



# मौसम विज्ञान विभाग समाचार

# IMD NEWS

**INDIA METEOROLOGICAL DEPARTMENT**  
(Ministry of Earth Sciences)

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Hon'ble Minister MoES, Secretary MoES, DG, IMD during Press Conference

## WEATHER PREDICTION

### Long Range Forecast of Summer Monsoon

A Press Conference was organized by India Meteorological Department on Long Range Forecast on 26<sup>th</sup> April, 2013 at Arnav Conference Hall of MoES. Hon'ble Minister, Shri S. Jaipal Reddy, Union Minister for Science & Technology and Earth Sciences released Long Range Forecast for South-west monsoon season rainfall for the year 2013. Dr. Shailesh Naik, Chairman, ESSO and Secretary,

MoES, Dr. L. S. Rathore, Director General of Meteorology were also present and gave briefing to the media persons. Dr. D. S. Pai gave a brief presentation on atmospheric phenomena on background of Long Range Forecast. The Long Range Forecasts for the 2013 South-west monsoon season (Jun to Sep) are as follows :

### First Stage Long Range Forecast

- South-west monsoon seasonal rainfall for the country as a whole is most likely to be Normal (96 – 104% of Long Period Average (LPA)) with the highest probability of 46%. The probability (27%) of seasonal rainfall to be below normal (90 – 96% of LPA) is also higher than its climatological value. However, the probability for the seasonal rainfall to be deficient (below 90% of LPA) or excess (above 110% of LPA) is relatively low (10% and 3% respectively).

- Quantitatively, the monsoon seasonal rainfall is likely to be 98% of the 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.

### Second Stage Long Range Forecast

The updated LRF for 2013 southwest monsoon rainfall which was issued on 14<sup>th</sup> June 2013 follows :

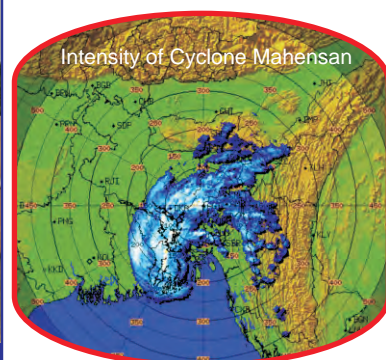
- Quantitatively, monsoon season rainfall for the country as a whole is likely to be 98% of the long period average (LPA) with a model error of  $\pm 4\%$ . The LPA rainfall over the country as a whole for the period 1951-2000 is 89 cm.

- Rainfall over the country as a whole for the month of July 2013 is likely to be 101% of its LPA and that of the month of August is likely to be 96% of LPA both with a model error of  $\pm 9\%$ .

- Over the four broad geographical regions of the country, rainfall for the 2013 SW Monsoon season is likely to be 94% of its LPA over North-West India, 98% of its LPA over Central India, 103% of its LPA over South Peninsula, and 98% of its LPA over North-East India all with a model error of  $\pm 8\%$ .



DG, IMD briefing to media about SW monsoon



Intensity of Cyclone Mahansen

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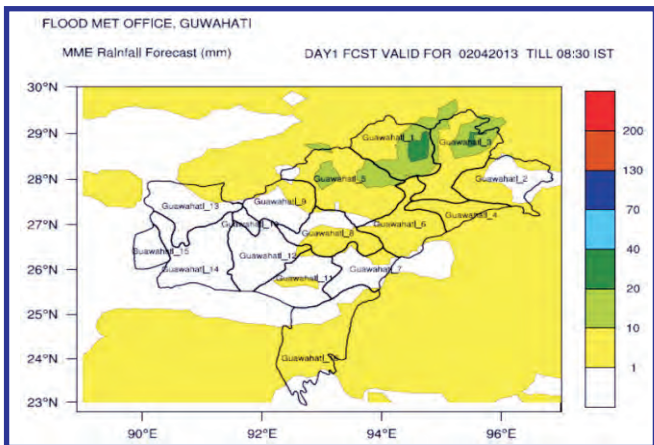
email : newsletter\_imd@yahoo.com



**NWP Model For Issuing QPF**

Sub-basin-wise Quantitative Precipitation Forecast (QPF) for day-1, day-2 and day-3 using NWP model, WRF (ARW) (9 km x 9 km) and Multi-model Ensemble (0.25° x 0.25°), are being issued by IMD's and it is being uploaded at website.

The lead time of QPF issued by regional flood meteorological offices has been extended from 24 hours to 48 hours and also outlook has been extended from 48 hours to 72 hours.



