

PARLIAMENT QUESTION: ACCURACY OF WEATHER FORECASTS

Posted On: 11 FEB 2026 11:42AM by PIB Delhi

There have been significant improvements achieved in the accuracy of weather forecasts, the dissemination of early warnings, and the delivery of climate services during the year 2025. India Meteorological Department (IMD)'s monsoon forecast for the 2025 southwest monsoon season was highly accurate. The first stage long range forecast, issued in April 2025, for the Southwest Monsoon (June-September) rainfall over the country as a whole was 105% of Long Period Average (LPA) with a model error of $\pm 5\%$ of LPA and the update forecast issued in the end of May 2025 was 106% of LPA with a model error of $\pm 4\%$ of LPA. The actual seasonal rainfall for the country as a whole was 108% of LPA. The spatial probability forecasts were also largely accurate across most regions of the country. Similarly, the monthly rainfall forecasts closely matched the observed values and remained within the forecast limits.

For the dissemination of early warnings and the delivery of climate services. IMD uses various digital platforms. This includes Common Alerting Protocol (CAP), Application Programming Interface, Website, Mobile Apps, Social media, etc. For example, during the recent Cyclone "MonTha", a total of 77.64 Cr. SMSs were sent to the people. All real-time data, forecasts, and warnings were also timely shared and disseminated to State Emergency Operation Centres.

Accuracy of forecasts over Delhi for the weather parameters such as rainfall, max temperature, minimum temperature, and occurrences of dense fog during the year 2025 is 93%, 84%, 68% and 75% respectively.

Government is continuously working to strengthen weather and climate forecasting systems in the country. New techniques and technologies have been implemented from time to time to improve weather and climate forecasting systems. There has been significant progress in this direction with:

- Strengthening of the observing system with installation of additional AWS, ARG, and DWR, etc.
- Improvement of the data integration and development of GIS-based DSS.
- Improvement of NWP models and climate models, as well as a real-time seamless monitoring, forecasting, and early warning system.
- Shifting from conventional weather forecast and warning to sector-specific color-coded Impact-based forecast (IBF) and risk-based warning (RBW) up to district/sub-city levels with dynamical impact and risk matrix
- Application of AI/ML
- Customisation of bulletins and warnings

- Substantial increase of computational power to integrate voluminous data and to run meso-scale, regional, and global models at a further higher resolution scale, with improvement of process understanding and model physics. Supercomputers (Arka and Arunika) are being used for this purpose.
- Panchayat Mausam Seva.
- A state-of-the-art dissemination system with the use of a mobile app, Common Alerting Protocol (CAP), WhatsApp groups, etc.

Recently, a new Central Sector Scheme, "Mission Mausam", has been launched by MoES with the goal of making Bharat a "Weather-ready and Climate-smart" nation, with IMD as a major player.

This information was submitted by Union Minister of State (Independent Charge) for Earth Sciences and Science & Technology Dr. Jitendra Singh in Lok Sabha on 11th February 2026.

NKR/JP

(Release ID: 2226191) Visitor Counter : 158

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