> August, 2018, convened by Hon'ble Chief Minister of Kerala in his office on heavy rainfall situation in Kerala.

**Dr. V. K. Mini**, Sc. 'E' and **Shri A. U. Ramesan**, Met. 'B', MC Thiruvananthapuram, attended a meeting called by the Honbl'e Mayor of Thiruvananthapuram Corporation at Mini Conference Hall, Corporation Office regarding solar panel installation on roof top of government buildings on 14<sup>th</sup> August, 2018.

**Dr. S. Balachandran**, Sc. 'F', RMC Chennai, accompanied by **Dr. R. Puviarasan**, Sc. 'D', attended meeting on State Action Plan on Climate Change and Human Health convened by State Health Society, Chennai on 16<sup>th</sup> August, 2018.

**Dr. Jayanta Sarkar**, Sc. 'F' and **Smt. S. R. Metri**, A.O. III attended the Half Yearly meeting "Nagar Rajbhasha Karyanvyan Samiti" at NID, Ahmedabad on 16<sup>th</sup> August, 2018.

**Shri H. R. Biswas**, Sc. 'E', M. C. Bhubaneswar participated in the Project Inception Meeting on 'Operational Systems for Integrated Disaster Risk Management for Odisha' convened by OSDMA in collaboration with Regional Integrated Multi-Hazard Early warning System (RIMES) at Rajiv Bhawan on 28<sup>th</sup> August, 2018.

**Dr. S. Balachandran**, Sc. 'F', RMC Chennai participated in a meeting at NIOT Chennai on 30<sup>th</sup> August, 2018 convened by National Centre for Coastal Research (NCCR) regarding operationalization of Chennai Flood Warning System (C-FLOWS) in association with NCMRWF, IMD and IIT Mumbai and Chennai.

**Shri Bikram Singh**, Sc. 'E' attended a meeting presided over by Honourable Chief Minister, Govt. of Uttarakhand on 5<sup>th</sup> September, 2018, at Secretariat in connection with assessment of losses during the Monsoon season and relief work done and briefed about the performance of the South-west monsoon for the current year.

**Dr. S. Balachandran**, Sc. 'F', RMC Chennai went on tour to Visakhapatnam during 6-8 September, 2018 in connection with the visit and allied meetings of Committee of Parliament on Official Languages (COPOL) at Visakhapatnam.

**Dr. Geeta Agnihotri**, Sc. 'E' and **Shri C. S. Patil**, Sc. 'D' attended Cabinet sub-committee Meeting at State Emergency Operation Center, Revenue Department Disaster Management, on 11<sup>th</sup> September, 2018.

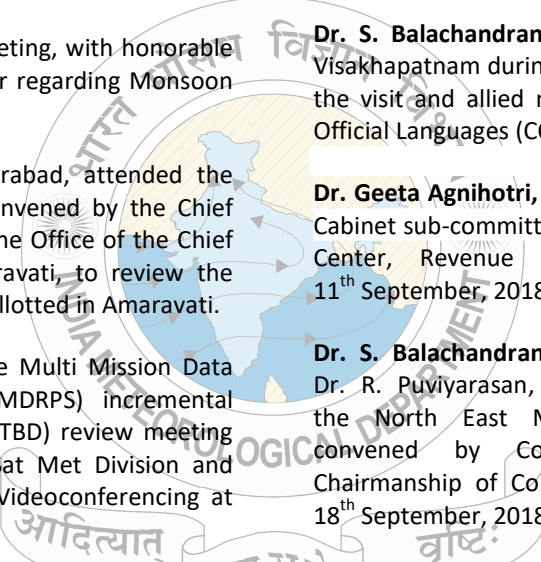
**Dr. S. Balachandran**, Sc. 'F', RMC Chennai accompanied by **Dr. R. Puviarasan**, Sc. 'D', ACWC Chennai participated in the North East Monsoon 2018 preparedness meeting convened by Corporation of Chennai under the Chairmanship of Commissioner, Corporation of Chennai, on 18<sup>th</sup> September, 2018.