**FORMATION, MOVEMENT AND DECAY OF CYCLONE MAHASEN**

Two cyclonic disturbances formed over north Indian Ocean during April to June, 2013 but only one intensified into cyclonic storm over Bay of Bengal during 10-16 May, 2013 which was named 'Mahasen'. The cyclonic storm, Mahasen crossed Bangladesh coast near Lat. 22.8° N and Long. 91.4° E, about 30 km south of Feni around 1330 hrs IST of 16<sup>th</sup> May, 2013 with a sustained maximum wind speed of about 85-95 kmph. The genesis of the disturbance took place in a lower latitude, near 5 degree North. It was one of the longest track over north Indian Ocean in recent period after the very severe cyclonic storm Phet over the Arabian Sea. The cyclonic storm moved very fast about 40-50 km per hour on the day of landfall, i.e., on 16<sup>th</sup> May, 2013. Due to the faster movement, the adverse weather due to the cyclonic storm was relatively less. The track of the system is given Fig. (a).

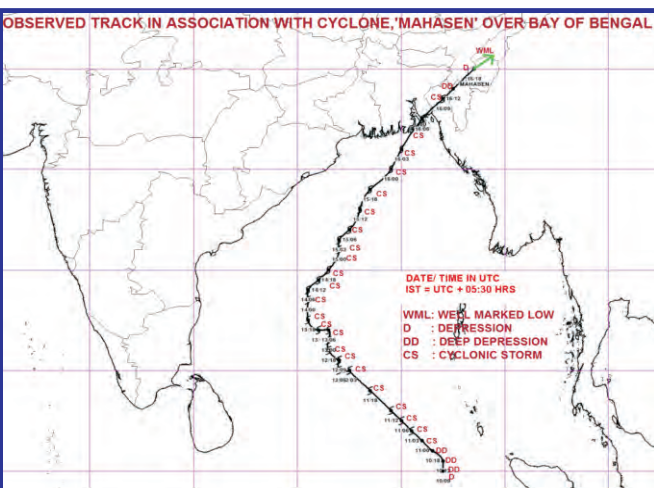


Fig. (a). Track of cyclone 'Mahasen'

**FORECAST VERIFICATION**

**(a) Track forecast error of cyclone Mahasen**

The average track forecast error is shown in figure (b). It was 152 km, 205 and 268 km respectively for 24, 48 and 72 hrs forecast period against the long period average of 146, 254 and 376 km based on the period of 2003-2012. Further, for the first time the track forecast was issued for 120 hrs lead period. The 96 and 120 hr average track forecast errors were about 308 and 222 km respectively. Usually the track forecast errors are higher worldwide for the recurving cyclones like Mahasen.

Hence, the track forecast errors of Mahasen has been compared with the average errors of recurving cyclones during 2003-12. It is found that the errors in case of Mahasen are significantly less than the average errors in case of recurving cyclones, as the average errors of recurving cyclones are about 91, 167, 249, 325, 398 and 474 km for 12, 24, 36, 48, 60 and 72 hrs lead period respectively.

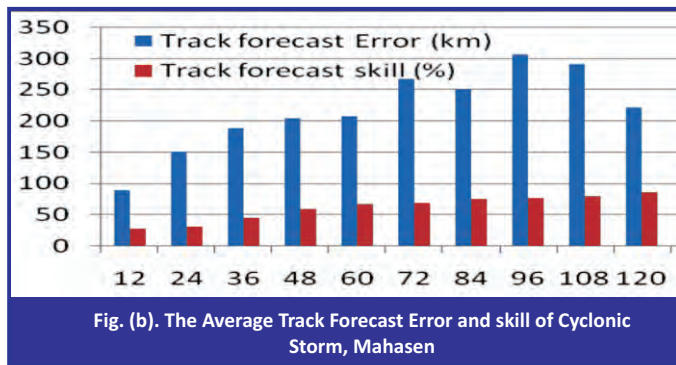


Fig. (b). The Average Track Forecast Error and skill of Cyclonic Storm, Mahasen

**(b) Landfall forecast error of cyclone Mahasen**

Considering the landfall forecast error the landfall point forecast errors 5 days before the landfall was about 100 km. It was 72, 125, and 165 km 24, 48 and 72 hrs respectively before landfall.

Considering the landfall forecast error the landfall point forecast errors 5 days before the landfall was about 100 km. It was 72, 125, and 165 km 24, 48 and 72 hrs respectively before landfall. However, the landfall time error was relatively higher in different forecast times. It was mainly due to the fact that the cyclonic storm, Mahasen moved very fast on the day of landfall which could not be predicted by most of the numerical weather prediction models.

