

Doppler Weather Radar

April 27, 2026 • vajiramandravi.com



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Doppler Weather Radar Latest News

Recently, the Indian Institute of Tropical Meteorology (IITM) in Pune commissioned a new X-band Doppler Weather Radar at Mahabaleshwar under Mission Mausam.

About Doppler Weather Radar

- It is a specialized radar that uses the Doppler Effect to produce **velocity data about objects at a distance**.
- These radar systems can provide information regarding the **movement of targets** as well as **their position**.
- **Types of weather Radar Bands:** Varying frequencies like **S-band, C-band and X-band** — are commonly used by the IMD in India.

Working of Doppler weather Radars

- In radars, a beam of energy, **called radio waves**, is emitted from an antenna.

- When this **beam strikes an object** in the atmosphere, the **energy scatters in all directions**, with some reflecting directly back to the radar.
- The **larger the object** deflecting the beam, the **greater is the amount of energy** that the radar **receives in return**.
- Observing the time required for the beam to be transmitted and returned to the radar allows weather forecasting departments to “see” raindrops in the atmosphere, and measure their distance from the radar.

Applications of Doppler weather Radars

- **Weather System:** It is used to track the movement of weather systems and cloud bands, and gauge rainfall over its coverage area of about 500 km.
 - X-band radar is used to **detect thunderstorms and lightning**, whereas a **C-band radar** helps in cyclone tracking.

Source: News On Air

Source: <https://vajiramandravi.com/current-affairs/what-is-doppler-weather-radar/>

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