

**GOVERNMENT OF INDIA  
EARTH SCIENCES  
LOK SABHA**

UNSTARRED QUESTION NO:2330  
ANSWERED ON:10.03.2011  
ACCURACY OF WEATHER FORECASTING  
Jawale Shri Haribhau Madhav

**Will the Minister of EARTH SCIENCES be pleased to state:**

- (a) the accuracy and accountability of weather forecasting and predictions done in the country as compared with the world's scientifically and technologically developed countries;
- (b) whether the Government proposes to upgrade and modernise the mechanism used for its accuracy in predictions; and
- (c) if so, the details thereof?

**Answer**

MINISTER OF STATE IN THE MINISTRY OF PLANNING, MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS,  
MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE IN THE MINISTRY OF  
EARTH SCIENCES (SHRI ASHWANI KUMAR)

(a) Mean forecast errors as against observations over various geographical scales on common methodology are generated regularly. India's National Centre for Medium Range Weather Forecasting (NCMRWF) of this Ministry also generates these forecast error statistics and exchange among the other global forecast centers on monthly basis mandatorily under the aegis of the Commission for Basic Systems (CBS) of the World Meteorological Organization (WMO). Typical root mean square (RMS) vector forecast errors of wind evaluated for the level approximately 1.5 Km above ground over the Asian region (25° - 65° N & 60° - 145° E) for the month of July 2010 are presented below to show that wind forecast errors generated by the global data assimilation-forecast system of India up to 120 hrs in advance compare very closely with the other global centers of the world.

Name of the	24-hrForecast	48-hrForecast	72-hrForecast	96-hrForecast	120-hrForecast
Global Forecast Centre	Errors (m/s)	Errors (m/s)	Errors (m/s)	Errors (m/s)	Errors (m/s)

NCMRWF, India	4.1	4.9	5.3	6.0	6.6
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National Center for Environmental Predictions, USA	4.0	5.0	6.0	6.5	7.2
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United Kingdom Meteorological Office, UK	3.9	4.7	5.6	6.3	7.0
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European Centre for Medium Range Weather Forecasts	3.9	4.3	4.9	5.5	6.0
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(b) - (c) Yes Madam. Improvement of weather forecasting services is a continuous process. As part of its XI five year plan Government is implementing a comprehensive modernization programme for India Meteorological Department (IMD) covering (i) observation systems (ii) advanced data assimilation tools (iii) advanced communication and IT infrastructure (iv) high performance computing systems and (v) intensive/sophisticated training of IMD personnel to facilitate the implementation of advanced global/regional/meso-scale prediction models for improving the accuracy of weather forecasts in all temporal and spatial scales and for quick dissemination of weather forecast assessments/warnings to the users.

Methodologies and modeling frameworks that have undergone rigorous performance evaluation in operational R & D environment a

re implemented after the commissioning of the High Performance Computing (HPC) system in IMD HQs for enhancing the weather forecasting capacities through assimilating all available global satellite radiance data for the production of forecast products at 35Km grid globally and 27Kms/9Kms/3Kms/1Km grid over India/regional/mega city domains.

Beginning monsoon-2010, for the first time on experimental basis, spatial rainfall forecast outlook (7-day forecasts followed by 7-day outlook) and probabilistic spatial monthly scale rainfall scenarios (indicative above/below normal activity over various parts of the country) are being generated and hosted on IMDs web-site. All these newly implemented rainfall assessment tools are currently undergoing performance evaluation so as to assess their operational suitability and plan for their improvement.