**(c) Intensity forecast error of cyclone Mahasen**

The intensity forecast error [Average Absolute Error (AAE) and Root Mean Square Error (RMSE)] of IMD for cyclonic storm. The AAE was about 7, 10 and 15 knots against the long period average of 12, 13 and 19 knots based on the period of 2003-2012. The RMSE was about 09, 13 and 18 knots against the long period average of 15, 18 and 24 knots. Hence, both the AAE and RMSE are below the long period average.

### Pre-monsoon Rainfall

Real-time rainfall during pre-monsoon 2013 for the country as a whole was 78% of LPA. Out of the 36 Met. Sub-divisions, 4 were 'Excess'; 12 'Normal'; 13 'Deficient' and 7 'Scanty'.

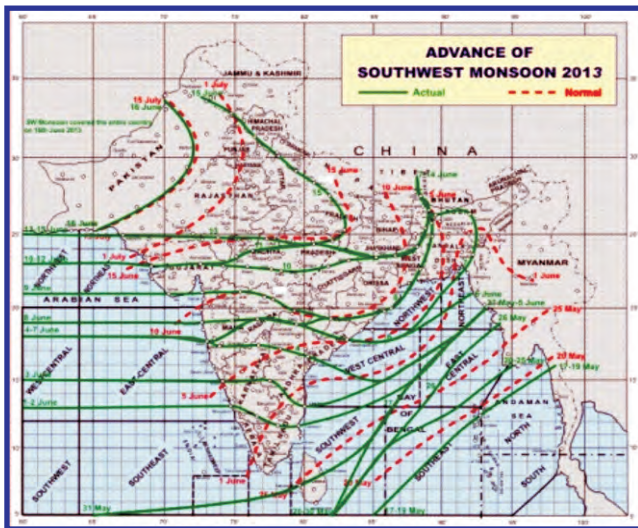
### Winter Season Rainfall

The Winter forecast for 2013 issued in December 2012, was correct. Forecast and realized rainfall for winter season 2013 precipitations were normal.

### EARLY ADVANCEMENT OF MONSOON

The monsoon this year had set over Kerala on schedule 1 June and advanced fast, covering the southern, eastern and central states within two weeks. The southwest monsoon reached two days ahead in UP on 13<sup>th</sup> June and Himachal Pradesh about 10 days in advance. Onset phase of Monsoon-2013 has been unprecedentedly vigorous due to which monsoon has rapidly advanced from East Uttar Pradesh to extreme NW India in just 24 hours. Such rapid movement of monsoon has not been observed earlier.

In last one decade, monsoon advancement was also rapid in 2008 but it was not so fast as it has been this year. As per the data available since 1960, the earliest coverage of the monsoon over the entire country was 21<sup>st</sup> June, 1961. The Monsoon-2013 has covered the entire country on 16<sup>th</sup> June thereby breaking the previous record of earliest onset over North West India.



### MODERNIZATION

#### Installation of UV-B radiometers

DDGM (SI) has procured 45 nos. of UV-B radiometers under the scheme "Augmentation of radiation network". All the sensors were tested in February to March. Subsequently radiation lab of this office started installation of UV B radiometers from 1<sup>st</sup> April onward. Total 11 nos. of UV B radiometers have been installed till date. Performance of the sensors is found to be satisfactory.

#### Wind tunnel



A new Wind Tunnel having a speed range of 0-70 mps is procured and installed at AWS lab, IMD, Pashan, Pune during May 2013 for calibration of Wind sensors and anemometers

#### Installation of Automatic Weather Station



Three (3) AWS observatories at Pahalgam, Chandanwadi and Baltal enroute Shri Amarnathji Yatra have been installed during April 2013.

#### Inauguration of Meteorological Office cum FMU



Meteorological Office cum Field Maintenance Unit, Jammu was inaugurated by Dr. L. S. Rathore, Director General of Meteorology, IMD in presence of Dr. O. P. Singh, Deputy Director General of Meteorology RMC New Delhi, Shri Sonam Lotus, Sc. 'C' of MC Srinagar and officials of MO Jammu on 16<sup>th</sup> April 2013. The inauguration function was followed by media briefing and interaction with users by DGM and Dy. DGM (RMC, New Delhi). During media interaction the salient features of IMD achievements were briefed.

