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मौसम विज्ञान विभाग समाचार IMD NEWS

INDIA METEOROLOGICAL DEPARTMENT
(Ministry of Earth Sciences)



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Important Events / Activities

Long Range Forecast 2019 - Southwest Monsoon Seasonal Rainfall



Dr. M. Rajeevan, Secretary, MoES, Dr. K. J. Ramesh, DG, IMD, Dr. M. Mohapatra, Sc. 'G' and Dr. D. S. Pai, Sc. 'F' in a Press Conference of "Long Range Forecast for 20 SW Monsoon, 2019"

Long Range Forecast of the 2019 Southwest Monsoon Seasonal Rainfall was issued on 15th April, 2019 in the presence of Dr. M. Rajeevan, Secretary, MoES, Dr. K. J. Ramesh, DG, IMD, Dr. M. Mohapatra, Sc. 'G' and Dr. D. S. Pai, Sc. 'F' through a Press Conference on the "1st stage Long Range Forecast (LRF) for Southwest Monsoon rainfall for 2019" at Prithvi Bhawan, New Delhi. The summary of the Forecast Assessments are "Southwest monsoon seasonal (June to September) rainfall over the country as a whole is likely to be near normal. Quantitatively, the monsoon seasonal (June to September) rainfall is likely to be 96% of the Long Period Average (LPA) with a model error of $\pm 5\%$ ".

"Annual Monsoon Review/Annual Cyclone Review Meeting 2019"



Dr. K. J. Ramesh, DG, IMD and other officials during AMR/ACR meeting

Dr. K. J. Ramesh, DG, IMD and other officers of IMD were attended "Annual Monsoon Review (AMR)/Annual Cyclone Review (ACR) Meeting 2019" during 27-28 April, 2019 at Mahatma Gandhi State Institute of Public Administration (MGSIPA) Punjab, Sector - 26, Chandigarh. Sixty Seven (67) delegates from all over India participated in the meeting.

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Important Events

ANTI-TERRORISM DAY

Pledge on Anti-Terrorism Day was administered to all officers and staff members of IMD at H. Q. and sub offices of IMD on 21st May, 2019.



Pledge on anti-Terrorism Day at M.C., Bengaluru

WORLD ENVIRONMENT DAY

“World Environment Day” was celebrated at IMD, H.Q. and sub offices of IMD on 5th June, 2019. On this occasion, Dr. V. Vizaya Bhaskar, Sc. ‘E’ delivered a lecture on Acid Rains at M/s Tata Motors at Pune.



World Environment Day at RMC Guwahati

INTERNATIONAL YOGA DAY



Officials of IMD during Yoga Day at RMC, Kolkata

International Yoga Day was celebrated at IMD, H.Q. and sub offices of IMD on 21st June, 2019. On this occasion, various

activities were organized. A Yoga Camp was organized by RMC Kolkata and training was imparted by representatives of Art of Living Centre.

Human Resource Development Activities

CONFERENCES/SEMINAR/TALK

Dr. S. D. Attri, Sc. ‘F’ delivered lead talk on “Weather and climate services for Indian Agriculture” in FAI’s (Fertilizer Association of India) programme on “Recent Developments and Challenges in Fertilizer Sector” organised at Haridwar, Uttarakhand during 8-11 May, 2019.



Dr. S. D. Attri, Sc. ‘F’ during the talk

Shri C.S. Patil, Sc ‘D’ delivered a talk on “Landslide vulnerability and risk mitigation in Karnataka” for the training held for officers of State Government at Administrative Training Institute, Mysuru on 19th June, 2019.

Dr. Mrutyunjay Mohapatra, Sc. ‘G’, participated in the Annual Conference on capacity building of SDRF's during 29-30 June, 2019 held in New Delhi and presented an invited talk on “Disaster Forecasting: Current status and prediction capacity building roadmap”.

Shri Y. K Reddy, Sc. ‘F’ and Dr A. Sravani, Sc. ‘B’ attended National seminar on “Flood Early Warning for disaster risk reduction” organized by NRSC & National Hydrology Project at Hyderabad on 30-31 May, 2019.

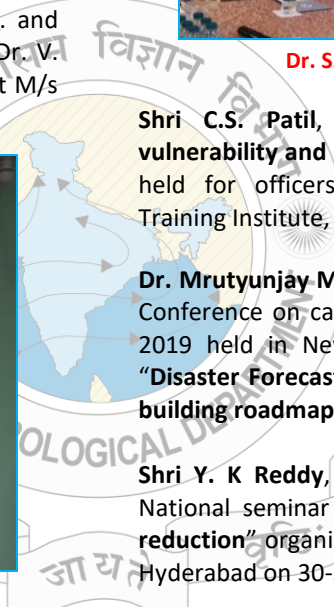
TRAININGS

Dr. Rajavel Manickam, Sc. ‘D’ and Smt. N. Saraswati, S.A. conducted a training programme on block level advisories on 16th May, 2019 at KSNDMC, Bengaluru.

Dr. S. Bandyopadhyay, Sc. ‘F’ inaugurated Integrated Meteorological Training batch No.VI at Salt Lake Training Centre, Kolkata for new recruited SAs on 11th June, 2019.



