

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 558
TO BE ANSWERED ON WEDNESDAY, 22ND JULY, 2026**

BHARAT FORECAST SYSTEM

†558. SHRI MITESHBHAI RAMESHBHAI PATEL:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the main features and objectives of the recently launched India Forecast System and the manner in which this system strengthens India's weather forecasting capability;
- (b) the manner in which the India Forecast System is contributing to reducing crop losses and improving disaster preparedness especially in the context of climate change; and
- (c) the manner in which it is important for the Bharat Forecast System to be developed indigenously and is in line with the goals of Atmanirbhar Bharat and Make in India initiatives?

ANSWER

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

- (a) The Bharat Forecast System (BharatFS) is based on the newly implemented Triangular Cubic Octahedral (TCO) dynamical grid that enables the model to operate at 6 km horizontal resolution, surpassing its predecessor (GFS T1534 ~ 12km) and typical global operational models having horizontal resolution of 9–14 km. The recently acquired supercomputing facilities, Arka (IITM-Pune) and Arunika (NCMRWF-Noida), enabled the model to be used for real-time weather prediction by reducing the runtime. These key features have enhanced India's weather prediction capabilities by making India the only country running a global weather prediction model at a high resolution of 6 km for real-time weather prediction. The BharatFS was developed with the objective of generating forecasts at the cluster of panchayats level and improving the prediction of extremes.
- (b) With the increase in horizontal resolution, the BharatFS is capable of generating forecasts every 6 km. This allows the capturing of local weather features, thus enabling the forecasts to cater to a cluster of panchayats/villages. Localized forecasts help farmers with crop planning, irrigation, and harvesting. Additionally, water authorities can better manage reservoirs during monsoons, reducing flood risk and improving yield resilience. Climate change is increasing the frequency and severity of extreme events, and BharatFS has demonstrated significant improvement in the skill of predicting the core monsoon region's extreme rainfall. All these improvements are crucial for faster and targeted disaster response, increasing the disaster preparedness of our country.

- (c) The BharatFS being developed indigenously is highly significant, not only for advancing India's scientific capabilities but also for furthering national strategic and economic goals. BharatFS represents India's own high-resolution weather prediction model, designed by Indian scientists considering the complexities of forecasting due to Indian geography—the Himalayas and Western Ghats.

The BharatFS was developed by a team of scientists from Indian institutions like IITM-Pune, with support from the NCMRWF-Noida and the India Meteorological Department (IMD). The modeling system is powered by indigenous MoES supercomputing facilities (Arka and Arunika). These achievements are aligned with "Make in India" – Showcasing India's capability to build world-class weather and climate forecasting systems locally. The development and launch of BharatFS has enabled India to upgrade its meteorological services and support neighboring countries, reinforcing regional leadership and self-reliance.