## Residential Quarters at MC Chandigarh

The residential quarters at MC Chandigarh was inaugurated by Dr. L. S. Rathore, Director General of Meteorology in presence of Dr. O. P. Singh, Deputy Director General of Meteorology, RMC, New Delhi on 10<sup>th</sup> April, 2013. The inauguration function was followed by media briefing and interaction with users by DGM and DDGM.



## Software upgradation

A software upgradation of IMDPS system for INSAT-3D was installed at Sat. Met. Division by a team from SAC Ahmedabad during the period 16-23 May, 2013.

## WORKSHOPS

**Shri B. Mukhopadhyay**, Scientist 'F', DDGM (C), attended a workshop on "High Altitude Airship Research" (HAAR) at Bangalore on 3<sup>rd</sup> April, 2013.

**Dr. M. Mohapatra**, Sc. 'E' participated on the National Workshop on Post-2015 Framework for Disaster Risk Reduction held by MHA and UNDP on 24<sup>th</sup> April, 2013 at New Delhi.



**Shri M. K. Bhatnagar**, DDGM (Aviation Services) and **Shri M. K. Gupta**, DDGM, RMC Guwahati were present during the inaugural function of 'Workshop on TAF & OLBS' which was organized during 22-24 May, 2013 at RMC, Guwahati.

**Dr. R. S. Dattatrayam**, Head (Center for Seismology) and **Dr. A. K. Shukla**, Scientist 'F' (EHRA) attended the SAARC Workshop on Application of Science & Technology in earthquake risk mitigation for Urban Agglomerates in South Asia held on 24-25 May, 2013 in New Delhi and made presentation on earthquake risk mitigation on India's capability on Seismic Microzonation respectively.

## Get Ready Campaign – Monsoon 2013



Two days Forecaster's meet "Get Ready Campaign – Monsoon 2013" was organized by MC Jaipur on 7-8 June, 2013. Dr. L. S. Rathore, DGM chaired the meeting. Dr. O. P. Singh, DDGM, RMC New Delhi, Shri B. K. Bandyopadhyay, Dr. S. K. Roy Bhowmik, Dr. (Mrs.) Surinder Kaur, Shri Satish Bhatia and other delegates from all over IMD offices participated and made the meet a grand success. All the delegates put up various presentations on different topics related to weather. Print and electronic media was also briefed by Dr. L. S. Rathore, DGM. Dr. S. S. Singh, Director, MC Jaipur. They also presented, depicted the various services catered by MC Jaipur to the Media.

## ACTIVITIES

### न्यूजलेटर राजभाषा बुलेटिन का विमोचन



महानिदेशक महोदय डॉ. लक्ष्मण सिंह राठौड़ के कर कमलो द्वारा विभाग में हिन्दी की गतिविधियों से जुड़े न्यूजलेटर राजभाषा बुलेटिन के पहले अंक का विमोचन वृष्टि सभागार में दिनांक 10 अप्रैल, 2013 को किया गया।

### संसदीय राजभाषा समिति द्वारा मौसम कार्यालय-भुंतर का निरीक्षण

दिनांक 28 मई, 2013 को माननीय संसदीय राजभाषा समिति द्वारा मौसम कार्यालय-भुंतर (प्रादेशिक मौसम केन्द्र, नई दिल्ली का अधीनस्थ कार्यालय) का निरीक्षण किया गया। निरीक्षण के दौरान डॉ. एल. आर. मीना उपमहानिदेशक (सूचना प्रणाली एवं सेवाएँ प्रभाग) और वरिष्ठ हिन्दी अधिकारी सुश्री रेवा शर्मा उपरिथत रहे। वरिष्ठ हिन्दी अधिकारी सुश्री रेवा शर्मा और वरिष्ठ अनुवादक श्रीमती एव. अनुराधा ने दिनांक 24 मई, 2013 को मौसम कार्यालय भुंतर का राजभाषीय निरीक्षण किया।

### MOU Between IMD and Central Ground Water Board



DG, IMD and Chairman CGWB signing MoU

An MoU between IMD and Central Ground Water Board (CGWB), MoWR has been signed for setting up of Piezometers in IMD premises and Met. instruments in CGWB premises. The document has been signed by DGM, IMD (Dr. L. S. Rathore) and Chairman, CGWB (Shri Sushil Gupta) on 10 June, 2013 in the presence of Dr.(Smt) Surinder Kaur, DDGH(H); Member, CGWB and other officers from IMD and CGWB. The MoU will facilitate both the central government departments for sharing the resources.