Dr. S. Bandyopadhyay, Sc. ‘F’ during training



Dr. S. L. Singh, Sc. 'F' attended "Deep Dive Training Programme" during 19-22 June for security of IT systems organized by Ministry of Electronics and Information Technology.

WORKSHOPS

Shri Rohit Thapliyal, Sc. 'B' attended a workshop on "Earth and Environment" organized by Pt. L. M. S. Govt., P.G. College, Rishikesh, Dehradun on 22nd April, 2019.

Shri N. T. Niyas, Sc. 'D' attended a workshop on "Environment, Climate Change-Biodiversity Conservation and Capacity building" organised by Kerala Institute of Local Administration at Thrissur, Kerala on 20th May, 2019.

Shri Rohit Thapliyal, Sc. 'B' attended state workshop for "Research & advice on MAP cultivation and Multi stakeholder consultation for improving technical support to farmers" held in Dehradun from 7- 8 June, 2019.

Dr. S. D Attri, Sc. 'F' attended MoEF & CC workshop to celebrate "World Day to Combat Desertification" to mark the 25th anniversary of the UN Convention to Combat Desertification (UNCCD) on 17th June, 2019 which was inaugurated by Ho'ble Minister of MoEF & CC at Vigyan Bhawan, New Delhi.

Shri Anand Sharma, Sc. 'F' invited as Chief Guest at the National Workshop on 17th June, 2019 by R. K. Goel Institute of Technology and Management, Gaziabad and delivered lead talk on "Role of weather and Climate in Sustainable Development".



Shri Anand Sharma, Sc. 'F' as Chief Guest at National Workshop

Dr. S. Bandyopadhyay, Sc. 'F' attended workshop on "Developing Model for Forecasting Climate-Sensitive Waterborne Diseases" and delivered a lecture on the topic "Current Perspectives on Climate Change". The workshop was organized by ICMR- National Institute of Cholera and Enteric Diseases on 19th June 2019.

Dr. K. J. Ramesh, DG, IMD, Dr. K. K. Singh, Sc. 'G', Dr. S.O. Shaw, Sc. 'E' and Shri Sanjay Bist, Sc. 'E' attended workshop cum "Interaction meeting in Lightning Resilient India Campaign and Agromet Advisory Services in NER of India at NESAC", Umium, Barapani, near Shillong on 22nd June, 2019.

M. C. Hyderabad conducted a awareness workshop for Media Persons on 24th June, 2019 in which 26 media persons participated. Shri Rajeshwar Tiwari, IAS, Principal Secretary to Govt. of Telangana and Relief Commissioner addressed the gathering and appreciated IMD for improved forecasting and conducting awareness workshop.

Dr. Mrutyunjay Mohapatra, Sc. 'G' co-chaired the session on "Flood Forecasting - New Initiatives by Central Water Commission" during the workshop on "Flood Management" on 26th June, 2019 at New Delhi.

Dr. Jayanta Sarkar, Sc. 'F' attended interactive Stakeholders workshop for evolving Rajkot "Heat Stress Action Plan" organized by IIPH, Gandhinagar at Rajkot on 26th June, 2019.

Dr. Kripan Ghosh, Sc. 'E' attended the workshop on "Soil Moisture Estimation" chaired by Joint Secretary (IT/Crops/FW), DAC&FW in Ministry of Agriculture & Farmers Welfare, Krishi Bhavan, New Delhi on 26th June, 2019.

Dr. M. Mohapatra, Sc. 'G' was invited as a Guest of Honour in the Valedictory Function of the "National Training Workshop on Disaster Risk Reduction organized by VV Giri National Labour Institute (VVGNI), Noida" and NIDM, MHA, New Delhi on 28th June, 2019 and delivered a talk on cyclone warning services.

Dr. Pulak Guhathakurta, Sc. 'F' attended a workshop on "Safe and Sustainable Technologies and Strategies for integrated Fresh water Resource management" at JSS Academy of Higher Education and Research, Mysuru from 25- 28 June, 2019.



Dr. Pulak Guhathakurta, Sc. 'F' during the workshop at Mysuru

LECTURES

Shri C. S. Patil, Sc. 'D' delivered a lecture on "Early warning and forecasting of drought, flood, cyclone, role of IMD" at Administrative Training Institute, Mysuru on 17th May, 2019.

Dr. A. K. Srivastava, Sc. 'F', Dr. A. Kashyapi, Sc. 'F', Dr. Pulak Guhathakurta, Sc. 'F' and Dr. O. P. Sreejith, Sc. 'E' delivered lectures in the training program for "Hydro-Met (HM) Cadre of CWC (PAMET)" at Central Water Commission National Water Academy, Pune from 3-7 June, 2019.



Shri Rohit Thapliyal, Sc. 'B' delivered a lecture on "**Weather and Climate**" on 9th June, 2019 to the newly promoted PGT (Geography) teachers of Kendriya Vidhyalaya in K. V., ITBP, Dehra Dun.

Shri Anand Sharma, Sc. 'F' delivered an invited lecture on "**Role of weather forecast and warning in disaster management**" on 15th June, 2019 at the HRDC, Kumayun University, Nainital.

Infrastructure Development & Installations

Agro Meteorological Observatory was installed at **AMFU G. Udaygiri and AMFU Bhubaneswar** in April, 2019.

