

### **3. Megha-Tropiques-1 (MT1) satellite**

**Prelims Syllabus:** Science & Technology

**Mains Syllabus:** GS-III Science & Technology - Awareness in the fields of it, Space, Computers, Robotics, Nano-Technology, Bio-Technology, Pharma Sector & Health Science



#### **Why in News?**

- The Indian Space Research Organisation (ISRO) is undertaking a controlled re-entry of the decommissioned Megha-Tropiques-1 (MT1) satellite on March 7th, 2023.

#### **Megha-Tropiques-1 (MT1) satellite:**

- The Megha-Tropiques-1 (MT1) satellite was launched in October 2011 through ISRO's Polar Satellite Launch Vehicle (PSLV) from the Satish Dhawan Space Centre, Sriharikota.
- The launch of MT1 Satellite was a joint satellite venture of ISRO and the French space agency.
- The key objective of the satellite was to study tropical weather and climate conditions and provide data services to support regional and global climate models till 2021.
- MT1 Satellite has provided key scientific data about the role of the water cycle on the tropical atmosphere, with data such as the influence of condensed water in clouds, water vapour in the atmosphere, precipitation, and evaporation.
- The Megha-Tropiques had day, night and all-weather viewing capabilities.

**The payload of the satellite consisted of:**

- Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS)
- Sounder for Probing Vertical Profiles of Humidity (SAPHIR)
- Scanner for Radiation Budget (ScaRaB)
- Radio Occultation Sensor for Vertical Profiling of Temperature and Humidity (ROSA)
- In April 2022, ISRO announced the end of the mission for the MT1 satellite due to the issues with the attitude control sub-system.
- As per UN/IADC space debris mitigation guidelines, it is recommended that a Low Earth Orbit (LEO) object at its end-of-life should be deorbited preferably through controlled re-entry to a safe impact zone, or by bringing it to an orbit where the orbital lifetime is less than 25 years.
- The re-entry experiment of MT1 has been undertaken as a part of the ongoing efforts as this satellite with sufficient left-over fuel offered a unique opportunity to test the relevant methodologies.

