

GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION NO. 1956
ANSWERED ON 08/08/2024

USE OF SUPERCOMPUTER IN WEATHER FORECASTING

1956. SHRI ASHOKRAO SHANKARRAO CHAVAN:
SMT. DARSHANA SINGH:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether India is going to unveil its new 18 petaFLOP Supercomputer for weather forecasting institutes this year;
- (b) if so, the details and the salient features of the said supercomputer;
- (c) the total expenditure incurred in the development of this computer and the place where it will be installed;
- (d) the manner in which this new supercomputer will help in forecasting weather and predicting calamities, like, cyclone, etc., in the country; and
- (e) the other steps taken/being taken by Government in acquiring accuracy in weather forecasting?

ANSWER

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

- (a) Yes. The Government is going to unveil its new 21.1 petaFLOP (PF) Supercomputer this year.
- (b) The details of the High-Performance Computer (HPC) systems are as follows:

Salient features of the HPC	IITM, Pune	NCMRWF, Noida
CPU Rpeak (PFLOPs)	11.7 +1.16	8.2
CPU nodes (AMD Milan 7643, 2x48c, 2.3GHz, 256GB RAM)	3021	2115
GPU Nodes (AMD Milan 7643+4xA100-80GB)	26	18
Separate AI/ML System Node	7	-
GPU Rpeak (PFLOPs)	1.16	-
Storage (PB)	33	23

- (c) The total expenditure sanctioned for the procurement of the HPC system is Rs. 900 crores. The systems will be installed at two locations: Indian Institute of Tropical Meteorology (IITM), Pune, and National Centre for Medium Range Weather Forecasting (NCMRWF), Noida.

- (d) This augmented HPC capacity will help advance the understanding of weather and climate, resulting in better prediction and improved weather services for the nation. The major benefits include:
- i. Improved weather and climate forecasts at a very high resolution and forecasts of extreme events at the block level.
 - ii. Carryout research to improve the Indigenous dynamical models for better prediction.
 - iii. Leveraging the new HPC facility to develop models using the latest technologies like Artificial Intelligence (AI) and Machine Learning (ML) to improve the last mile services to different stakeholders.
 - iv. Improving short, medium, and long-range forecasts for monsoon.
 - v. Better forecast of Air Quality and Fog forecasts for many cities in India.
- (e) Improving the accuracy of weather forecasts depends on augmentation of observational network, thereby improving the numerical models along with HOC infrastructure and human resources to undertake R&D. Ministry is continuously endeavoring to achieve better accuracy in weather forecasting.