Shri Anand Shankar, Sc. 'B' attended a pre bid meeting as a member of technical committee for installation of **AWS/ARG** in all block level in Bihar by Department of Planning and Development, Govt. of Bihar on 26 and 30 April, 2019.

Shri Bikram Singh, Sc. 'F' inspected the site for installation of weather display screen at Rishikesh, Uttarakhand on 10th May, 2019 under the project "**Development of Tourism & Pilgrimage Forecast Services**".

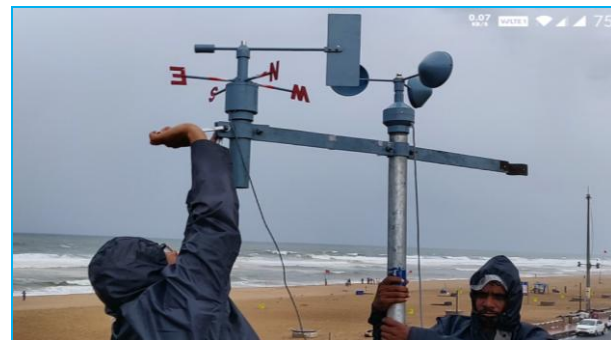
A new Departmental observatory is set up at **MO Salt Lake** and started functioning with effect from 1st June, 2019. **Dr. S. Bandyopadhyay**, Sc. 'F' has formally inaugurated on 11th June, 2019.



Inauguration of MO Salt Lake observatory

New Installations: First phase of Mumbai Western Railway ARG Project completed. In this project **Six Automatic Rain gauges** were installed by AWS Mumbai team under the supervision of **Shri P. S. Biju**, Sc. 'E' at Bandra, Mahalaxmi, Bhayander, Mira Road, Dahisar and Ram Mandir.

Shri R. M. Kamble, Met. 'A' and **Shri P.R. Mehtre**, SA were on tour to M.O. Veraval for **Installation of H.W.S.R. system** from 12-15 June, 2019.



Installation of H.W.S.R system

Inter-Agency Meetings

Shri H. R. Biswas, Sc. 'E' attended the meeting on "**Live demonstration on Decision Support System (DSS) Software for disaster Management**" at Bhubaneswar on 3rd April, 2019.

Shri G. N. Raha, Sc. 'D' attended meeting organized by Sikkim State Disaster Management Authority, Govt. of Sikkim on 4th April, 2019 for formulation of detailed Project Report for "**Glacial Lake Outburst Flood risk management**" at Tashiling Secretariat, Gangtok, East Sikkim.

Shri B. P. Yadav, Sc. 'F' attended a meeting for "**Developing Hydro-meteorological Resilient Action Plans (HmRAP)- Constitution of Consultants Evaluation Committee**" on 5th April, 2019 at NDMA Bhawan, New Delhi.

Dr. Jayanta Sarkar, Sc. 'F' attended a meeting on "**Heat Action Plan**" at Ahmedabad Municipal Corporation on 5th April, 2019.

Shri K. V. Singh, Sc. 'E' and **Dr. A. K. Das**, Sc. 'E' attended a meeting on "**Fourth Inter Ministerial Co-ordination meeting of Yarluns Tsangpo (Brahmaputra) River**" at Sardar Patel Bhawan, New Delhi on 8th April, 2019.

Dr. S. O. Shaw, Sc. 'E' attended meeting of "**Flood Preparedness**" called by the Chief Secretary of Assam on 12th April, 2019.

Shri D. K. Borthakur Met. 'B' and **Mrs. R. B. Gayary** Met. 'A' attended a meeting for "**Flood Forecasting preparedness**" related activity held on 12th April, 2019 at CWC Adabari Guwahati under the chairmanship of Engineer B & BBO, CWC Shillong.

Dr. S. O. Shaw, Sc. 'E' attended meeting of "**Core Group committee constituted for data sharing amongst stake holders**" at Brahmaputra Board, Guwahati on 16th April, 2019.

Smt. Manorama Mohanty, Sc. 'E' and **Shri K. G. Kacha**, Met. 'A' attended a meeting with **Shri Manoj Gangal**, Airport Director Ahmedabad regarding "**Installation of DWR**" at M.C. Ahmedabad on 18th April, 2019.

Dr. Devendra Pradhan, Sc. 'G', **Shri K. C. Sai Krishnan**, Sc. 'F', **Shri K. S. Hosalikar** Sc. 'F' and **Dr. Jayanta Sarkar**, Sc. 'F' attended a meeting with CPWD officials and the Airport Director

on 22nd April, 2019 regarding **“DWR installation”** at Ahmedabad and construction of new M.C. Ahmedabad building.

S/Shri S. M. Metri, Sc. ‘E’ and C. S. Patil, Sc. ‘D’ attended a meeting on Progress of **“Brahut Bengaluru Mahanagar Palike”** works under the chairmanship of Chief Secretary, Bengaluru on 23rd April, 2019.

Dr. Kripan Ghosh, Sc. ‘E’ attended board of studies meeting in **“Agricultural Meteorology Discipline at Centre for Advanced Faculty of Training in Agricultural Meteorology (CAFT)”**, Pune on 24th April, 2019.