### Publications

Mandal, H. S., Shukla, A.K., Khan, P. K. and Mishra, O. P., 2013, A new Insight into the Probabilistic Seismic Hazard Analysis for Central India. Pure and Applied Geophysics, doi: 10.1007/s00024-013-0666-x.

Mandal, H. S., Khan, P. K. and Shukla, A. K., 2013, Shear wave attenuation characteristic over the Central India Tectonic Zone and its surroundings. Journal of Asian Earth Sciences, Vol. 73, 440-451.

An article on drought by Sri P. S. Biju, Scientist 'C' published in the Kerala Government Official Magazine 'Janapatham'

Climate Diagnostics Bulletin of India for February 2013, March & April and Winter Season (Jan-Feb), 2013 were brought out during the period.

Fourteen (14) research papers and three (3) letters were published in departmental quarterly research journal MAUSAM, Vol. 64, No. 2 (April 2013).

### Video Conference

A video conference on monsoon working groups was organised on 29<sup>th</sup> May, 2013 by Dr. M. Rajeevan, Scientist 'G', MoES in the presence of Secretary, MoES, Dr. L. S. Rathore, DGM and other senior officers from IITM, Pune and NCMRWF. Dr. Y. E. A. Raj, DDGM made a presentation on the progress made in respect of MoES and IMD project on "Re-Determination of Onset Dates of Southwest Monsoon over India 1951-2010"

### Design Storm Studies

Design Storm Studies have been completed for eight (8) hydraulic projects and a revenue of Rs 10,43,603/- (Rupees Ten Lakh Forty Three Thousand Six Hundred Three Only) was generated for supplying of Design storm values.

### 122 Birth Anniversary of Dr. Baba Saheb Ambedkar



122<sup>nd</sup> Birth Anniversary of Dr. Baba Saheb Ambedkar was celebrated on 23<sup>rd</sup> April, 2013 at Vrishti Seminar Hall, Mausam Bhawan, Lodi Road, New Delhi. Shri S. Jaipal Reddy, Hon'ble Ministry of Science & Technology & Ministry of Earth Sciences was the chief guest. Dr. Udit Raj, Chairman All India Confederation of SC/ST and Dr. Raj Kumar Verka, Vice Chairman, National Commission for SC Government of India were the Special Guests.

### DISTINGUISHED VISITORS

#### Visit of Secretary MoES at MWO Palam



Secretary, MoES alongwith DIAL Officer at MO Palam

Dr. Shailesh Nayak, Secretary, Ministry of Earth Sciences (MoES) and Chairman Earth Commission visited Meteorological Watch Office, IMD, IGI Airport (IGIA) on 21 June, 2013 along with Dr. K. J. Ramesh, Advisor, MoES. Both the high dignitaries were received heartily and formally by heads of Met Office, ATC- AAI and DIAL and their senior officers. They formally interacted with senior officials of IMD, DIAL and ATC, where respective organization explained their activities and achievements during 2008-2013. IGI Airport has reached to the hall of the fame with rank two in the best airports in the world. They also visited the site of Met equipments and RVRs at RWY 29-11.

Prof. R. S. Bhalla, Ph.D, Sr. Research Fellow, Foundation for Ecological Research Advocacy and Learning (FERAL), Pondicherry visited RMC Chennai on 1<sup>st</sup> April, 2013 and had discussion with Dr. Y. E. A. Raj, DDGM, RMC Chennai in connection with a joint programme "Changing Water Cycle" jointly funded by Ministry of Earth Sciences and Natural Environmental Research Council, U.K.

