

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION No. 460  
TO BE ANSWERED ON WEDNESDAY DECEMBER 12, 2018**

**Cyclone Forecasting and Management System**

**460: SHRI TEJ PRATAP SINGH YADAV**

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

- (a) whether cyclone Titli and Gaja have wrecked havoc across various states resulting in loss of lives and properties;**
- (b) if so, the details thereof;**
- (c) whether the Government has taken any new initiatives to bring in technological advancement in cyclone forecasting system;**
- (d) if so, the details thereof including international cooperation/ agreement signed in this regard; and**
- (e) the steps taken by the Government to develop cyclone forecasting and management system in the country?**

**ANSWER**

**MINISTER OF MINISTRY OF SCIENCE AND TECHNOLOGY AND  
MINISTRY OF EARTH SCIENCES  
(Dr. HARSH VARDHAN)**

- a-b): Yes Madam. Detailed loss assessment on agriculture, houses and livelihoods are compiled by Government of India and the state governments of Andhra Pradesh and Tamil Nadu for seeking Central assistance.**
- c-e): IMD has one of the best systems for monitoring and forecasting the tropical cyclones using a suite of quality observations from Satellites and Radars and high resolution advanced weather prediction models. IMD has a very effective Decision Support System for forecasting and early warning of tropical cyclones. IMD has defined Standard Operating Procedure (SOP) for monitoring & forecasting the cyclones and issue of warning services. IMD has one of the best forecasting capabilities in forecasting tropical cyclones.**

**Ministry of Earth Science (MoES) has a strong international collaboration with National Oceanographic and Atmospheric Administration (NOAA), USA and UK Met Office for developing weather prediction models.**

**MoES currently uses the Global Forecasting System (GFS) with a horizontal resolution resolution of 12 km. In addition, a Global Ensemble Forecast System (GEFS) for short and medium range prediction at 12 km using 21 members of the model has been developed and is operational since 01 June 2018. The resolution (12 km) of the GEFS is the highest among all the operational global operational weather forecast centres in the world. The Ensemble forecasts enhance the weather information being provided by the current models by quantifying the uncertainties in the weather forecasts and generate probabilistic forecasts. The ensemble forecast also provides the probabilistic guidance for track and intensity of cyclones and depressions. Regional models like Hurricane Weather Research Forecast (HWRF) have also been implemented to generate forecasts at very high resolution of 2km.**

**IMD has always used contemporary technology and continuously expands its infrastructure for meteorological observations, data exchange, monitoring & analysis, state of art forecasting and early warning services.**

**\*\*\*\*\***