Dr. S. Bandyopadhyay, Sc. ‘F’ attended a meeting with Hon’ble Mayor of Kolkata Municipal Corporation in connection with **“Removal of water and to combat flood”** during the period of ensuing monsoon on 29th April 2019.

Dr. Shashi Kant, Sc. ‘B’ attended a **“Pre-Cyclone Exercise”** meeting at Secretariat chaired by Chief Secretary, Odisha on 29th April, 2019.

Dr. S. Bandyopadhyay, Sc. ‘F’ and Dr. G. K. Das, Sc. ‘D’ attended a meeting with Chief Secretary, Govt. of West Bengal at Nabanna to apprise him regarding the **“Latest situation of very severe Cyclonic Storm ‘FANI’ and its impact over West Bengal”** on 30th April, 2019.

Shri H. R. Biswas, Sc. ‘E’ attended the Review Meeting on Cyclone **“FANI”** on 1st and 3rd May, 2019 at Secretariat chaired by Hon’ble Chief Minister, Odisha.

Shri G. N. Raha, Sc. ‘D’ attended **“Flood Preparedness Meeting”** on 2nd May, 2019 in the office of Irrigation & Waterways Directorate, Club Road, Jalpaiguri.

Shri K. Santhosh, Sc. ‘F’ attended a meeting with the Chief Secretary of Kerala on 4th May, 2019 at Govt. Secretariat, Thiruvananthapuram, in connection with the visit of Hon’ble Prime Minister on 8th June, 2019.

Dr. S. D. Kotal, Sc. ‘E’ and Shri S. C. Mondal, Met ‘A’ attended a meeting at B. M. Airport, Ranchi organized by SPG regarding **“Security and Weather related matter”** on 6th May 2019.

Dr. S. D. Attri, Sc. ‘F’ attended a meeting on **“Policy Review of SMS Dissemination through m-Kisan portal of MoAg & FW”** at Krishi Bhawan on 14th May, 2019 held under the chairmanship of JS (IT).

Dr. Jayanta Sarkar, Sc. ‘F’ attended a state level pre monsoon meeting chaired by the chief secretary, Govt. of Gujarat, at Gandhinagar regarding **“Monsoon 2019 preparedness”** on 15th May, 2019 and gave a presentation.

Shri H. R. Biswas, Sc. ‘E’ attended the 1st & 2nd Meeting for the year 2019-20 of the State Executive Committee constituted under the **“Disaster Management Act, 2005”** under the chairmanship of Chief Secretary at Secretariat, Bhubaneswar on 16 and 24 May, 2019 respectively.

Dr. Shashi Kant, Sc. ‘B’ attended the State Level Coordination Committee on **“Crop Insurance (SLCCI) for implementation of PMFBY”** during 2019-20 at Odisha Secretariat on 18th May, 2019.

Shri Anand Shankar, Sc. ‘B’ attended a meeting on **“Urban flooding organized by BSDMA”** Govt. of Bihar, chaired by Chairman, BSDMA on 21st May, 2019.

Dr. A. K. Das, Sc. ‘E’ attended the 72nd meeting of **“Technical Advisory Committee of NIH”** on 3rd June, 2019 at Committee Room, Sewa Bhawan, CWC, New Delhi.

Dr. Pulak Guhathakurta, Sc. ‘F’ attended the meeting for the revision of **“Mission Document, National Water Mission”** under the chairmanship of Secretary Ministry of Water Resources, River Development & Ganga Rejuvenation on 6th June, 2019 at Shram Shakti Bhawan, New Delhi.

Dr. S. D. Kotal, Sc. ‘E’ attended a meeting organized by **“Disaster Management”** Govt. of Jharkhand at Nepal House, Doranda, Ranchi on 11th June, 2019.

Dr. Jayanta Sarkar, Sc. ‘F’ attended meetings with Hon’ble Chief Minister of Gujarat Shri Vijaybhai Rupani at Gandhinagar regarding cyclone **“VAYU”** on 11-14 June, 2019.



Dr. Jayanta Sarkar, Sc. ‘F’ attended meetings, with Hon’ble Chief Minister of Gujarat Shri Vijaybhai Rupani

Dr. Shashi Kant, Sc. ‘B’ attended the meeting of the **“16th State Level Monitoring Committee (SLMC)”** for implementation of PMFBY in the state at Krushi Bhawan, Bhubaneswar on 11th June, 2019.

Dr. Jayanta Sarkar, Sc. ‘F’ attended a **“Weather watch group”** meeting at State Emergency Operation Cell, Govt. of Gujarat, at Gandhinagar regarding **VAYU cyclone** on 18th June, 2019.

Mr. R. S. Sharma, Sc. ‘B’ attended a meeting at Project Bhawan, Ranchi in connection with **“Crop weather watch group (CWWGDM) VC”** on 19th June, 2019.

Dr. Jayanta Sarkar, Sc. ‘F’ attended a meeting, with ICAR, Govt. of Gujarat & CRIDA under chairmanship of Additional Chief Secretary (Agri) regarding better preparedness to handle **“Weather Aberrations During Kharif Season-2019”** at Gandhinagar on 21st June, 2019.



