



# मौसम विज्ञान विभाग समाचार

# IMD NEWS

INDIA METEOROLOGICAL DEPARTMENT  
(Ministry of Earth Sciences)

Quarterly Newsletter

In this issue

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## Implementation of Official Language



The second sub-committee of Committee of Parliament on Official Language (COPOL) inspected the CWC Visakhapatnam on 10<sup>th</sup> April, 2015. Dr. Prasanna Kumar Patsani, Hon'ble MP Lok Sabha, Dr. Sunil Baliram Gaikwad, Hon'ble M. P. Lok Sabha and Dr. Mahendra Nath Pandey, Hon'ble MP Lok Sabha visited CWC Visakhapatnam and conducted a meeting on effective implementation of Rajbhasha. From IMD, Dr. Someswar Das, Shri A. K. Sharma, Shri S. B. Thampi and Ms. Reva Sharma, participated in the meeting. Shri Surajbhan, Secretary (Official Language), Ms. Abhilasha Mishra, Hindi Officer, Shri Rajesh Jha, Hindi Asst. were part of the (COPOL). A Hindi workshop was also conducted at the office of Director CWC Visakhapatnam on 13<sup>th</sup> April, 2015 by Ms. Reva Sharma, Sr. Hindi Officer.

## Earth Day' celebration

'Earth Day' was celebrated on 22<sup>nd</sup> April, 2015 at RMC Guwahati. Dr. (Prof.) J. Goswami, College of Veterinary Science, Assam Agriculture University, Guwahati was the chief guest of the function.



## North East Development Summit and Agro & Rural Expo

RMC Guwahati participated in the exhibition-'North East Development Summit and Agro & Rural Expo' which was held on 26<sup>th</sup> and 27<sup>th</sup> May'2015 at Veterinary College, Khanapara, Guwahati, Assam which was organized by Centre for Agriculture & Rural Development, Rohit House Tolstoy Road, New Delhi.



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## FOREIGN VISITS



**Dr. D. S. Pai**, Scientist 'E', was deputed to attend a training workshop on seasonal prediction held at SASCOF-6 meeting at Bangladesh Meteorological Department, Dhaka from 19<sup>th</sup> to 20<sup>th</sup> April, 2015.

**Shri S. M. Jamadar**, A.M.II and **Shri R. G. Patil**, S.A. were on deputation to participate in SASCOF-6 meeting and associated training workshop on seasonal prediction held from 19<sup>th</sup> to 22<sup>nd</sup> April, 2015 at Bangladesh Meteorological Department, Dhaka.

**Dr. L. S. Rathore**, Director General of Meteorology was on tour to Geneva, Switzerland to attend the 17<sup>th</sup> World Meteorological Congress and Meeting of Executive Council of WMO during the period from 25<sup>th</sup> May to 16<sup>th</sup> June, 2015 at Geneva.

**Dr. S. D. Attri**, Scientist 'E', was on tour to Geneva, Switzerland to attend the 17<sup>th</sup> World Meteorological Congress and Meeting of Executive Council of WMO during the period from 25<sup>th</sup> May to 12<sup>th</sup> June, 2015 at Geneva.



**Shri B. P. Yadav**, Scientist 'E', was on tour to Kathmandu, Nepal to participate as a member of the Indian delegation for assessment of the probability of Landslides and flood and their mitigation during the coming monsoon season during the period from 3<sup>rd</sup> to 6<sup>th</sup> June, 2015.

**Shri Narendra Nigam**, Scientist, 'E', was on tour to Tokyo, Japan to attend the "ICAO/WMO Asia/Pacific Meteorology/Air Traffic Management & 4<sup>th</sup> Meeting of Asia/Pacific Meteorological Requirement Task during the period from 29 June to 3 July, 2015.

## WORKSHOPS

**Dr. A. K. Srivastava**, Scientist 'E', **Dr. P. Guhathakurta**, Scientist 'E' and **Dr. D. S. Pai**, Scientist 'E' participated in the IMD Brainstorming Workshop "Review of Southwest Monsoon 2014" from 6 - 8 May, 2015 at New Delhi and delivered invited talks.

**Shri A. K. Sharma**, Scientist 'F', **Smt. Suman Goyal**, Scientist 'E' and **Shri Virendra Singh**, Scientist 'E', **Dr. S. C. Sahu**, Scientist 'E', **Shri S. M. Metri**, Scientist 'D', **Dr. Jayanta Sarkar**, Scientist 'E', attended Brainstorming Workshop "Review of Southwest Monsoon 2014" and "Operational Forecasting Officers Meet 2015" during 6-8 May, 2015 at New Delhi.

