

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOKSABHA  
UNSTARRED QUESTION NO. 873  
TO BE ANSWERED ON FRIDAY, 23<sup>RD</sup> JULY, 2021**

**DEVELOPMENT OF MONSOON MODELLING SYSTEM**

**873. SHRIMATI MANEKA SANJAY GANDHI:**

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

- (a) whether National Monsoon Mission has been able to develop a monsoon modelling system that can predict rainfall at the block level, if so the details thereof;
- (b) whether IMD was able to predict the heavy rainfall in the States in 2019; and
- (c) if so, whether advance warnings were sent to the state Government regarding the same, if so, the details thereof and if not, the reasons therefor?

**ANSWER**

**THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR  
MINISTRY OF SCIENCE AND TECHNOLOGY  
AND EARTH SCIENCES  
(DR. JITENDRA SINGH)**

- (a) Yes Sir. Under the National Monsoon Mission, Ministry of Earth Sciences (MoES) has implemented two state-of-the-art dynamical prediction systems for short range to medium range, extended range and seasonal forecasts. Since 2018, IMD uses Monsoon Mission Climate Forecast System (MMCFS) model for preparing operational monsoon forecasts monsoon season along with present statistical models..

Since December 2016, IMD uses Global Forecast System (GFS) operationally to generate forecast at 12 Km horizontal resolution in short to medium range upto 10 days. GFS assimilates conventional data as well as data from satellite & weather radars for better prediction.

Additionally a 12 Km grid scale state of art Global Ensemble Forecasting System (GEFS) was commissioned on 1<sup>st</sup> June 2018 for generating operational probabilistic forecasts upto 10 days. In addition to these, IMD runs a Regional Model, viz. Weather Research & Forecasting (WRF) model of 3 km resolution regularly.

These models are used to prepare block level forecast especially to support the agricultural activities and those forecasts are also being issued by the Regional/State Meteorological Centres.

- (b) Yes. IMD was able to predict the heavy rainfall events occurred in different states in 2019.
- (c) Meteorological Centres (MCs), in co-ordination with Regional Met. Centres (RMCs) and National Weather Forecasting Centre (NWFC), New Delhi issue forecast and warning at district level for the concerned States on regular basis. This practice was followed in the Monsoon Season 2019 also and accordingly the forecast and warnings were issued for heavy rainfall events across the country.

The forecasts and warning bulletins are shared with different Stake holders including State Governments by various means viz. e-mail, SMS, WhatsApp etc. so as to enable them to take necessary mitigation measures. In addition to these, the forecasts and bulletins are uploaded on IMD website and are made available through social media also.

As and when the Extended Range Forecast (issued on every Thursday) gives signal about above normal rainfall in the forthcoming weeks, the same is projected in the extended range bulletin issued on Thursday and is informed to the different departments concerned for their information and necessary action.

As and when intense rainfall activity is expected for the States, Press Releases related to that is issued by State Meteorological Centre, and are disseminated to all concerned.

Also the Officers from Meteorological Centres regularly attend the meetings conducted by Disaster Management Division of the States and brief the latest weather scenario including impending severe weather activity.