**Dr. (Smt.) K. Naga Ratna**, Sc. 'D', M.C. Hyderabad has attended the meeting on "Development of Flood Forecasting System including inundation forecast in Godavari and Tapi Basin" conducted by NRSC on 19<sup>th</sup> September 2018 at NRSC, Balanagar, Hyderabad.

**Dr. A. K. Mitra**, Sc. 'E' attended the working group meeting constituted by Secretary, MoES through Video Conferencing on 20<sup>th</sup> September, 2018 to develop different monitoring and prediction tool for Thunderstorm prediction at MoES, New Delhi.

**Dr. K. K. Singh**, Sc. 'F' and **Shri S. C. Bhan**, Sc. 'F' attended "National Use of Weather Forecast for Livestock Management in Agro-meteorological advisory Services" held at ICAR - National Dairy Research Institute, Karnal on 24<sup>th</sup> September, 2018.

**Dr. S. Balachandran**, Sc. 'F', RMC Chennai went on tour to Thiruvananthapuram for participating in the Fisheries





Meeting organized by Government of Kerala, on 24<sup>th</sup> September, 2018.

**Shri Vigin Lal F.,** Sc. 'B' attended as a member of an interview panel at Regional Cotton Research Centre, Navsari Agriculture University, Bharuch on 26<sup>th</sup> September, 2018.

## Research & Publications

Quarterly research journal **MAUSAM Vol. 69 No. 3 (July, 2018)** has been published.

A paper entitled, "**An NWP based objective approach**" by S. K. Bhattacharya, S. D. Kotal, Sankar Nath, S. K. Roy Bhowmik and P. K. Kundu, for Tropical Cyclone Intensity Prediction over North Indian Ocean and Vol. GEOFIZIKA, 35: DOI: 10.15233/gfz.2018.35.8. was published.

A paper entitled, "**Fog occurrence and associated meteorological factors over Kempegowda International Airport**" by Saumya G. Kutty, G. Agnihotri, A. P. Dimri, Gulpe was published in Pure and applied Geophysics. <https://link.springer.com/article/10.1007/s00024-018-1882-1>.

**Daily all India Weather Summary and Weekly Weather Reports** are being brought out on routine basis.

**Climate Diagnostics Bulletin of India** for the months from June to August, 2018 were brought out.

**ENSO bulletin** for the months from July to September 2018, **Seasonal Climate Outlook for South Asia** for the months of August-November and September to December 2018 were issued respectively. (Quick Link: [www.imdpune.gov.in/Clim\\_Pred\\_LRF\\_New/Products.html](http://www.imdpune.gov.in/Clim_Pred_LRF_New/Products.html)).

**Weekly and Cumulative Standardized Precipitation Index (SPI)** maps were prepared for the months July to September, 2018 and supplied for use in Agromet Advisory Services Bulletin and uploaded in IMD Pune website.

**Drought outlook maps** for the months July to September, 2018 have been prepared and uploaded on IMD Web-site.

**Weekly Aridity anomaly maps & reports** for the months June to September, 2018 have been prepared and uploaded on IMD Web-site and mailed to Agrimet for Agromet Advisory Services.

**Biweekly Aridity Anomaly Map** for the months June to September, 2018 have been prepared and uploaded on IMD Web-site.

## Media Interaction

**Shri Anand Sharma,** Sc. 'F' was interviewed by NDTV, on 3<sup>rd</sup> July and 9<sup>th</sup> July, 2018 regarding monsoon rainfall distribution and quantum.