**Dr. P. C. S. Rao**, Scientist 'E', participated in the Brainstorming Workshop (Forecasting Officers Meeting) held at New Delhi during 6 - 8 May, 2015 and made a presentation on "Monsoon 2014 - Circulation features (Regional and Global)".

**Shri Manmohan Singh**, Scientist 'E', gave a presentation on Early warning system in Shimla city in the consultation workshop under ICMA's (International City Management Association) City Links Climate Adaptation Partnership Programme organized by Municipal Corporation, Shimla on 11<sup>th</sup> May, 2015.

**Dr. Medha Khole**, Scientist 'E', participated in the workshop at Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune on 21<sup>st</sup> May, 2015 regarding a Real Time Flood Forecasting & Integrated Reservoir Operating System for flood management.

**Dr. Geeta Agnihotri**, Scientist 'D', attended the valedictory session of the five day workshop cum training programme on "Use of Crop Simulation Models for yield forecasting with special reference to Sorghum" for the benefit of the project scientists working in FASAL & AMFU's of Karnataka and Maharashtra held at University of Agriculture & Horticulture Sciences, Shivamogga on 26<sup>th</sup> June, 2015.

## A JOINT WORKSHOP

A joint workshop with Appropriate Technology (AT), India (NGO) was organized on 10<sup>th</sup> May, 2015 to sensitize farmers about weather and agriculture and disaster management issues and to disseminate weather information to farmers through SMS on Kisan Portal. A request to register 2500 farmers on the Kisan Portal for SMS alert has been received from AT India, NGO.

## AWARDS

The Annual Hindi magazine of RMC Chennai "PAVAN DHOOTH" Vol. 6 - 2014 was awarded consolation prize on 6<sup>th</sup> May 2015 in the Hindi In-House Magazine competition conducted by the "Town Official Language Implementation Committee", Chennai.

## MEETINGS

**Dr. D. Pradhan**, Scientist 'E', attended inaugural session of HP-III project training programme at Jalasampada Bhawan on 6<sup>th</sup> April, 2015 conducted by Deptt. of Irrigation Govt. of West Bengal.

**Shri Anand Sharma**, Scientist 'E', attended the Board of Management meeting of forecast research institute university on 5<sup>th</sup> May at Forecast Research institute, Dehradun.

**Shri Surender Paul**, Scientist 'E', attended a meeting of State Level Co-ordination Committee on Crop Insurance (SLCCCI) for WBCIS & MNAIS on 15<sup>th</sup> May, 2015 under the Chairmanship of Additional Chief Secretary to Govt. of Haryana, Agriculture Department.

**Shri S. B. Thampi**, Scientist 'E', participated in the first State empowered committee meeting on implementation of National e-Governance Plan in Agriculture under National Mission on Agricultural Extension and Technology in Tamil Nadu, convened by Director of Agriculture, Chepauk, Chennai on 19<sup>th</sup> May, 2015.

**Dr. Geeta Agnihotri**, Scientist 'D', attended meeting with State Govt Officials to discuss preparedness for Kharif 2015, contingency crop plan and seed availability to operationalise District contingent Plans for Karnataka State at University of Agricultural Sciences, GKVK, Bengaluru on 19<sup>th</sup> May, 2015.

**Shri A. K. Sharma**, Scientist 'F', represented IMD in "Parliamentary Standing Committee meeting on Science & Technology" at Srinagar during 24-26 May, 2015 on the unprecedented floods in J&K in September, 2014.

**Shri J. P. Gupta**, Scientist 'E', attended "Crop Weather Watch Group" meeting at UPCAR on 27<sup>th</sup> May, 2015 chaired by Director General of UPCAR Govt. of U.P.

**Shri S. B. Thampi**, Scientist 'F' and Ms. B. Amudha, Scientist 'D', attended the function "Launching of Indian Solar Radiation Atlas", as a part of the Solar Radiation Resource Assessment (SRRRA) project of National Institute of Wind Energy (NIWE), Chennai and associated consultative meeting of all Stakeholders on 3<sup>rd</sup> June, 2015.

**Dr. A. K. Mitra**, Scientist 'D', attended meeting at IITM, Pune on development of hourly merged gridded rainfall dataset and gave a presentation on analysis of INSAT-3D data using RAPID online visualization tool at IITM, Pune on 4<sup>th</sup> June, 2015.

**Dr. Jayanta Sarkar**, Scientist 'E', attended Inter State meeting on Flood Management & Preparedness for Monsoon 2015 for Mahi, Sabarmati and Banas basin on 4<sup>th</sup> June, 2015 at State Surface Water Data Centre, Gandhinagar.