Dr. K. J. Ramesh, DG, IMD, Dr. S.O. Shaw, Sc. 'E' and Shri Sanjay Bist, Sc. 'E' attended meeting with senior officials of POSOCO at Shillong on 21st June, 2019, regarding **"Weather Services Provided By IMD"** and installation of AWS in their sites.



Dr. K. J. Ramesh, DG, IMD and officers of IMD at Shillong

Shri H. R. Biswas, Sc. 'E' attended a meeting on **"Flood Atlas Release of Odisha"** under the Chairmanship of Hon'ble Chief Minister on 22nd June, 2019 at Odisha Secretariat, Bhubaneswar.



सत्यमेव जयते

Awards & Recognitions



Excerpt of Appreciation from United Nations Office for Disaster Risk Reduction

The government's zero casualty policy for natural disasters and the near accuracy of the India Meteorological Department's early warning system have helped reduce the possibility of deaths from cyclone "FANI".

Dr. Mrutyunjay Mohapatra, Sc. 'G' elected as a member of Executive Council, WMO for the period 2019-23. Dr. Mohapatra won 110 out of 143 polled votes, resounding Victory for India.



Dr. M. Mohapatra, Sc. 'G' elected as a member of EC, WMO

The Executive of The Society of Earth Scientists (SES) has selected to **Shri Raja Acharya**, Met. 'A' as a Fellow of the SES. Dr. K. J. Ramesh, D.G., IMD and Dr. Mrutyunjay Mohapatra, Sc. 'G' has congratulated him on this achievement.

Research & Publications

Six (6) review articles and Eight (8) research papers were published in quarterly research journal **MAUSAM Vol. 70, No. 2 (April, 2019)** on the occasion of 70th years publication

Media Interaction

Dr. S. D. Kotal, Sc. 'E' and Shri R. S. Sharma, Sc 'B' visited Doordarshan, Ranchi and participated in discussion on subject **"Climate Change"** on 10th May, 2019.

Dr. D. S. Pai, Sc. 'F' and Shri R. Balasubramanian, Sc. 'D' visited Doordarshan Kendra, Kothrud, Pune on 24th May, 2019 and participated in **"Amchi Mati Amchi Manse"** programme on **"Weather forecast and Agromet Advisory Services for Maharashtra"** jointly organized by India Meteorological Department, State Department of Agricultural and State Agricultural Universities in Maharashtra.

Shri S. M. Metri, Sc. 'E' participated in a live programme in a live phone-in programme on Doordarshan, Bengaluru on 4th June, 2019.

Dr. Geeta Agnihotri, Sc. 'E' and Shri C. S. Patil, Sc. 'D' participated in a live phone-in programme in **"Kannada on weather forecast"** on Doordarshan, Bengaluru on 25th June, 2019 at 6.30 pm.



Dr. Geeta Agnihotri, Sc. 'E' and Shri C. S. Patil, Sc. 'D' during live phone-in programme on Doordarshan

Mr. N. P. Kulkarni, Sc. 'B' delivered a talk on 26th June, 2019 on All India Radio, **"Satara on Agricultural Advisories"** Planning with respect to monsoon 2019.

Shri Anand Sharma, Sc. 'F' was one of the panelist for Lok Sabha TV interview on Glaciers and the programme was on telecast on 29-30 June, 2019 respectively. The other panelist was Dr. Gausain, Emeritus Professor, IIT, Delhi.

Visitors

A group of Scientist from DRDO, headed by Dr. A. K. Rajdan, Sc. 'G' along with Shri B. Sinha, Sc. 'F' and Shri Gajendra Kumar, Sc. 'E' from IMD visited **AMO Kolkata** for conducting **"Thunderstorm related experiment-LIDAR"** from 4-9 April, 2019.

35 students of MBBS along with two Professors, from Sola medical college GMERs, Ahmedabad visited **Met Centre, Ahmedabad** on 5th April, 2019. They were briefed regarding taking **surface and u/a observation, Forecasting procedure and the activities of IMD.**

About 60 no. of students with faculty members from Kejriwal Management institute of Ranchi visited **M. C., Ranchi** on 15th April, 2019. They were briefed by IMD officials about basics of **forecasting, observatory sites, RS/RW observation** etc.

50 no's of student from Veterinary College, Khanapara Guwahati on 29th April, 2019 and another 50 no's of student on 30th April, 2019 visited **RMC Guwahati.**

Twenty two Met trainees and an Instructor from SNOM Kochi visited **DWR Chennai** on 6th May, 2019 as a part of their curriculum. They were explained about the principles and working of DWR and utilities of products.

40 B.Sc/M.Sc students of Manav Rachna Vishvidyalya, Faridabad visited **Satellite Meteorology Division** at IMD, H.Q. New Delhi on 6th May, 2019 for familiarization with the activity of satellite Meteorology Division.

Nineteen Students from Naval base Kochi visited **MTI, Pune** on 10th May, 2019. Shri R.K. Oke, Met. 'A' and Shri Y.S. Visale, Met. 'A' explained the different activities of MTI such as observatory.

28 M.B.B.S. (6th Semester) students along with 2 faculty members from Govt. Doon Medical College, Dehradun visited **M.C., Dehradun** on 16th May, 2019 and shown Met-Observatory and briefed about functioning of the observatory by Shri Man Mohan Saklani, Met. 'B' and a lecture was delivered by Shri Rohit Thapliyal, Sc. 'B' on Weather & Climate to the students.



