<u>Indian Institute of Tropical Meteorology (IITM), Pune</u>

PRESS RELEASE (26.9.2024)

Inauguration of "High-Performance Computing (HPC) System for Weather and Climate Research"

IITM Pune; 26.9.2024: The Hon'ble Prime Minister of India, Shri Narendra Modi has inaugurated today the High-Performance Computing (HPC) system - tailored for weather and climate research, acquired by the Ministry of Earth Sciences.

This ambitious project represents an investment of ₹850 crore, marking a significant leap in India's computational capabilities for more reliable and accurate weather and climate forecasting particularly extreme events.

Located at two key sites—the Indian Institute of Tropical Meteorology (IITM) at Pune and the National Center for Medium Range Weather Forecasting (NCMRWF) at Noida.

The IITM system is equipped with an impressive capacity of 11.77 Peta FLOPS and 33 petabytes of storage, while the NCMRWF facility features 8.24 Peta FLOPS with 24 petabytes of storage. Additionally, there is a dedicated standalone system for Artificial Intelligence and Machine Learning applications with a capacity of 1.9 Peta FLOPS.

With this augmentation, the Ministry of Earth Sciences will enhance its total computing power to 22 Peta FLOPS, a substantial increase from the previous capacity of 6.8 Peta FLOPS.

In keeping with tradition, these state-of-the-art systems have been named after celestial entities connected to the sun. Previous systems were named Aditya, Bhaskara, Pratyush, and Mihir. The new HPC systems are aptly named 'Arka' and 'Arunika,' reflecting their connection to Surya—the sun, the primary energy source for the Earth system.

This enhanced computational framework will enable the development of sophisticated models leveraging advanced technologies such as Artificial Intelligence and Machine Learning, thereby significantly improving the last-mile services rendered to various stakeholders.

The enhanced computational capabilities provided by this HPC will allow the Ministry of Earth Sciences to refine the horizontal resolution of its global weather prediction models to an impressive 6 km. Furthermore, regional models will achieve even finer resolutions of 1 km or less over select Indian domains. These high-resolution models will significantly enhance the accuracy and lead time of predictions related to tropical cyclones, heavy precipitation, thunderstorms, hailstorms, heat waves, droughts, and other extreme weather phenomena.

Leveraging these advanced HPC resources, the Ministry of Earth Sciences aims to significantly improve the precision and reliability of weather forecasts, ensuring better

preparedness and response to the challenges posed by climate variability and extreme weather events.

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Glimpses of Inauguration of "High-Performance Computing (HPC) System for Weather and Climate Research"

Glimpses of ARKA (The New HPC System)