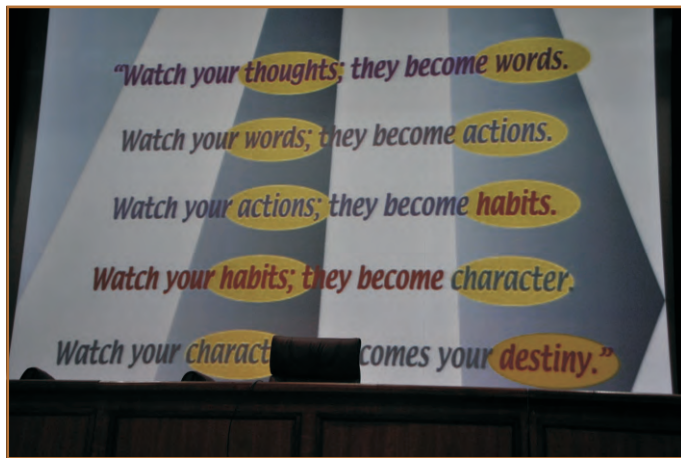
## LECTURES

डॉ दुर्गादत्त औझा द्वारा व्याख्यान



डॉ दुर्गादत्त औझा सदस्य संयुक्त हिन्दी सलाहकार समिति, विज्ञान एवं प्रौद्योगिकी मंत्रालय तथा पृथ्वी विज्ञान मंत्रालय ने दिनांक 10 अप्रैल को भारत मौसम विज्ञान विभाग लोदी रोड़ के वृष्टि सभागार में दो व्याख्यानो द्वारा राजभाषा हिन्दी का प्रशासन एवं विज्ञान में प्रयोग तथा रसायन विज्ञान और हमारे जीवन पर जीवन्त प्रकाश डाला। ये व्याख्यान पूर्णतः व्यवहारिक एवं ज्ञानवर्धक थे तथा रसायनों से होने वाले दुष्परिणाम एवं उससे बचाव का मार्ग व्याख्यान द्वारा दर्शाया। महानिदेशक महोदय ने इस अवसर पर एक स्मृति चिन्ह डॉ दुर्गादत्त औझा को भेंट किया।

## Living In Harmony with Nature



A motivational talk on 'Living in Harmony with Nature' was arranged at Vrishti Hall IMD, H.Q. New Delhi on the occasion of Environmental Week. The talk was delivered by Shri Rajyogi B. K. Piyush Brahamkumari Ishwariya Vishwavidyalaya on 11<sup>th</sup> June, 2013.

## MEETINGS

**Dr. Jayanta Sarkar**, Scientist 'E' participated in the meeting on "USE OF SAT MET PRODUCT FOR AGRO ADVISORY" at Space Application Centre (SAC) Ahmedabad on 3<sup>rd</sup> April 2013.

**Dr. L. S. Rathore**, DGM, IMD accompanied Dr. Y. E. A. Raj, DDGM RMC Chennai and Shri B. Puttanna, Director-In-Charge, M C Bangalore inspected Hesaraghatta site for installation of DWR on 24<sup>th</sup> April, 2013.

**Dr. S. C. Sahu**, Scientist 'E', M.C. Bhubaneswar participated in a meeting on implementation of GOI-UNDP Climate Risk Management Project to be implemented in Bhubaneswar under the Chairmanship of Chief Secretary and Chairman, OSDMA on 26<sup>th</sup> April, 2013.

**Dr. N. Chattopadhyay**, Head, Agrimet Division, Dr. K. Ghosh, Scientist 'D', Shri R. Balasubramanian, Scientist 'C' attended 2<sup>nd</sup> state level review meeting for the pilot project on "Dissemination of weather related information and advisory to the farmers through NABARD" on 6<sup>th</sup> May, 2013 held at Krishi Vigyan Kendra, Babhaleshwar, Maharashtra.

**Shri A. K. Sharma**, DDGM (Sat.Met.) attended the INSAT-3D Space craft Pre- Shipment Review (PSR) meeting on 16<sup>th</sup> May, 2013 at ISAC Bangalore.

**Dr. Medha Khole**, Scientist 'E' participated in a meeting with Dr. Shailesh Nayak, Secretary, MoES, Dr. M. Rajeevan, Scientist 'G', MoES and discussed on the progress and products of Climate data and monthly forecast on 1<sup>st</sup> May, 2013 at ADGM(R) office, Pune.

**Dr. A. K. Srivastava**, Dr. D. S. Pai, and Dr. P. Guhathakurta, Scientist 'E' attended a meeting of Working Group on Verification Methods and Datasets held at IITM, Pune on 30<sup>th</sup> April, 2013 under the chairmanship of Dr. M. Rajeevan, Advisor, MoES.

**Shri S. B. Thampi**, Scientist 'E', DWR Chennai along with Dr. S. R. Ramanan, Scientist 'E', attended review meeting on weather over SHAR for PSLV-C22 launch at SDSC SHAR, on 26<sup>th</sup> June, 2013.

**Dr. R. S. Dattatrayam**, Head (Center for Seismology) attended the meeting of the Research Advisory Council of Wadia Institute of Himalayan Geology (WIHG), Dehradun during 23<sup>rd</sup> - 24<sup>th</sup> April, 2013.

**Dr. M. Mohapatra**, Scientist 'E' participated in National Platform for disaster risk reduction organised at New Delhi by Ministry of Home Affairs during 13- 14 May, 2013 and delivered a lecture on "harnessing technology for improving meteorological system aiming disaster risk reduction".