M.B.B.S. students alongwith officials of IMD at M.C. Dehradun

Thirty Four Met Trainees along with two Instructors (IPT COURSE IPT 01/18) from Air Force Station, Tambaram visited **DWR Chennai** on 28th May, 2019 as part of their curriculum. They were explained about the principles of **DWR and utility of products in weather forecasting.**

160 students of Modern High School, Kolkata visited in **RMC Kolkata** for Educational Tour, on 18-19 June, 2019. Various section of this office had familiarized them about departmental activities.

Dr. L. S. Rathore, Ex DGM (IMD) consultant World Bank visited satellite meteorology Division along with four World Bank officers on 25th June, 2019 to familiarize the officers with the activity of satellite meteorology division.

Tour

Shri Saurabh Kumar, S.A. and Shri Ravi Raushan, S.A. has completed tour from date 5-16 April, 2019 in connection with corrective maintenance cum revival of AWS Bokaro, AWS Giridih, AGRO-/AWS Dumka AWS Sahebganj and AWS Godda. The u/s AGRO/AWS Dumka has been revived.

Shri V. Aravindan, Radio Mechanic, was on tour to DWR Kolkata from 1-13 April, 2019 for servicing of "**Doppler Weather Radar**". The team successfully brought back the radar into operation after servicing.

National / International Collaboration

Odisha State Disaster Management Authority (OSDMA), collaboration with IMD and other departments and district administration, has organized Annual Mock Drill on 19th June, 2019. As part of Annual Disaster Mock Drill, Dummy Messages on Cyclones etc. were issued by **IMD, Bhubaneswar** during 18-19 June, 2019.

Foreign Visit

Dr. N. Puviarasan, Sc. 'E' was on Ex-India deputation to Abu Dhabi during 2-4 April, 2019 to participate in the "**CCL-17 FOCUS AREA-4**" Meeting.

Dr. V. Vizaya Bhaskar, Sc. 'E' was on Ex-India deputation to Vienna (Austria) during 7-12 April, 2019 to attend the "**European Geosciences Union (EGU) - General Assembly-2019 - 30th anniversary of Global Atmospheric Watch (GAW) Meeting**".

Dr. D. R. Pattanaik, Sc. 'E' was on Ex-India deputation to Ankara, Turkey during 15-26 April, 2019 to participate in the "**Eleventh International Training Workshop Climate Variability and Prediction (11th ITWCVP)**".



Dr. D. R. Pattanaik, Sc. 'E' during the Workshop



Shri Sanjay Bist, Sc. 'E' was on Ex-India deputation to Shenzhen, China from 16-18 April, 2019 to participate in the "4th WMO Monsoon Heavy Rainfall Workshop".

Dr. D. S. Pai, Sc. 'F' and **Dr. O. P. Sreejith**, Sc. 'E' as resource persons and **Dr. Nahush Prakash Kulkarni**, Sc. 'B' as operational expert were on Ex-India deputation to Nepal during 18-23 April, 2019 to participate in the pre-COF Training Workshop and "14th Session of South Asian Climate Outlook Forum (SASCOF)".

Dr. D. S. Pai, Sc. 'F' was on Ex-India deputation to Geneva, (Switzerland) during 29th April to 1st May, 2019 to participate in the WMO CCI/CBS Inter-Programme Expert Team on "Regional Climate Activities".

Dr. (Ms.) V.K. Mini, Sc. 'E' was on Ex-India deputation to University of Warwick, UK during 8-10 May, 2019 to participate in the workshop on "Science and Innovation for Catchment Management".

Dr. K. J. Ramesh, DG, IMD & P.R. of India with WMO was on Ex-India deputation to Kyoto, Japan during 8-12 May, 2019 as a member of Indian delegation to participate in the "49th Session of Intergovernmental Panel on Climate Change (IPCC)".

Shri Charan Singh, Sc. 'F' was on Ex-India deputation to Geneva, Switzerland to participate in the WMO's Second Multi-Hazard Early warning Conference (MHEWC-II) and Sixth Session of the Global Platform for "Disaster Risk Reduction" during 13-17 May, 2019

Dr. Ashim Kumar Mitra, Sc. 'E' was on Ex-India deputation to Sochi, Russian Federation for participation in "20th Session of the Global Space-based Inter-calibration System Executive Panel (GSICS-EP)" during 16-17 May, 2019.

Dr. A. K. Mitra, Sc. 'E' participated in the "20th Session of the Global Space-Based Inter-Calibration System Executive Panel (GSICS-EP)" meeting during 16-17 May, 2019 at Sochi, Russian Federation.

Dr. V. S. Prasad, Sc. 'G' along with **Shri Virendra Singh**, Sc. 'F' AND **Dr. R. K. Giri** Sc. 'E' were on Ex-India deputation at Sochi-Russian Federation for participation in the "47th Meeting of Coordination Group of Meteorological Satellites (CGMS-47)" during 19-23 May, 2019.

Shri N. Nigam, Sc. 'F' was on Ex-India deputation to Singapore for participation in "ICAO Asia/Pacific Meteorology/Air Traffic Management (MET/ ATM)" Seminar during 27-29 May, 2019 and Eighth Meeting of the "Meteorological Requirements Working Group (MET/RWG-8)" during 30-31 May, 2019.

