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VOYAGER 1 – NASA'S SPACECRAFT TRAVELLING NON-STOP FOR 50 YEARS

- The Voyager 1 spacecraft, launched by the National Aeronautics and Space Administration (NASA) nearly 50 years ago, has achieved a remarkable milestone by reaching a distance of 25.9 billion kilometres from Earth.
- This distance is equivalent to approximately one light-day, the distance travelled by light in a single day.
- Voyager 1 was launched into space on September 5, 1977, from Cape Canaveral, Florida, USA.
- Its twin spacecraft, Voyager 2, was launched slightly earlier, on August 20, 1977.
- Both spacecraft were designed to study the outer planets of the Solar System.
- During its journey, Voyager 1 made close approaches to only two planets: Jupiter and Saturn.
- It approached Jupiter on March 5, 1979.
- During this encounter, its camera captured images of volcanic eruptions on Io, one of Jupiter's moons.
- This provided the first evidence of active volcanoes beyond Earth.
- Later, Voyager 1 made its closest approach to Saturn on November 12, 1980.
- It revealed the complex structure of Saturn's rings and the dense nitrogen atmosphere of its moon, Titan.
- After passing Saturn, Voyager 1 began its long outward journey, moving approximately 30 degrees away from the plane of the Solar System.
- On August 25, 2012, it crossed the heliopause, the boundary where the solar wind encounters the interstellar environment.
- At that time, it was approximately 18.3 billion kilometres from the Sun.
- This marked a historic achievement, as a human-made object entered interstellar space, the region between stars.
- When a mobile phone does not work properly, we often become frustrated and throw it away.
- However, the remarkable feature of Voyager 1 is that it continues to operate even after nearly 50 years.
- Its energy requirements are supported by three Radioisotope Thermoelectric Generators (RTGs).
- These generators use the heat released through the natural radioactive decay of Plutonium-238.
- The generators convert this heat into electrical energy.
- It is estimated that the spacecraft may be able to generate sufficient electricity for its operations only until around 2035.
- Nevertheless, Voyager 1 will continue travelling through space.
- Even after the engineers who designed it and the people who followed its journey have passed away, the spacecraft will continue moving through the darkness of interstellar space.
- It is estimated that, after approximately 40,000 years, Voyager 1 will pass near a star known as Gliese 445.
- Thus, Voyager 1 will continue its extraordinary journey through space, even after its scientific instruments stop functioning.