

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION No. 3629  
TO BE ANSWERED ON WEDNESDAY, DECEMBER 07, 2016**

**CENTRALISED CONTROL BY IMD**

**3629. SHRI A. ARUNMOZHITHEVAN:  
DR. K. GOPAL:**

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

- (a) the details of methods used by the India Meteorological Department (IMD) for weather and monsoon forecast;**
- (b) whether IMD proposes to acquire more centralised control with its regional centres across the country and if so, the details thereof;**
- (c) whether IMD requires data storage in order of 5 petabytes and if so, the details thereof;**
- (d) whether the Government proposes to invest crores of rupees for supercomputer facility; and**
- (e) if so, the details thereof and its likely benefits along with progress made so far in this regard?**

**ANSWER**

**MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND  
MINISTRY OF EARTH SCIENCES  
(Shri Y. S. Chowdary)**

- (a) IMD currently employs dynamical and statistical models for generating various spatial and temporal (up to 6-h very short range; up to 72h short range; up to 240h medium range; up to 15-days extended range; monthly and seasonal scale) forecasts for operating various warning services to different sectors of economy. Operational implementation of improved suite of dynamical prediction models with assimilation of all available global satellite radiance data has enhanced the weather forecasting capability for the production of forecast products at 22km grid globally and 9km/3km grid over India/regional/mega city domains.**

**Under Ministry of Earth Sciences-National Oceanic and Atmospheric Administration, USA (MoES-NOAA) collaboration, the improved framework of forecast models were adapted and after due performance evaluation and associated fine tuning of the modeling frameworks, an ocean-atmospheric coupled Climate Forecast System (CFS) was implemented for extended range, monthly and seasonal scale forecasts.**

**The present long range forecast system based on the statistical models has always been demonstrating useful skill in predicting all India seasonal rainfall including the deficient monsoon season rainfall during 2015. However, in order to overcome the limitations of the statistical models used so far, dynamical coupled ocean-atmospheric model framework has been implemented. Subsequent to the exhaustive performance evaluation of the CFS system, IMD is venturing to operate extended, monthly and seasonal forecast services to build climate services.**

**(b) No Madam.**

**(c) No Madam.**

**(d-e) During the XIIth plan, the High Performance Computing (HPC) systems have been up-scaled to 1.2 petaflops so far to support the ongoing efforts on modelling. Owing to the above, operational implementation of improved suite of prediction models and global ocean data assimilation system with the ingestion of INSAT-3D 17-channel radiance data; global ensemble prediction system for probability of severe weather etc have enhanced the weather forecasting capability. In addition, experimental runs for 12Km global forecast model are also being carried out so as to generate sub-district scale forecasts utilizing the available HPC facilities.**

**In order to meet the target set by the Government to render block level forecast service for agricultural operations by March 2019, efforts are on to scale up the HPC support to 10 petaflops for implementing the 12km ensemble prediction system, that is under testing currently. Also, additional HPC support is required for assimilating INSAT-3DR and SCATSAT data from recently launched satellites by India.**

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