PARLIAMENT QUESTION: BHARAT FORECAST SYSTEM

प्रविष्टि तिथि: 22 JUL 2026 2:05PM by PIB Delhi

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.

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.

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.

This information was given by the Minister of State (Independent Charge) for Earth Sciences Dr. Jitendra Singh in a written reply in Lok Sabha today.

*****

NKR/JKP

(रिलीज़ आईडी: 2287605) आगंतुक पटल : 1077