



Early Lightning Detection System

Why in News?

According to the sources, The **Uttar Pradesh government** plans to establish an **early lightning detection and warning system**.

- This system **aims to avert casualties caused by lightning strikes** in the state, particularly during the monsoon period.

Key Points

- According to an **India Meteorological Department (IMD)** report **Uttar Pradesh ranks** among the states with the **highest lightning strike casualties in the country**.
- On the direction of the chief minister, the **State Disaster Management Authority (SDMA)**, decided to **set up a state-of-the-art lightning detection system** based on **time of arrival (ToA) technology**, which is more time and location accurate, across the state.
 - The **IMD currently relies on radar-based systems and satellite data** to warn about the possibility of lightning strikes in an area but it is **not considered a real-time warning**.
 - The **ToA-based system can successfully detect and warn** about the possibility of lightning in a particular area at least **30 minutes in advance**.
- The **Uttar Pradesh Lightning Alert Management System** will be set up in **three phases**.
 - In the **first phase**, it will be implemented in **37 districts**.
 - It is expected to be set up in **20 and 18 districts** respectively in the **second and third phases**.

Radar (Radio Detection and Ranging)

- It is a device which **uses electromagnetic waves in the microwaves region** to detect **location (range & direction), altitude, intensity and movement** of moving and non-moving objects.

India Meteorological Department

- IMD was **established in 1875**. It is the **National Meteorological Service** of the country and the principal government agency in all **matters relating to meteorology and allied subjects**.
 - It works as an **agency of the Ministry of Earth Sciences** of the Government of India.
- It is headquartered in **New Delhi**.
- IMD is also one of the **six Regional Specialized Meteorological Centres of the World Meteorological Organization**.

