

Ten Most Powerful Space Telescopes

Prelims: Current events of National and International Importance | science and technology.

Why in news?

Space telescopes are frequently in news due to ongoing discoveries and advancements in space exploration.

- **Space telescopes** Telescopes that orbit above the Earth's atmosphere to observe the Universe (planets, stars, galaxies) closely with significant clarity.
- **Advantages** They *can* access to a wider electromagnetic spectrum, enabling them to detect the wavelengths of light (such as X-rays, gamma rays, infrared).
 - $\circ~$ Unaffected by weather, day-night cycles, they enable long-duration exposures uninterrupted cosmic observation.
 - Bypassing atmospheric blurriness can capture clear images.

The first ever space telescope, the Orbiting Astronomical Observatory 2 (OAO-2), was launched into the low Earth orbit in 1968 aboard an Atlas-Centaur rocket, as per the National Space Centre.

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1.	James Webb Space Telescope	 Launched in - 2021. largest and the most powerful observatory. designed to conduct infrared astronomy. Agencies overlooking - NASA, ESA, CSA.
2.	Hubble Space Telescope	 Launched in - 1990. Discovering dark energy, observes the cosmos in ultraviolet, visible and near infrared, from the low Earth orbit. Operated by - NASA and ESA.
3.	Chandra X-ray observatory	 Launched in - 1999. NASA's flagship mission for <i>X-ray astronomy, detects X-ray emissions</i>. The electrical power required to cooperate the Chandra spacecraft and instruments is very less (2KW).
4.	Spitzer Space Telescope	 Launched in - 2003, NASA's, retired in 2020. Spitzer made the first exoplanet weather map of temperature variations over the surface of a gas exoplanet.
5.	<u>Planck Space</u> <u>Observatory</u>	 Launched in - 2009. ESA's first mission to study the Cosmic Microwave Background (CMB), the relic radiation from the Big Bang.

6.	<u>Gaia</u>	 Launched in - 2013. The telescope's extraordinarily precise three-dimensional map will provide the data needed to tackle history of our galaxy.
7.	Fermi Gamma-ray Space Telescope	 Launched in - 2008. NASA's telescope detects gamma rays, the most energetic form of light. to address questions revolving around "crushed stellar remnants like pulsars.
8.	TESS (Transiting Exoplant Survey Satellite)	• Launched in - 2018 as a follow-up to Kepler, NASA's TESS is responsible for discovering exoplanets.
9.	Euclid Space Telescope	• ESA mission with critical contributions from NASA that aims to explore dark matter and dark energy.
10.	XRISM (X-ray Imaging and Spectroscopy Mission)	• Launched in - 2023, NASA has partnering with JAXA on the XRISM mission to study celestial objects that emit X-rays.

Reference

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