Swift Telescope Rescue Mission

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Why in News?

NASA and commercial partner Katalyst Space Technologies officially called off the primary reboost attempt of the Swift Boost Mission designed to save the aging Neil Gehrels Swift Observatory.

Key Highlights of the Rescue Attempt

- **The Objective -** Autonomous docking with the Swift space telescope in Low Earth Orbit (LEO) to raise its altitude and extend its scientific operational lifespan.
- **The Rescue Vehicle -** The **LINK spacecraft**, aboard a Northrop Grumman Pegasus XL rocket from Kwajalein Atoll.
- **Cause of Abort -** LINK suffered severe ***attitude control failures*** (uncontrolled multi-axis spinning caused by reaction wheel overheating and thruster anomalies) weeks after launch.
- **Revised Objective -** LINK will attempt non-docking engagement and proximity operations (RPO) near Swift to test autonomous navigation capabilities for future satellite servicing missions.
- **Fate of Swift -** Lacking onboard propulsion, Swift's orbit will continue to decay naturally, leading to an atmospheric re-entry.

About Neil Gehrels Swift Observatory

- **Launch -** Launched by NASA on November 20, 2004, to study high-energy cosmic phenomena.
- **Primary Scientific Role-** Rapid detection and real-time monitoring of **Gamma-Ray Bursts (GRBs)**.

  Gamma-Ray Bursts (GRBs) *are the most energetic electromagnetic events in the universe, typically generated by massive star collapses or black hole formations.*

- **Instruments Onboard -** Operates 3 multi-wavelength telescopes spanning Gamma-ray, X-ray, Ultraviolet, and Optical spectra.
- **Scientific Achievements-** Over two decades in orbit, Swift detected over 1,800 cosmic explosions, including a GRB event originating 13 billion light-years away from the early universe.

Reference

Indian Express | Swift telescope rescue mission fails

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