**Dr. M. Mohapatra,** Sc. 'G' participated as an Expert to review the episodes on 14<sup>th</sup> & 16<sup>th</sup> July, 2018 at Vigyan Prasar, NOIDA in connection with Vigyan Prasar is producing 26 episodes video serial entitled "Role of Science and Technology in Understanding Disaster and its Mitigation". This serial will be telecast through Doodarshan, Lok Sabha Television and Rajya Sabha Television and would be a unique resource material for awareness /training /capacity building programmes.

**Shri C. S. Patil,** Sc. 'D' participated in Mass Media meeting on 6<sup>th</sup> August, 2018 at Doodarshan Kendra, Bengaluru.

**Ms. A. B. Bandgar,** Sc. 'B' participated in discussion, special programme on "Weather Forecast and Agricultural Expert Advice" sponsored by Govt. of Maharashtra on 10<sup>th</sup> August and 24<sup>th</sup> August, 2018 broadcasted on DD Sahyadri channel.

**Shri C. S. Patil,** Sc. 'D' participated in live discussion in TV5 between 7 PM to 7.20 PM on 25<sup>th</sup> September, 2018.

## Foreign Visit

**Dr. K. J. Ramesh,** DGM was on foreign deputation to Ulaanbaatar, Mangolia as a part of Indian Delegation to attend the Asian Ministerial Conference on Disaster Risk Reduction 2018 (AMCDRR 2018) during 3-6 July, 2018.

**Shri K. N. Mohan,** Sc. 'F' was on foreign deputation to Exeter, UK to participate in the Sixteenth Session Commission for Aeronautical Meteorology (CAEM-16) & Technical Conference (TECO) during 23-27 July, 2018.

**Dr. Suman Goyal,** Sc. 'F' was on foreign deputation to Tallinn, Estonia during 17-21 September, 2018 to participate in the conference on EUMETSAT Meteorological Satellites.

**Dr. A. K. Sahai,** Sc. 'G' and Dr. P. Guhathakurta, Sc. 'F', Dr. K. Ghosh, Sc. 'E' were on deputation to attend the (India UK Water Centre) IUKWC Workshop on 'Advancing Drought Monitoring Prediction and Management Capabilities' held at University of Lancaster, UK from 17-21 September, 2018 and delivered a lecture on "Monitoring drought condition and providing outlook by drought indices like SPI, SPEI and AAI from weekly to monthly scale". Dr. Ghosh delivered lecture in 'Agro-meteorological Advisory Services for monitoring preparedness and management of agriculture drought'.



Group photograph during IUKWC at University of Lancaster, UK



**Dr. K. J. Ramesh**, DGM was on foreign deputation to Geneva, Switzerland during 18-20 September, 2018 to attend Asia Weather & Climate Services Pathways for Regional Collaboration Forum.

**Dr. S. L. Singh**, Sc. 'F' was on foreign deputation to Casablanca, Morocco during 18-20 September, 2018 to participate in the Meeting of the Task Team on Global Information Systems Centres (TT - GISC 2018).

**Dr. M. Mohapatra**, Sc. 'G' and Chairman WMO and Economic & Social Commission for Asia & Pacific (ESCAP) panel on Tropical Cyclones was on foreign deputation to Muscat, Oman during 23-27 September, 2018 to participate in 45<sup>th</sup> Session of WMO/ESCAP Panel on Tropical Cyclones (PTC-45). Four Arabian countries including Saudi Arabia, Qatar, United Arab Emirate and Iran joined the WMO/ESCAP Panel on tropical cyclones (PTC) in this session.

**Dr. D. S. Pai**, Sc. 'F' was on foreign deputation to Colombo, Sri Lanka during 26-28 September, 2018 to attend the 13<sup>th</sup> Session of South Asian Climate Outlook Forum (SASCOF-13). Regional Climate Centre, IMD Pune issued seasonal outlook of rainfall and temperature over South Asian Countries in this Session.



## Visit/Visitors

350 students of different schools of New Delhi, Ghaziabad & Faridabad visited '**Satellite Meteorology Division**' during the period July to September, 2018 for familiarization with the activity of Satellite Meteorology Division.

