Parliament Question: Tarang Facility At The Indian National Centre For Ocean Information Services

Posted On: 04 DEC 2024 3:34PM by PIB Delhi

TARANG is a 64-bit machine, capable of supporting multi-tasking, multi-programming, multi-user and time-sharing environment, of a proven architecture with scalable processing elements, scalable high performance I/O, scalable interconnection network and a balanced design to have 99.5% uptime with adequate redundancies and to avoid single point of failure so as to meet the operational requirements. The HPC system is supported by technical support facilities such as Transformers, Diesel Generators, UPS, Batteries, Multiple utility paths, Lighting system, Adequate no of earthing pits and Cables.

The compute capacity is about 1 Peta FLOPS, with a 2 Peta Byte storage and 3 Peta Byte archival storage. Additionally, there is a dedicated standalone system for Artificial Intelligence (AI) and Machine Learning (ML) applications with a capacity of 15.5 Peta FLOPS.

INCOIS will use the new system to run state-of-the-art ocean general circulation models, ocean-atmosphere coupled models, and wave models to operationally forecast ocean variables and extreme ocean weather as well as to meet the objectives of the major initiatives of the MoES such as the Deep Ocean Mission, the Mission Mausum and the Monsoon Mission within a year.

This facility will help INCOIS to provide Service Level 3 Tsunami warning Services in addition to early warning on Storm surges, High Waves, Swell Surge (Kallakadal) and Extreme currents. The workloads of TARANG include:

i. Operational models for providing Tsunami Early Warnings for India and other 25 countries on the Indian Ocean rim,

ii. Next generation Ocean State Forecast system with more accurate representation of physical processes, non-hydrostatic dynamics, high resolution nests for local forecasts and advanced data assimilation techniques and

iii. Developing / improving sophisticated models such as MOM, ROMS, HYCOM, Wave Watch III, SWAN, Tunami N2, ADCIRC leveraging advanced technologies such as Artificial Intelligence and Machine Learning.

INCOIS will adopt AIML-based models to augment the quality of the forecasts using the available GPU processors. Further, the new computational facility will also be used for the numerical modeling of tsunami and storm surges aimed towards the improvements in their early warnings.

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

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