**Smt. S. Stella**, Scientist 'D', participated in a brainstorming meeting on monsoon predictions in catchment areas of Chennai city reservoirs convened by Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), Chennai on 17<sup>th</sup> June, 2015.

## MEETINGS

**Dr. D. Pradhan**, Scientist, 'E', presided over "Pre-cyclone Exercise" on 8<sup>th</sup> April, 2015 at RMC, Kolkata. About 40 delegates from Government of West Bengal agencies participated in the meeting.

**Dr. Jayanta Sarkar**, Scientist, 'E', attended a meeting on "Heat Action Plan : Ahmedabad" during 15-16 April, 2015 at Ahmedabad organized by IIPHG & served as an expert in panel discussion on "Climate change & Heat Wave forecasting."



**Shri A. K. Sharma**, Scientist 'F' and Dr. A. K. Mitra, Scientist 'D', have participated in a joint campaign of CAL/VAL observations for INSAT-3D Satellite during 29<sup>th</sup> April to 3<sup>rd</sup> May, 2015 at Bhuj, Gujarat. The campaign was conducted in collaboration with SAC, ISRO team members.

**Dr. M. Mohapatra**, Scientist 'E', participated in a conference on Disaster Risk Reduction held by Govt. of Bihar at Patna during 13-14 May, 2015. He chaired the Panel Discussion of the Technical Session on Effective Multihazards Early Warning Systems and Hazard Monitoring.

**Smt. Manorama Mohanty**, Scientist 'D', attended a meeting at Surat on "Inter State meeting on Flood Management and Preparedness for Monsoon 2015 for Tapi, Narmada and Damanganga Basins" on 19<sup>th</sup> May, 2015 organized by CWC.

**Dr. N. Chattopadhyay**, Scientist 'E', attended the meeting on 'Agro-Weather Forecasting System' along with Dr. K. Ghosh, Scientist 'D' and Shri R. Balasubramanian, Scientist 'D' under the Chairmanship of Hon'ble Chief Minister of Maharashtra held at Mantralaya, Mumbai on 26<sup>th</sup> May, 2015.

**Dr. Medha Khole**, Scientist 'E', participated in the meeting on "Pre - Kharif Season 2015 - Review" organized by Department of Agriculture, Government of Maharashtra" held at Yashwantrao Chavan Foundation Auditorium, Mumbai on 27<sup>th</sup> May, 2015. The meeting was held under the Chairmanship of Hon'ble Chief Minister of Maharashtra. She made presentation on the topic "Monsoon 2015 - forecasts and progress so far" during the meeting.

**Dr. S. C. Sahu**, Scientist 'E', attended meeting of the state level committee on natural calamities at Secretariat and on complete digital solution towards disaster management providing continual preparedness at Rajiv Bhawan, Bhubaneswar on 30<sup>th</sup> June, 2015.

## INSTALLATIONS

WDSS-II Nowcasting model has been installed at Kolkata and Jaipur for real-time nowcasts of reflectivity up to 2 hours ahead, during the month of June.

Six new ships of Indian coast guard have been recruited in supplementary category of IVOF by PMO Chennai as follows: 1. ICGS Sagar, 2. ICGS Vishwast, 3. ICGS Rajtarang, 4. ICGS Abheek, 5. ICGS Sarang, 6. ICGS RANI ABBAKKA.

**Shri M. K. Khoje**, A.M. - II and Smt. S.P.Bhagwat, A.M.II were on tour to New Delhi for installation of GPS based Solar Tracker, to Patiala for installation of Global Pyranometer and to Amritsar for installation of Diffuse shading ring assembly along with Diffuse Radiation sensor and calibration and maintenance of Radiation sensors from 8<sup>th</sup> to 25<sup>th</sup> June, 2015. Progress of ISO Certification.

## Agreement with M/s Certification

An agreement with M/s Certification has been completed on 5<sup>th</sup> June, 2015 at MWO Kolkata. Dr. D. Pradhan, Scientist 'E' and DDGM, RMC Kolkata attended and signed the agreement on behalf of IMD. Certification audit (Stage-I) for ISO 9001:2008 of MWO Kolkata has been conducted by M/S Certification body on 15<sup>th</sup> June, 2015.

## Probable Maximum Precipitation (PMP) Atlases

The following Probable Maximum Precipitation (PMP) Atlases have been approved, which is a joint venture of Central Water Commission & India Meteorological Department:

Ganga River Basin including Yamuna and

Cauvery River Basin

## Projects Guidance

Two projects entitled "Automation of Area Cyclone Warning Centre Activities" and "Automation of Agromet Advisory Service Unit Activities (AASU)" were completed by eleven Final year MCA students from University of Madras, Chennai under the guidance of Dr. R. Asokan, Scientist 'E' and Shri RM. A. N. Ramanathan, A.M. Gr. - II, RMC Chennai.