13 nos. of Doctors of All India Institute of Medical Sciences visited '**Satellite Meteorology Division**' on 5<sup>th</sup> July, 2018 for familiarization with the activity of Satellite Meteorology Division.

**Shri Venkaiah Naidu**, H. E. Vice President of India visited Dehradun on 14<sup>th</sup> July, 2018. In this connection Weather forecast was issued to State Government. **Shri M. M. Saklani**, **Met. 'B'** gave VVIP briefing to the concerned Aircraft/Helicopter Pilot.

15 officers of NIDM visited '**Satellite Meteorology Division**' on 19<sup>th</sup> July, 2018 for familiarization with the activity of Satellite Meteorology Division.

**Dr. John Clemens**, Executives Director ICDDR, Dr. Peter Kim Streatfield, Emeritus Scientist I/C Climate Change initiative & Dr. Quamrun Nahar, Senior Director ICDDR visited M. C. Ahmedabad on 30<sup>th</sup> July, 2018. Dr. Jayanta Sarkar briefed them about the activities of IMD Ahmedabad.

45 M. Tech (Climate Science & Technology) and M.Sc. (Atmosphere & Ocean Sciences) students accompanying with Assistant Professor from School of Earth, Ocean and Atmospheric Sciences, IIT Bhubaneswar visited '**M.C. Bhubaneswar**' to get familiarized with different observation

instruments, operational activities and weather forecasting on 14<sup>th</sup> August, 2018.

658 Students and 43 Teachers from different Schools and institutions visited '**M.C. Hyderabad**'. They were explained about functioning of Met. Instruments, DWR, weather forecasting etc.

100 Participants (School Teachers from Odisha) visited '**M.C. Bhubaneswar**' on 17<sup>th</sup> August, 2018 for facilitating with Meteorological Observations and Forecasting Activity. **Shri H. R. Biswas**, Sc. 'E', M.C. Bhubaneswar gave a presentation to the visitors on Weather Forecasting and Services.



Various participants during the visit at M.C. Bhubaneswar

30 students from School of Geography, Gujarat University, Ahmedabad visited '**M.C. Ahmedabad**' on 20<sup>th</sup> August, 2018. Also 50 students from Sarkar school, Chandkheda, Ahmedabad visited '**M.C. Ahmedabad**' on 11<sup>th</sup> & 12<sup>th</sup> September, 2018. They were briefed about forecasting procedure, taking Surface & Upper Air Observation and the activities of IMD.

**Dr. Shashi Kant**, Sc. 'B' was on tour to M. O. Jharsuguda for monitoring VVIP briefings and Aviation work during the visit of Hon'ble Prime Minister of India at Jharsuguda Airport for inauguration on 22<sup>nd</sup> August, 2018. In this regard Also VVIP Forecasts and Met Briefings were issued from M.C. Bhubaneswar.

**IWSU Inspection Team** from DGM, New Delhi inspected '**M. C. Bhubaneswar**' from 24-27 September, 2018. **Shri H. R. Biswas**, Sc. 'E', M. C. Bhubaneswar accompanied the IWSU Inspection team as Liaison Officer inspected MO Puri on 26<sup>th</sup> September, 2018.

## National / International Collaboration

**Antrix Corporation Limited (ANTRIX)** signed a Memorandum of Understanding (MoU) with India Meteorological Department



(IMD) for the establishment of “Multi Mission Meteorological Data Receiving and Processing System (MMDRPS)” at IMD premises. A Committee has been constituted to review the incremental Algorithm Theoretical Basis Definition (ATBD) for establishment of MMDRPS with experts from IMD, Space Application Centre Indian Space Research Organisation (SAC/ISRO) and ANTRIX.

IMD signed a Strategic Partner Agreement with Open WIS Association AISBL, Belgium for the implementation of ‘Open WII in IMA’ in July 2018.