**Shri Anand Sharma**, Scientist 'E', M.C., Dehradun participated in the meetings on disaster management on 24, 25, 27 and 28 June, 2013. These meetings were chaired by Shri Vijay Bahuguna, Chief Minister of Uttarakhand on 27<sup>th</sup>, Shri Sushil Kumar Shinde, Home Minister Government of India on 28<sup>th</sup> and Shri V. K. Duggal, Member, NDMA, New Delhi on 24 - 25 June respectively.

## HUMAN RESOURCES DEVELOPMENT

## Tropical Cyclone Forecasting Training



A training on Operational Tropical Cyclone Forecasting was organised by RSMC-Tropical Cyclone, New Delhi during 1-12 April, 2013. The forecasters from WMO/ESCAP countries viz. Bangladesh, Oman and Myanmar participated in the training. Also forecasters from Area Cyclone Warning Centres, Cyclone Warning Centres and RSMC, New Delhi participated in the training. The trainees were also attached to different divisions of IMD, NCMRWF and NIDM to be familiarised with activities relating to Cyclone prediction and disaster management. The course completion certificates were distributed to the trainees during the valedictory function held on 12<sup>th</sup> April, 2013.

## Hitachi Storage Systems

**Shri P. R. Baidya**, Scientist 'E' and **Shri R. K. Singh**, Scientist 'D' participated in the training on "Hitachi Storage Systems" installed at Seismology, IMD, Delhi as part of the project titled "Integration of Seismic and GPS observatories operated by various national agencies" from 8-9 May, 2013 at Indian National Centre for Ocean Information Services (INCOIS), Hyderabad.

## Agromet Observers' Training

Agricultural Meteorology Division, IMD, Pune conducted two batches of Agromet Observers' course of three weeks duration from 20<sup>th</sup> May to 7<sup>th</sup> June, 2013 and 10-28 June, 2013. Participants from the network of various Agromet and other observatories under different State Agricultural Universities/ICAR Institutions, State Department of Agriculture etc. participated in the course.



## INTERNATIONAL ASSIGNMENT

**Dr. D. P. Dubey**, Sc. 'E', participated in the Meeting of the WMO Forum : Social and Economic at WMO headquarters, Geneva Switzerland from 8-11 April, 2013.

**Shri V. K. Soni**, Sc. 'D' participated in 24<sup>th</sup> GAWTEC training Course conducted at Hohenpeissenberg/Zugsptize, Germany from 14-27 April, 2013.

**Dr. A. K. Srivastava**, Sc. 'E' and **Dr. D. S. Pai**, Sc. 'E' attended the 4<sup>th</sup> Meet of South Asian Climate Outlook Forum (SASCOF- 4) from 15-19 April, 2013 held at Kathmandu, Nepal.

**Dr. N. Chattopadhyay**, Head, Agrimet Division attended the meeting of Commission for Agricultural Meteorology (CAGM) Expert Team on Strengthening Operational Agrometeorological Services at National Meteorological Administrative Headquarter, Bucharest, Romania on 25-26 April, 2013.

**Dr. (Mrs.) Surinder Kaur**, Sc. 'F', IMD, New Delhi attended the 2<sup>nd</sup> meeting of Joint Working Group on cooperation in field of Water Management at Canberra Australia from 29 April to 3<sup>rd</sup> May, 2013.

**Dr. S. R. Ramanan**, Scientist 'E' attended a workshop on "Synergized Standard Operating Procedures for coastal Multi Hazards Early Warning System" in Bangkok, Thailand on 8-9 May, 2013.

## Regional Association II (Asia) Meet



Dr. L. S. Rathore, DG, IMD and Dr. S. D. Attri, Scientist-E with Russian delegation

The seventh session of the RA II Management Group (MG-7) was held at the WMO Headquarters in Geneva on Sunday, 12<sup>th</sup> May, 2013. During opening session Mr Ahmed Abdulla Mohammed, President of RA II, who chaired the session, extended a warm welcome to all participants. Dr. L. S. Rathore, D.G. IMD and PR of WMO represented India in this management group meeting. This regional association re-affirmed that the monitoring and evaluation are the tools to measure the performance of implementation of SOP. They also contributed to the identification of good practices and lessons learned with respect to implementation, as well as policy, strategic planning and programmatic design. The Group agreed that while monitoring is an ongoing function, evaluations should be conducted routinely and results should be reported to the future RA II sessions. Dr. S. D. Attri, DDGM(O) attended Indo-Russian Sub group meeting on meteorology during 18<sup>th</sup> May 2013 alongwith DG, IMD at Geneva.