One project entitled "Comparison of Quikscat wind with GFS wind during cyclone disturbance" was completed by two students from Anna University, Tirunelveli campus under the guidance of Dr. R. Asokan, Sc. 'E' and Shri RM. A. N. Ramanathan, A.M. Gr.II, RMC Chennai.

A project entitled "DRMS Rain Gauge Status Information System" was completed by Shri V. Kuppan, final year MCA student from Presidency College, Chennai under the guidance of Shri M. V. Guhan, A.M. Gr.II, RMC Chennai.

## International Yoga Day

**International Yoga Day** was celebrated on 21<sup>st</sup> June, 2015. A two days workshop on Yoga was organized on 23<sup>rd</sup> and 24<sup>th</sup> June, 2015. In this workshop yoga was performed with the members of Isha Foundation. Officers and staff members benefitted from their teachings and demonstrations.

## Nomination

**Dr. M. Mohapatra**, Head, RSMC, New Delhi has been nominated by Ministry of Earth Sciences to act as principal member in the Sectional Committee (CED 59) formed by Bureau of Indian Standard for developing Indian Standards for smart cities.

## Delegates from Norway



Delegates from Norway visited Agrimet Division, Pune and interacted with Dr. N. Chattopadhyay, Scientist 'E' and also with officers and staff of "Agrometeorological Advisories Service" on 11<sup>th</sup> June, 2015.

## International Programme



Theoretical and practical training on BASIC OPERATIONAL METEOROLOGY imparted to 12 No's of field observers from DHMS (Deptt. of Hydrological Meteorological Service) from Royal Govt. of Bhutan during 1 June - 31 July, 2015 at training centre Kolkata.

## LECTURES

**Dr. S. C. Sahu**, Scientist 'E', delivered lecture on "India Meteorological Department: Current state of early warning systems" at Prasar Bharati, All India Radio & Doordarshan, Bhubaneswar on 21<sup>st</sup> April, 2015.

**Dr. Jayanta Sarkar**, Scientist 'E', delivered two lectures on "Weather Forecasting & Cyclone monitoring & preparedness" at WALMI, Anand on 27<sup>th</sup> April, 2015.



**Dr. D. Pradhan**, Scientist 'E', delivered a lecture on 'weather forecasting' to students and teachers at Kendriya Vidyalaya Command Hospital, Kolkata, on 7<sup>th</sup> May, 2015.

**Dr. M. Mohapatra**, Scientist 'E', delivered a lecture on 8<sup>th</sup> May, 2015 on "Tropical Cyclone Genesis, impact and future scenario associated with climate change" in a training programme on 'Geo-Spatial Technologies for Coastal and Marine Disaster Management and Climate Change', conducted by Indian Institute of Remote Sensing, Dehradun and UN-ESCAP, Bangkok at Dehradun.

**Dr. Geeta Agnihotri**, Scientist 'D', delivered a lecture on "Weather forecasting system during floods" at Office of the Commandants, Home Guards & Civil Defence Academy, Bengaluru on 21<sup>st</sup> May, 2015.

**Shri G. K. Das**, Scientist 'D', delivered a lecture on the topic "Role of IMD in Prediction and Forecasting the Key Indication of Climate related Disaster towards Planning for an Effective Disaster Management" to Block Level Extension Officers at Administrative Training Institute, Kolkata on 25<sup>th</sup> May, 2015.

## Interface meetings

Two interface meetings were convened by Shri S. B. Thampi, Scientist 'F', at RMC Chennai on 29<sup>th</sup> April, 2015 and 13 May 2015 in order to assess the weather in Bay of Bengal from 100 Kilometres to 500 Kilometres east from Sriharikota for Reusable Launch Vehicle-Technology Demonstrator (RLV-TD) project. Meetings were attended by officials from RLV-TD project team of Vikram Sarabhai Space Centre (Trivandrum), INCOIS, NIOT and Dr. S. R. Ramanan, Sc-E and Dr. R. Asokan, Sc-E, Shri Raja Mohan, A.M. Gr.I from RMC, Chennai.

## Round Table Meet on 'Food Security and Climate Change'

**Dr. N. Chattopadhyay**, Scientist 'E', attended the round Table Meet on 'Food Security and Climate Change' and presentation on "Role of Weather forecasting in Climate Change and Food Security" organized by National Council for Climate Change, Sustainable Development and Public Leadership (NCCSD) was held at Anand Agricultural University (AAU), Anand, Gujarat on 2<sup>nd</sup> June, 2015.