## Weather Summary

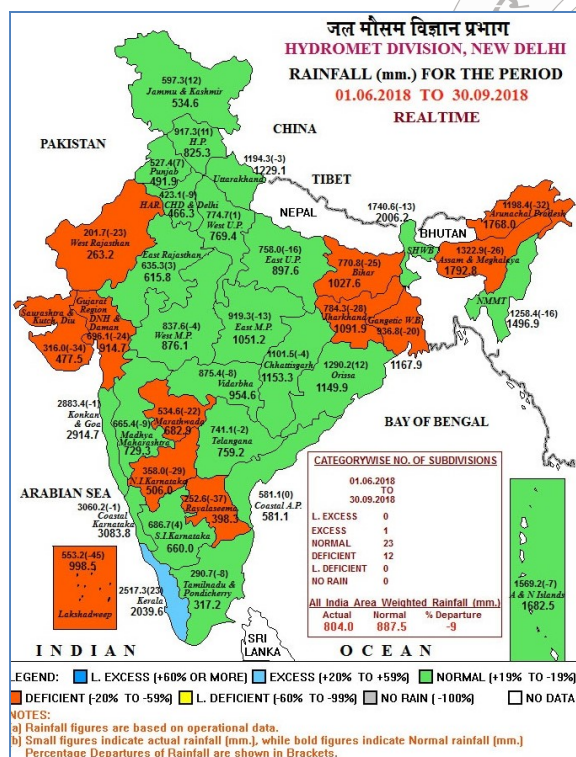
### Rainfall Features

During the month of July, rainfall activity over the country as a whole was normal. Many subdivisions of the country received excess/normal rainfall. However some subdivisions of northwest, northeast, peninsular India and islands received deficient rainfall. Rainfall deficiency over some subdivisions of these regions, viz., Andaman & Nicobar Islands, Marathwada, Rayalaseema and Lakshadweep Islands was more than 40%. Out of 36 meteorological subdivisions, 2 received excess rainfall, 24 normal rainfall, 9 deficient rainfall and one large deficient rainfall.

normal rainfall, whereas rainfall deficiency over subdivisions of Haryana, Chandigarh & Delhi, west Rajasthan and Rayalaseema was more than 50%. Out of 36 meteorological subdivisions, 1 received large excess, 5 excess rainfall, 14 normal rainfall and 16 deficient rainfall.

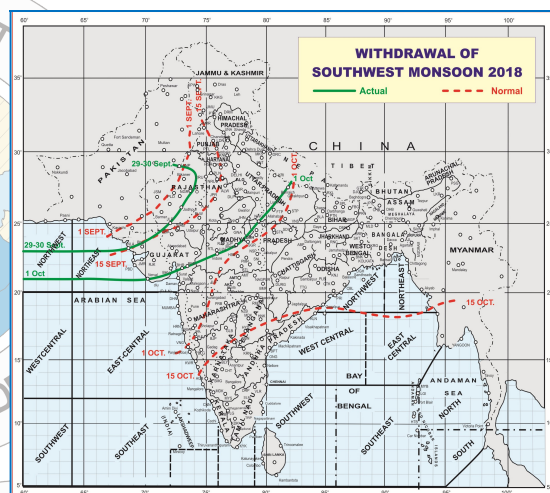
During the month of September, rainfall activity over the country as a whole was below normal. Many subdivisions of east, west and south peninsula received deficient/large deficient rainfall. Some subdivisions of these regions, viz., Gujarat region, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra, Marathwada, Coastal Karnataka and Kerala received nearly less than 60% of their respective normal rainfall. However, some subdivisions, viz., Haryana, Chandigarh & Delhi, Punjab, Himachal Pradesh, Jammu & Kashmir, East Rajasthan and Odisha received large excess/excess rainfall. Out of 36 meteorological subdivisions, 3 received large excess rainfall, 3 excess rainfall, 7 normal rainfall, 16 deficient rainfall and 7 large deficient rainfall.

