

Scintillometer

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Scintillometer Latest News

Recently, a scintillometer was installed at the Tamil Nadu Rice Research Institute (TRRI), Aduthurai, Tamil Nadu.

About Scintillometer

- It is an **optical instrument** that **measures heat and moisture exchange** between the **land surface** and the **atmosphere**.

Working of Scintillometer

- It operates by **transmitting a light beam** between two fixed points.
- Minute, rapid fluctuations in the beam caused by turbulent air **known as scintillations** are analysed to estimate **heat transfer from the land to the atmosphere**.
- It was installed recently in an existing suite of sensors **at the TRRI Critical Zone Observatory (CZO)**.

Key Facts about Critical Zone Observatory of Tamil Nadu Rice Research Institute

- It was established under **Tamil Nadu Agricultural University (TNAU)** with support from the **National Centre for Earth Science Studies (NCESS)**, and became **fully operational in 2022**.
- It is **one of three such observatories** in India and the only one in Tamil Nadu.
- The site records **weather parameters, soil moisture and direct air-surface fluxes**; the scintillometer now provides direct estimates of **sensible heat flux**.
- **Main Instruments at about Critical Zone Observatory Site: Automatic Weather Station, COSMOS** soil-moisture sensor, pan evaporimeter and eddy-covariance tower.
- **Functions:**
 - The site records **weather parameters, soil moisture and direct air-surface fluxes**; the scintillometer now provides direct estimates of **sensible heat flux**.
 - These observations improve **estimates of evapotranspiration**, soil moisture and local microclimate, directly supporting irrigation planning and local forecasts.
 - The observatory will generate long-term datasets on **meteorological, canopy and hydrological parameters** for the **Cauvery delta**.
- **Advantages:** These are crucial for managing water and crops in this climate-sensitive agricultural region.
- It would strengthen **climate-resilient decision-making** in the Cauvery delta.

Source: TH

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