**Dr. G. C. Debnath**, Scientist 'E', attended an International Symposium on "Combating Climate Change in C40 Mega Cities" held in Kolkata on 22<sup>nd</sup> April 2015 organized by NCCSD, SAFE, Kennesaw State University in collaboration with U.S. Consulate Kolkata and delivered a lecture on "Disaster and risk management through early warning and weather prediction-A climate change perspective".

## Crop Cutting Experiment (CCE)

IMD in collaboration with MNCFC, State Remote Sensing Centres and State Department of Agriculture conducted Crop Cutting Experiment (CCE) at Allahabad, Moradabad and Ganganagar for real time estimation of wheat yield in farmers' field in April 2015 and Baragarh, Odisha for real time estimation of rabi rice yield in farmers' field during 2-5 May, 2015.

Technical Consultation under the Sustainable Livelihoods and Adaptation to Climate Change Project (SLACC) specifically on Weather and Agromet Advisory Services was organised by Agricultural Global Practice, World Bank at New Delhi on 25<sup>th</sup> June, 2015.

## AAS bulletin for DD Kisan News



## Cyclone Exercise Meet

As a part of Pre-Cyclone Exercise, a meeting was held during 6-7 April, 2015 at H. Q., New Delhi. Representatives from NDM & NDMA, Ministry of Home Affairs, IIT Delhi, NCMRWF, Indian Air force, Indian Navy, Central Water Commission and National Defence Response Force participated in the meeting and explained their preparedness for the ensuing cyclone season and future course of action.

## TRAINING/TALKS

Under the plan scheme "Digitization of Autographic Charts" hands-on-training on Autographic Charts Data Extraction Software was conducted for the Staff of Technical section of RMCs/MCs in two batches for 4 days on 22<sup>nd</sup> June and 29<sup>th</sup> June. The training was organized jointly by office of ADGM(R) & RMC Mumbai. About 24 technical staff from different RMCs/MCs participated.



**Shri Bishwajeet Mukhopadhyay**, Scientist 'F', delivered a talk on "Forecasting Services in India" in the "Teacher's Training Workshop" on 5<sup>th</sup> May, 2015 and also the certificate of participation to the teachers were distributed by Shri B. Mukhopadhyay as the guest of honor on the Valedictory Function at the end of the workshop on 8<sup>th</sup> May, 2015.

**Dr. D. S. Pai**, Scientist 'E' presented a talk on "Long Range Forecasting" on 5<sup>th</sup> April in the teacher's training workshop organised by Indian Met. Society, Pune Chapter.

**11 trainee officers** from Air force training school Coimbatore were attached to Sat. Met. Division, New Delhi on 13 - 15 April, 2015 for familiarization training in Satellite Meteorology and Applications.

**Shri Virendra Singh**, Scientist 'E' imparted familiarization training on IMDPS to Naval trainees on 9<sup>th</sup> April, 2015.

**Shri R. B. Verma**, Scientist 'D' imparted training on receiving system of INSAT-3D and INSAT-3A meteorological data to 14 Naval Meteorological Observer trainees and one Instructor on 7<sup>th</sup> April 2015.

IMD in collaboration with University of Agricultural and Horticultural Sciences (UAHS), Shimoga, Karnataka organized a training program as well as working group meeting for SRFs / Technical Officers to develop methodology for Crop Simulation Model based Crop Yield Forecasting system for sorghum with special reference to Karnataka and Maharashtra at UAHS, Shimoga, Karnataka during 22-26 June 2015. Processing and supply of meteorological data for the trainees was also carried out.

Eleven (11) B.Tech (ECE) 3<sup>rd</sup> year students of Moulana Azad College of Engg. & Tech, Patna have been imparted five weeks vocational training in Doppler Weather Radar from 18 May – 19 June, 2015.

Six (6) IT student of Narula Institute of Technology Agarpara, Kolkata started Internship training under the guidance of Shri H. R. Biswas Scientist 'D' to "Build up some computer programmes for automation of some technical works related to Aviation Meteorology" at MWO Kolkata from 22<sup>nd</sup> June 2015.

## PUBLICATIONS

A research paper on "Rainfall Comparison of Automatic Weather Stations and Manual Observations over Bihar Region" by S/Shri R. K. Giri, Dr. D. Pradhan and A. K. Sen, has been published in International Journal of Physics & Mathematical Sciences ISSN:2277-2111 2015 Volume - 5 (2) April-June, pp1-22.

A research paper on "Study of Intra Seasonal Variability of District wise Monsoon Rainfall over Bihar Region" by Shri R. K. Giri, Dr. D. Pradhan and Shri A. K. Sen, has been published in Indian Journal of Science Research & Tech. 2015 3 (3):31-42. ISS-2321-9262.