Southwest Monsoon withdrawal was delayed and began its process on 29 September, 2018. The withdrawal of SW-Monsoon 2018 is shown below:



### SW Monsoon 2018

During the month of August, rainfall activity over the country as a whole was normal. The homogeneous region of south peninsular India received above normal rainfall. Homogeneous region of northwest India and central India received normal rainfall, while east and northeast India received deficient rainfall. Sub division of Kerala received almost twice of its



Withdrawal of SW-Monsoon 2018

### Temperature

During the month of July, maximum temperature was below normal over most parts of the country except some eastern northeastern, northwestern and south peninsular regions. During the month of August, over parts of Assam & Meghalaya, Bihar, Jammu & Kashmir and Himachal Pradesh maximum temperature anomaly was more than 1 °C. During the month of September, maximum temperature was above normal over most parts of the country except northwestern region. It was above normal by 1 °C over parts of east and northeast India and Peninsular India, Jammu & Kashmir, Himachal Pradesh and Uttarakhand. Minimum temperature was above normal over east and northeast, northern, peninsular India and Andaman & Nicobar Islands. It was less than 1 °C over parts of Uttar Pradesh, East Rajasthan, Madhya Pradesh, Chhattisgarh and Marathwada.

## Significant Weather Systems

During the month of July, a low pressure area formed over northwest Bay of Bengal (BoB) and adjoining Gangetic West Bengal & Odisha in the morning of 19<sup>th</sup> July, 2018. It became well marked low pressure area (WML) over the same region in the morning of 20<sup>th</sup>. It concentrated into a depression over northwest BoB in the morning of 21<sup>st</sup>.

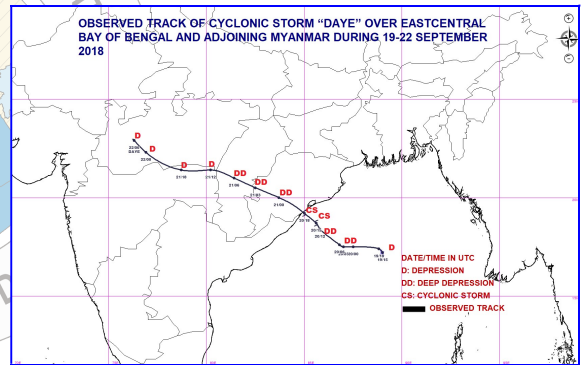
During the month of August, a low pressure area formed over northwest Bay of Bengal (BoB) and neighbourhood in the morning (0300 UTC) of 6<sup>th</sup> July, 2018. It lay as a well marked low pressure area (WML) over northwest BoB and adjoining West Bengal & Odisha coasts in the early morning (0000 UTC) of 7<sup>th</sup>. It concentrated into a depression over northwest BoB in the same afternoon (0900 UTC) of 7<sup>th</sup>.

Further, under the influence of a cyclonic circulation over northwest Bay of Bengal (BoB) off West Bengal coast, a low pressure area (LPA) formed over the same region in the morning (0300 UTC) of 13<sup>th</sup> August. It lay as a well marked low pressure area (WML) over northwest BoB off West Bengal-north Odisha coasts in the afternoon (0900 UTC) of 14<sup>th</sup>. It concentrated into a depression over coastal Odisha in the morning (0300 UTC) of 15<sup>th</sup>. It moved west-northwestwards and weakened gradually into a WML over southwest Madhya Pradesh and neighbourhood in the morning (0300 UTC) of 17<sup>th</sup> and LPA in the same evening (0900 UTC). The system became less marked over east Rajasthan and neighbourhood in the morning (0300 UTC) of 18<sup>th</sup> August.

In this connection, regular advisories were also issued to print & electronic media, general public and WMO/ESCAP Panel member countries including Bangladesh. The report on the system is available at <http://www.rsmcnewdelhi.imd.gov.in/images/pdf/publications/preliminary-report/d15-17aug.pdf>.