**Dr. M. Mohapatra**, Shri B. P. Yadav, Scientist 'E' and Dr. Naresh Kumar Scientist 'C' participated in severe weather forecasting demonstration project training Workshop on "Severe Weather Forecasting and Warning Services for South Asia (including Bay of Bengal region)" at Macao, China, during the period from 8-13, 15-19 and 8-19 April, 2013 respectively.

### 65<sup>th</sup> Session of the Executive Council Meet



Dr. L. S. Rathore and Dr. S. D. Attri at 65<sup>th</sup> Session of the WMO Executive Council meet

The 65<sup>th</sup> Session of the Executive Council (EC-65) of the WMO was held during 15-23 May 2013 in Geneva, Switzerland. Dr. L. S. Rathore, DGM and P. R. of WMO who participated in this council meet, was also elected Member of WMO, Executive Council. Dr. S. D. Attri, DDGM(O), also attended 65<sup>th</sup> Session of WMO Executive Council at Geneva, Switzerland from 16-23 May, 2013. During this session, the Global Framework for Climate Services, implementation of the WMO Strategic Plan 2012-2015, resource management, communications and public affairs, and legal matters, among other things were discussed. On partnerships, the EC will hear reports on, inter alia: GFCS partnerships; WMO participation in the work of the UN Framework Convention on Climate Change (UNFCCC), UN Convention to Combat Desertification (UNCCD) and Convention on Biodiversity; WMO involvement in UN Water, in particular in the framework of the International Year of Water Cooperation; developments in establishing new working arrangements with the UNESCO International Hydrological Programme; Report of the Chair of the IPCC; Future Earth Research initiative (ICSU); and MoUs between WMO and relevant international organizations established since EC-64. During the session 23 resolutions were passed by the members. He also attended Financial Advisory Committee Meeting during 13-14 May, 2013.

**Dr. Y. V. Rama Rao**, Scientist 'E' NWP, IMD, New Delhi, Dr. S.I. Laskar, Scientist 'C', IMD, New Delhi and Shri Pinaki Mandal, S.A., RMC, Kolkata attended the training course on 3DVAR Data Assimilation in WRF Model at Dhaka, Bangladesh from 19-30 May, 2013.

**Dr. S. C. Sahu**, Scientist 'E', M. C. Bhubaneshwar was on deputation to Dhaka (Bangladesh) in a WMO sponsored project on "Forecasting demonstration project for Bangladesh (CIFDP-B) from 28-30 May 2013.

**Shri N. K. Pangasa**, Scientist 'F', IISD, New Delhi attended 18<sup>th</sup> meeting of SADISOPG at ICAO Western & Central African Office Dakar, Senegal from 29-31 May, 2013.

**Mr. M. K. Purohit**, Hydrology Section participated in the AWCI (Asian Water Cycle Initiative) training course on Improved Bias correction and downscaling techniques for climate change assessment including the drought indices held in Tokyo University, Tokyo during 18-20 June 2013 under APN (Asian Pacific Network) project. Dr. Koike, Head, Department of Civil Engineering, University of Tokyo, Japan awarded the certificate of accomplishment.

**Dr. D. R. Pattanaik**, Scientist 'D' participated in Workshop on Climate Services for farmers at Nairobi, Kenya during 10-14 June 2013.

**Dr. Y. E. A. Raj**, DDGM, RMC Chennai went on deputation to USA during 18-20 June 2013 for participating in the workshop on "Sustaining National Meteorological Services – Strengthening WMO Regional and Global Centres" held at University of Maryland and made a presentation on "Challenges in Severe Weather Forecasting– Role of Regional Specialized Meteorological Centre & what NMS need from Regional and Global Centres". He also attended the steering committee meeting on 20 June, 2013.



Dr. Y. E. A. Raj, DDGM, RMC Chennai giving presentation at University of Maryland

### ECLIPSE DURING APRIL 2013

A partial eclipse of the moon occurred after midnight of April 25<sup>th</sup> i.e. on April 26<sup>th</sup> from 01 hrs 22 min to 01 hrs 53 min hrs IST with a small magnitudes 0.20. The eclipse was visible in Australia Asia Africa, Europe and Antarctica and throughout India. The beginning of the umbral phase was visible from Eastern part of Australia, Japan and Korea. The duration of eclipse was 31 minutes.



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