A research paper on "Role of Satellite Derived Products in Monitoring the Fog at JPNI Airport Patna" by Shri R. K. Giri, Dr. D. Pradhan and Shri A. K. Sen, has been published in International Journal of Geology, Earth & Environmental sciences ISSN:2277-2081.2015 Vol. 5 (I) Jan-Apr, 79-88.

A research paper on "Dust Storm - A case study over Patna & Neighbourhood" by Shri R. K. Giri, Dr. D. Pradhan and Shri A. K. Sen, has been published in India Journal Science Research & Tech. 2015 3 (2): 51-60. ISS-2321-9262.

A research paper on "Role of Weather Parameters in Crop Yield Forecasting of Wheat over Bihar Region" by Shri R. K. Giri, Dr. D. Pradhan, Shri A. K. Sen and Shri Sandeep Kumar Parbat has been published in International Journal of Latest Research in Engineering & Science Vol-1/Issue-1/May 2015.

A research paper on "Study of Extreme Weather Events (Hot & Cold day wave) over Bihar Region" by Shri R. K. Giri, Dr. D. Pradhan and Shri A. K. Sen has been published in International Journal of Latest Research in Engg. & Science Vol-1/Issue-2/June-2015.

A research paper on "Study of Bio-Climate Indices over Bihar Region" by Shri R. K. Giri, Dr. D. Pradhan and Shri A. K. Sen, has been published in International Journal of Advance Research in Engineering & Applied Science issn:2278-6252. Impact factor: 5.795.

A Research paper on "Climate in Environment and their effects on Meteorology" by Shri Ranjan Sarkar, Shri S. K. Samanta, Shri Debasis Roy and Shri Subroto Mukherjee has been published In Indian Journal Vol. 4, 6, June 2015.

Met. Monograph No. ESSO/IMD/CLI/01(2015)/27 entitled, "Spatial variation of Potential Evapotranspiration (PE) values over India" by P. G. Gore and V. Vizaya Bhaskar has been brought out.

Paper entitled "Long term Characterization of Aerosol Optical Thickness over Jodhpur-Implication in Radiative Forcing" by V. Vizaya Bhaskar has been published in Atmospheric Environment Journal.

A paper entitled 'Meteorological Hazard Monitoring and Early Warning System; A Road Map for Bihar state for 2015-2030 by Dr. L. S. Rathore, DGM and Dr. M. Mohapatra, Scientist 'E' has been sent for publication.

Seventeen (17) Papers have been published in quarterly Departmental research journal Mausam, 66, 2 (April) 2015.

### MoU between IMD and POSOCO



An MoU has been signed between Earth System Science Organization - India Meteorological Department (ESSO-IMD) and Power System Operation Corporation Ltd. (POSOCO), a wholly owned subsidiary of Power Grid Corporation of India Ltd. in respect of "Use of weather information for better management of Indian Power System" on 18<sup>th</sup> May, 2015 at Shram Shakti Bhawan, New Delhi. MoU was signed by Dr. L. S. Rathore, DG, IMD and Shri S. K. Soonee, CEO, POSOCO in the gracious presence of Shri Pradeep Kumar Sinha, Secretary, Ministry of Power and other senior officers from Ministry of Power and Ministry of Earth Sciences. This MoU aims towards systematic use of Meteorological Information for better management of Indian Power System from generation to distribution and to increase overall efficiency of the power system operations.

### Media Interaction

Drought Outlook Maps for the month of June, four weekly aridity reports and maps for the month of June were prepared and uploaded on IMD Pune website. Two Biweekly Aridity anomaly reports and maps for the month of June have been issued by HQ, New Delhi, IITM, Pune and Ministry of Agriculture.

**Shri S. M. Metri**, Scientist 'D' participated in "live phone in programme" on 91.4 FM regarding recent unseasonal rainfall over Karnataka on 14<sup>th</sup> April, 2015 and "Suvarna TV Channel & Raja TV Channel" during June 2015. He also participated in "Radio Talk In Recent Weather Brief on Karnataka" on 24<sup>th</sup> May, 2015.

**Dr. S. D. Attri**, DDGM (O) participated in one-hour live programme on weather in Krishi Darshan at Doordarshan Kendra, New Delhi on 21<sup>st</sup> May, 2015.

**Shri S. B. Thampi**, Scientist 'E' participated in a chat show on Disaster Management in Doordarshan Kendra, Chennai on 27<sup>th</sup> May 2015.

**Shri K. V. Balasubramanian**, A. M. - I, four talklets on latest developments in Science and Technology and one talklet on World Environment Day of five minutes duration was broadcasted from 1-6 June 2015 at 7.25am on AIR Chennai-A.