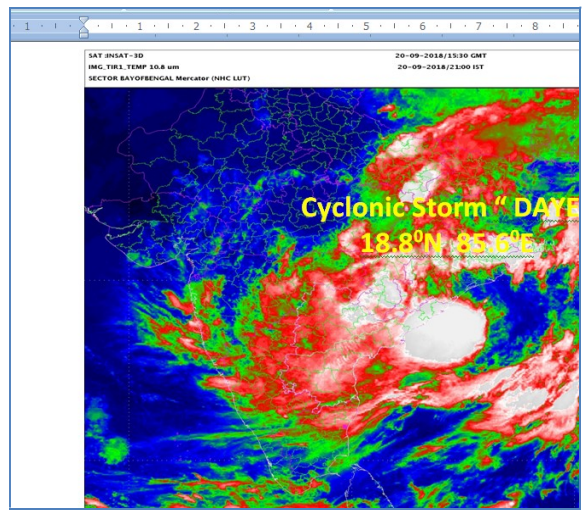
During the month of September, under the influence of a cyclonic circulation over north Bay of Bengal (BoB) and adjoining areas of Bangladesh & West Bengal coast, a low pressure area (LPA) formed over northwest BoB and neighbourhood in the early morning of 5<sup>th</sup> September. It lay as a well marked low pressure area (WML) over the same region in the evening (1200 UTC) of same day. Moving west-northwestwards, it concentrated into a depression (D) over northwest BoB and adjoining West Bengal Bangladesh coasts in the early morning of 6<sup>th</sup>. It moved slightly westwards, intensified into a deep depression (DD) over the same region in the same morning and crossed West Bengal coast close to Digha in the same forenoon during 1000-1100 IST. It continued to move westnorthwestwards and maintained its intensity of DD for next 21 hours and weakened into a D over northwest Odisha and neighbourhood in the early morning of 7<sup>th</sup>. Thereafter, it moved northwestwards and weakened into a WML around the noon of same day over north Chattisgarh and neighbourhood. It weakened into an LPA over east Rajasthan and neighbourhood in the early morning of 9<sup>th</sup>.

During the month of September, a Cyclonic Storm (CS) **Daye** originated from a low pressure area (LPA) which formed over eastcentral Bay of Bengal (BoB) and adjoining Myanmar in the afternoon of 18<sup>th</sup> September. It lay as a well marked low pressure area (WML) over the same region in the morning of 19<sup>th</sup> September. Under favourable environmental conditions, it concentrated into a Depression (D) over eastcentral BoB in the night of 19<sup>th</sup> September. Moving nearly west-northwestwards, it intensified into a deep depression (DD) over westcentral BoB in the morning (0300 UTC) of 20<sup>th</sup> September and further into a cyclonic storm (CS) "Daye" in the same night. It crossed south Odisha and north Andhra Pradesh coast close to Gopalpur (Odisha) as a cyclonic storm with a wind speed of 60-70 kmph gusting to 80 kmph during 0030 and 0130 hrs IST of 20<sup>th</sup> September. It continued to move west-northwestwards, weakened into a DD in the early morning of 21<sup>st</sup>, into a D in the same evening and into a WML over west Madhya Pradesh and adjoining east Rajasthan in the evening of 22<sup>nd</sup> September. It lay as a WML over southeast Rajasthan in the morning of 23<sup>rd</sup>. It lay over north Rajasthan and adjoining southwest Uttar Pradesh & south Haryana in the early morning of 24<sup>th</sup> and lay as an LPA over south Haryana and neighbourhood on 24<sup>th</sup> morning. It became less marked on 25<sup>th</sup> morning. The observed track of the system during 19-22 September is presented in the figure below:



The observed track of the system during 19-22 September

The typical satellite imagery is presented in the figure below:



Typical satellite imagery is presented in Fig.2.