Shri Sunil G. Kamble, Sc. 'F' was on foreign deputation to Washington-USA during 17-21 June, 2019 to participate in "Command Centre CDM" workshop as familiarization and training week at Federal Aviation Administration (FAA).

Dr. Siddhartha Singh, Sc. 'E' was on foreign deputation to Huelva, Spain during 17-21 June, 2019 to participate in the "17th WMO/GAW BREWER OPERATOR COURSE-ASIA/PACIFIC".

71st Meeting of Executive Council of WMO

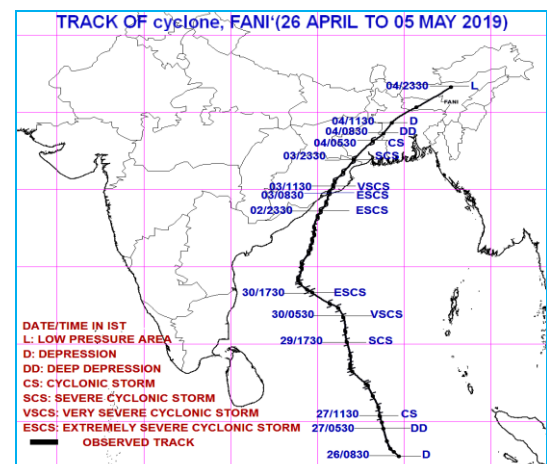
Indian delegation led by **Dr. M. Rajeevan**, Secretary, MoES was on foreign deputation to attend the 18th World Meteorological Congress during 3-14 June, 2019 and "71st Meeting of Executive Council of WMO" during 17-19 June, 2019 at Geneva, Switzerland. Delegation includes **Dr. M. Rajeevan**, Secretary, MoES [3-5 June, 2019 (Cg-18)], **Dr. K. J. Ramesh**, DGM, P. R. of India with WMO and Member of Executive Council of WMO [3-14 June, 2019(Cg-18)], **Dr. M. Mohapatra**, Sc. 'G', (10-19 June, 2019 (Cg-18 & EC-71), **Dr. Gopal Iyengar**, Sc. 'G', MoES [10-14 June, 2019 (Cg-18)], **Dr. R. K. Giri**, Sc. 'E' [3-19 June, 2019 (Cg-18 & EC-71)].

WEATHER SUMMARY

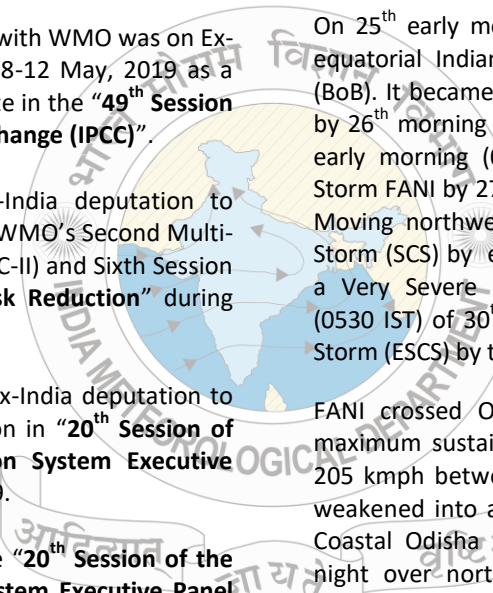
Extremely Severe Cyclonic Storm, FANI

On 25th early morning, a low pressure area formed over east equatorial Indian Ocean (EIO) & adjoining SE Bay of Bengal (BoB). It became well marked and intensified into a Depression by 26th morning (0830 IST) and into a Deep Depression by 27th early morning (0530 IST). It further intensified into Cyclonic Storm FANI by 27th noon (1130 IST) over SE BoB & adj. east EIO. Moving northwestwards, it intensified into a Severe Cyclonic Storm (SCS) by evening (1730 IST) of 29th April and further into a Very Severe Cyclonic Storm (VSCS) in the early morning (0530 IST) of 30th April and became Extremely Severe Cyclonic Storm (ESCS) by the evening (1730 hrs IST) of 30th April, 2019.

FANI crossed Odisha coast as an ESCS close to Puri with maximum sustained wind speed of 175-185 kmph gusting to 205 kmph between 0800 & 1000 hrs IST of 3rd May, 2019. It weakened into a VSCS by 1130 hrs IST of 3rd May, 2019 over Coastal Odisha and further weakened into a SCS during 3rd night over north Coastal Odisha. It then weakened into a Cyclonic Storm in the early morning of 4th May over West Bengal and into a deep depression in morning hours of 4th May and into a depression at 1130 IST over Bangladesh.