**Dr. Geeta Agnihotri**, Scientist 'D', provided the information on the "Onset of Monsoon" in Hindi to DD Kisan channel on 5<sup>th</sup> June, 2015 and also provided the information on "Progress of Monsoon 2015 in Karnataka" on 30<sup>th</sup> June, 2015 to the same channel.

### SW MONSOON 2015 (Long Range Forecast)

Quantitatively, the monsoon seasonal rainfall was forecasted as 93% of the Long Period Average (LPA) with a model error of  $\pm 5\%$ . The LPA of the season rainfall over the country as a whole for the period 1951-2000 is 89 cm. The 5 category probability forecasts for the Seasonal (June to September) rainfall over the country as a whole is given below :

The forecast date of onset of southwest monsoon over Kerala was 30<sup>th</sup> May with a model error of  $\pm 4$  days . Long range forecast update for 2015 Southwest Monsoon season rainfall was issued on 2<sup>nd</sup> June, 2015. Quantitatively, the season rainfall for the country as a whole was forecasted as 88% of the long period average (LPA) with a model error of  $\pm 4\%$ . The LPA rainfall over the country as a whole for the period 1951-2000 is 89 cm. The 5 category probability forecasts for the season (June to September) rainfall over the country as a whole is given below.

Category	Rainfall Range (% of LPA)	Forecast Probability %	Climatological Probability %
Deficient	<90	33	16
Below Normal	90-96	35	17
Normal	96-104	28	33
Above Normal	104-110	4	16
Excess	>110	1	17

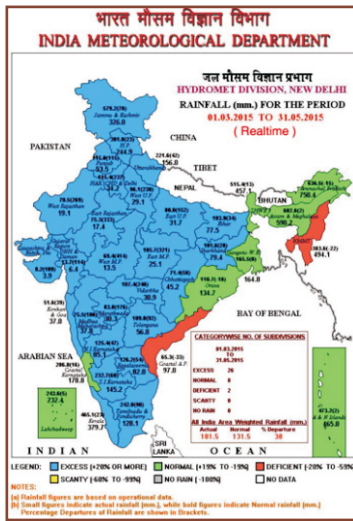


Category	Rainfall Range (% of LPA)	Forecast Probability %	Climatological Probability %
Deficient	<90	66	16
Below Normal	90-96	27	17
Normal	96-104	7	33
Above Normal	104-110	0	16
Excess	>110	0	17

The season rainfall was forecasted as 85% of LPA over North-West India, 90% of LPA over Central India, 92% of LPA over South Peninsula, and 90% of LPA over North-East India all with a model error of  $\pm 8\%$ .

The rainfall over the country as a whole was forecasted as 92% of its LPA for the month of July and 90% of LPA for August both with a model error of  $\pm 9\%$ . Surface normal (1981-2010) were generated of daily 0.5X0.5 degree gridded data in respect of maximum & minimum temperature were operational since June 2010. These data are being generated and put on IMD, Pune website.

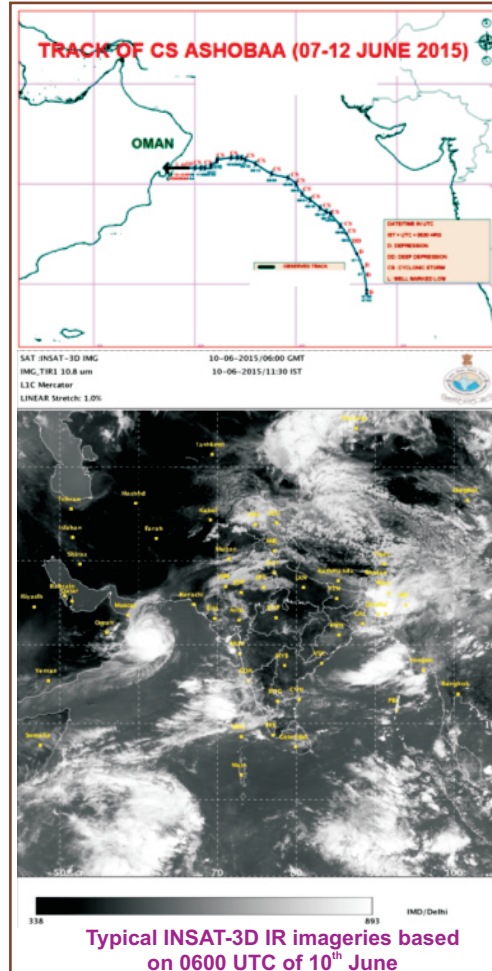
**Pre-monsoon season (April-May, 2015)**



