GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION NO. 352
ANSWERED ON 06/02/2025

MISSION MAUSAM

352. **SHRI PRAMOD TIWARI**:

Will the Minister of **EARTH SCIENCES** be pleased to state:

(a) whether Government has approved a new Mission Mausam;
(b) if so, the primary objectives thereof including the steps proposed to be taken to achieve the objectives;
(c) whether the Mission will prioritize any region;
(d) if so, the details thereof, including the challenges being faced in weather forecasts;
(e) whether the Mission will provide accurate forecasts on various timescales ranging from short-term hours to seasonal predictions; and
(f) if so, the details thereof?

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

(a) Yes. Government has approved a new Mission Mausam.

(b) Mission Mausam is envisaged to be a multi-faceted and transformative initiative to boost India's weather and climate-related science, research, and services. It will help better equip stakeholders, including citizens and last-mile users, to tackle extreme weather events and the impacts of climate change. The Mission Mausam is launched to make Bharat a "weather-ready and climate-smart" nation, with the following objectives:

- Strengthening observations (in-situ & remote sensing)
- Gaining a better understanding and use of Science, Innovation and Technology, and Data Science for societal benefit
- Improve our Model/Data Assimilation/HPC for giving accurate information to the Public and stakeholders (Numerical+Artificial Intelligence and Machine Learning)
- Trained Manpower in Earth System Science
- Forecast dissemination: Effective communication with Society: Early Warning for ALL

The Ministry is coordinating the initiative through its R&D institutions, including the India Meteorological Department (IMD), the Indian Institute of Tropical Meteorology (IITM), and the National Centre for Medium Range Weather Forecasting (NCMRWF).

(c)-(d) No. The Mission Mausam is designed to enhance weather monitoring and forecasting capabilities across the country and its surrounding regions.

(e)-(f) Yes. The Mission Mausam is expected to provide accurate forecasts across various timescales, from short-term weather predictions (hours to days) to medium-term forecasts (weeks) and long-term (seasonal) predictions. This will be achieved through the deployment of next-generation observation systems, high-performance computing infrastructure, and advanced Earth system models.The integration of artificial intelligence (AI) and machine learning (ML) technologies will further improve the precision of predictions by enhancing model accuracy and prediction resolution. The Mission Mausam will utilize an integrated approach that includes:

- Short-term forecasts (up to 72 hours): These will be based on high-resolution models by assimilating atmospheric data from next-generation radars, satellites, wind profilers, etc.
- Medium-term forecasts (3 to 15 days): The system will use advanced modeling techniques and high-performance computing resources to predict weather patterns with higher accuracy.
- Long-term forecasts (seasonal to annual): The Mission will integrate data-driven methods and Earth system models, incorporating AI and ML to predict large-scale weather and climate patterns, providing forecasts for months or seasons in advance.

These improvements are expected to offer better precision in forecasting weather and climate events, helping various sectors such as agriculture, disaster risk reduction, water, energy, health, and transportation.

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