



Launch of C-FLOOD System | Maharashtra | 05 Jul 2025

Why in News?

The **Union Minister of Jal Shakti** inaugurated C-FLOOD, a Unified Inundation [Forecasting System](#). This new initiative aims to enhance [India's flood management](#) capabilities by providing advanced flood forecasting and [early warning systems](#).

Key Points

- **About the C-FLOOD System:**
 - It is a web-based system that delivers **two-day advance inundation forecasts** up to the village level.
 - The system includes flood inundation maps and water level predictions, enabling authorities to prepare for potential flooding more effectively.
 - This initiative aims to enhance flood management by offering a **unified system** that integrates data from various national and regional flood modeling agencies.
- **Collaboration and Development:**
 - **C-FLOOD** was developed through collaboration between the [Centre for Development of Advanced Computing \(C-DAC\)](#) Pune, [Central Water Commission \(CWC\)](#), and [National Remote Sensing Centre \(NRSC\)](#) under the guidance of the [Ministry of Jal Shakti](#).
 - The initiative is part of the [National Supercomputing Mission \(NSM\)](#), a joint effort between the [Ministry of Electronics and Information Technology \(MeitY\)](#) and the [Department of Science and Technology \(DST\)](#).
- **Advanced Features and Coverage:**
 - The platform utilizes **2-D hydrodynamic modeling** to simulate flood scenarios and is run on **High-Performance Computing (HPC)** infrastructure at **C-DAC Pune**.
 - Currently, the system covers the [Mahanadi](#), [Godavari](#), and [Tapi](#) river basins, with plans to expand to other river basins in the future.
 - It serves as a comprehensive **decision-support tool** for disaster management authorities by integrating outputs from multiple agencies, thereby improving coordination and timely decision-making during flood events.
 - The system is designed to integrate seamlessly with the **National Disaster Management Emergency Response Portal (NDEM)**, facilitating effective coordination during flood emergencies.

National Supercomputing Mission (NSM)

- The **National Supercomputing Mission (NSM)** was launched in 2015 to enhance **High-Performance Computing (HPC)** capabilities in India.
- **Type:** [Central Sector Scheme](#)
- **Nodal Ministries:** Department of Science and Technology (DST), Ministry of Electronics and Information Technology (MeitY).
- **Implementing Agencies:** C-DAC (Pune), IISc (Bengaluru).
- **Key Objectives:**
 - **Supercomputer Installation:** To empower academic and research institutions with advanced supercomputing facilities.
 - **Skill Development:** Promotes **HPC skill development** through dedicated training

centers in Pune, Kharagpur, Chennai, Palakkad, and Goa.

▪ **Significance:**

- Advances scientific research in areas like **drug discovery**, **climate modeling**, **disaster management**, and **material science**.
- Supports **start-ups** and **MSMEs** in innovation, product development, and **HPC** and **AI** training.

Mahanadi River

- The Mahanadi River system is the **third largest of peninsular** India after **Godavari** and **Krishna**, and the largest river of Odisha state.
- The catchment area of the river extends to Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand and Maharashtra.
- Its basin is bounded by the Central India hills on the north, by the Eastern Ghats on the south and east and by the **Maikala range** in the west.

Godavari River

- The Godavari is the **largest Peninsular River system**. It is also called the **Dakshin Ganga**.
- The basin is bounded on the north by the **Satmala hills**, on the south by the Ajanta range and the Mahadeo hills, on the east by the Eastern Ghats and on the west by the Western Ghats.
- Godavari River rises from **Trimbakeshwar near Nasik in Maharashtra** and flows for a length of about 1465 km before outfalling into the Bay of Bengal.

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