Heat wave condition prevailed at isolated places for some days over Saurashtra & Kutch in the third week of April and over Andhra Pradesh, Madhya Pradesh and Maharashtra in the third week of May. Also heat wave to severe heat wave prevailed at some places over Telangana, northern and eastern parts of the country in the 4th week of May. Thunderstorm activity was observed in the country during the month of April and June, being severe over east and northeast India

on a few occasions. The seasonal rainfall during pre-monsoon season 2015 is shown in the figure. The country as a whole received rainfall 181.5 mm against the normal of 131.5 mm. The seasonal rainfall was 38% above normal. The seasonal rainfall was deficient over Odisha, West Bengal, Assam and Arunachal Pradesh. It was normal/excess over remaining parts of the country. The onset of monsoon over Kerala took place on 5<sup>th</sup> June against the normal date of 1<sup>st</sup> June. It advanced into entire country by 26<sup>th</sup> June against normal date of 15<sup>th</sup> July.

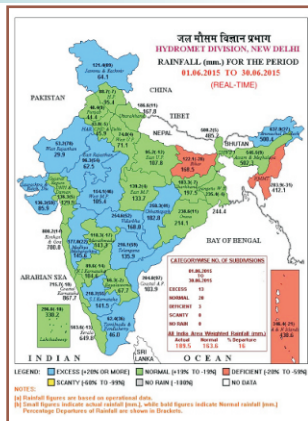
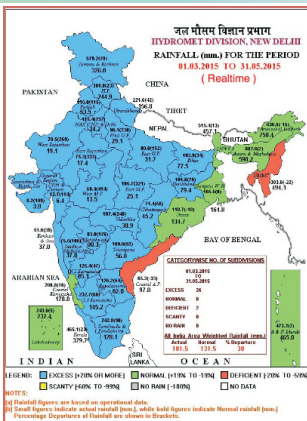
**Cyclonic Storm (CS) ASHOBAA over the Arabian Sea (7-12 June 2015)**



The Cyclonic Storm 'ASHOBAA' (7-12 June, 2015) developed over East Central Arabian Sea from monsoon onset vortex in the morning of 5<sup>th</sup> June, 2015. It gradually moved northwards and became a low pressure area over southeast and adjoining East Central Arabian Sea in the morning of 6<sup>th</sup> June. It concentrated into a Depression (D) in the morning of the 7<sup>th</sup> June over East Central Arabian Sea. Moving nearly north-northwestwards and it intensified into a Deep

Depression (DD) in the early hours of 8<sup>th</sup> June over East Central Arabian Sea. It further intensified into the Cyclonic Storm (CS) 'ASHOBAA' in the morning of 8<sup>th</sup> June and gradually intensified till the night of 10<sup>th</sup> June. Thereafter, while moving west-southwestwards from forenoon of 10<sup>th</sup> June to morning of 11<sup>th</sup> June, it encountered high vertical wind shear and low ocean thermal energy and started weakening. It slowly moved westwards over a colder oceanic region and weakened into a deep depression in the night of 11<sup>th</sup> June. Due to adverse environmental conditions, interaction with land surface and dry air intrusion from western side, it further weakened into a depression in the morning of 12<sup>th</sup> June and into a well marked low pressure area over northwest Arabian Sea and adjoining Oman coast in the evening of 12<sup>th</sup> June. The track of cyclonic storm ASHOBA and typical satellite imagery are given in Figure above. The salient features of this system are as follows. CS 'ASHOBAA' developed over east-central Arabian Sea during the onset phase of monsoon. (i) It had a unique track, as it moved initially northwards, then north-northwestwards and finally west-southwestwards towards Oman coast. (ii) It dissipated over northwest Arabian Sea off Oman coast before landfall. (iii) The numerical weather prediction (NWP) and dynamical statistical models provided reasonable guidance with respect to its genesis, track and intensity, though there was large divergence in model guidance with respect to track, intensity and landfall.

**Rainfall for the month of June and Pre-Monsoon Season 2015**



During Pre-monsoon Season 2015, the country received 181.5 mm of rainfall, 38% more than that of the normal rainfall of 131.5 mm for the season. Only 2 met. subdivisions, NMMT and Coastal Andhra Pradesh recorded deficient rainfall. Rest of the 36 meteorological subdivisions remained in normal/excess rainfall category. In June, rainfall for the country was 189.5 mm against the normal rainfall of 163.6 mm for the month thereby recording 16% of departure. In the month of June, all the meteorological subdivisions except for A & N Islands, NMMT and Bihar which recorded deficient rainfall, remained in excess/normal rainfall category. Sub-basin wise GFS model rainfall product for day1 to day7 has been made operational on Aditya Server and uploaded on IMD website which are useful for issuance of sub-basin wise operational QPF for 3 days and outlook for future 4 days.