Observed track of ESCS FANI (26 April-4 May, 2019)



Forecast for Onset date of southwest Monsoon over Kerala

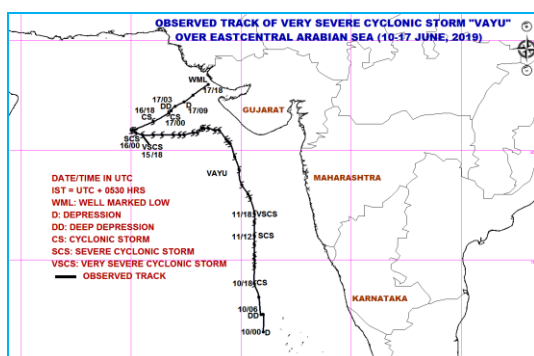
The Forecast for Onset date of southwest Monsoon over Kerala was issued by IMD on 15th May, 2019. According to this press release, this year, the statistical model forecast suggests that the monsoon onset over Kerala is likely to be slightly delayed. The southwest monsoon onset is likely to set over Kerala on 6th June with a model error of ± 4 days.

Very Severe Cyclonic Storm "VAYU" over Arabian Sea

Very Severe Cyclonic Storm (VSCS) "VAYU" originated from a low pressure area (LPA) which formed over southeast Arabian Sea and adjoining Lakshadweep & eastcentral Arabian Sea (AS) in the morning (0830 IST) of 9th June, 2019. It lay as a well marked low pressure area (WML) over the same region in the same evening (1730 IST).

Under favourable environmental conditions, it concentrated into a Depression (D) over eastcentral & adjoining southeast AS in the morning (0530 IST) of 10th June. Moving north-northwestwards, intensified into a deep depression (DD) over the same region at 1130 IST and further into a cyclonic storm (CS) "VAYU" around midnight (2330 IST) of 10th June, 2019 over eastcentral & adjoining southeast AS. It then moved northwards and intensified into a severe cyclonic storm (SCS) in the evening (1730 hrs IST) of the 11th June and into very severe cyclonic storm (VSCS) in the same midnight (2330 hrs IST) over the eastcentral AS. It then moved north-northwestwards till 13th June and then westwards and weakened into an SCS in the early morning (0530 hrs IST) of 16th June, 2019 over northeast AS.

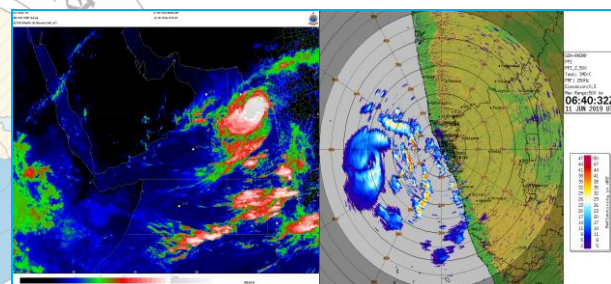
It gradually started recurving northeastwards from evening (1730 hrs IST) of 16th June, and weakened into a CS in the same night (2030 hrs IST) over northeast AS. Thereafter, it moved east-northeastwards and weakened into a DD in the morning (0830 hrs IST) of 17th June and into a depression in the same afternoon (1430 hrs IST) over the over northeast AS. It further moved east-northeastwards and weakened into a well marked low pressure area over northeast AS and adjoining Saurashtra & Kutch in the midnight (2330 hrs IST) of 18th June. The observed track of the system during 10-17 June, 2019 is shown below:



Observed track of VSCS VAYU over eastcentral and adjoining southeast Arabian Sea (10-17 June, 2019)

India Meteorological Department (IMD) maintained round the clock watch over the north Indian Ocean and the cyclone was monitored since 6th June about 4 days prior to cyclogenesis. The extended range outlook issued on 6th June, indicated that there is medium probability of cyclogenesis during later part of week 1 (7-13 June) over southeast & adjoining eastcentral AS and low probability of cyclogenesis during first half of week 2 (14-20 June) over northwest & adjoining westcentral AS. Thus the cyclone was monitored & predicted continuously from 6th June, 2019 onwards by IMD.

The cyclone was monitored with the help of available satellite observations from INSAT 3D and 3DR, polar orbiting satellites, and available ships & buoy observations in the region. The system was also tracked gradually by IMD Doppler Weather Radars at Kochi, Goa, Mumbai and Bhuj as it moved from south to north. Various numerical weather prediction models developed by Ministry of Earth Sciences (MoES) institutions and dynamical-statistical models were utilized to predict the genesis, track, landfall and intensity of the cyclone. A digitized forecasting system of IMD was utilized for analysis and comparison of various model guidance, decision making process and warning product generation. Typical satellite and radar imageries are shown below:



Typical satellite imagery and Radar imagery from DWR Goa for VSCS VAYU over Arabian Sea

Bulletins issued by Cyclone Warning Division, New Delhi

Track, intensity and landfall forecast: IMD continuously monitored, predicted and issued bulletins containing track, intensity, and landfall forecast for +06, +12, +18, +24, +36 and +48... +96 hrs lead period till the system weakened into a low pressure area. The above forecasts were issued from the stage of depression onwards along with the cone of uncertainty in the track forecast five times a day and every three hours during the cyclone period. The hourly updates were also provided when the system was skirting Gujarat coast during 13-14 June and after northeastwards recurvature of the system during 16-18 June, 2019.

Cyclone structure forecast for shipping and coastal hazard management. The radius of maximum wind and radii of MSW ≥ 28 knots, ≥ 34 knots, ≥ 50 knots wind in four quadrants of cyclone was issued every six hourly giving forecast for +06, +12, +18, +24, +36 and +96 hrs lead period.