1. Parker Solar Probe makes a second orbit of the sun, captures solar wind on video

Date: 20 August, 2019

- What is Parker Solar Probe mission? What are its objectives?
- What is the need for studying the sun and the solar wind?
- What is the significance of this study?

GS paper 3 (Awareness in space.)

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In this video, you can find detailed answers for all the above questions.

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Express Web Desk . (2019, August , 19). Explained: What is NASA's Parker Solar Probe. Indian Express. Retrieved from https://indianexpress.com/article/explained/this-word-means-parker-solar-probe-5915961/

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What is the context about?

- On August 12, NASA's Parker Solar Probe completed a year in service.
- It is part of NASA's "Living With a Star" programme that explores different aspects of the Sun-Earth system. It is also the closest a human-made object has ever gone to the Sun.
- The probe seeks to gather information about the Sun's atmosphere and NASA says that it "will revolutionise our understanding of the Sun".

What is Parker Solar Probe mission? What are its objectives?

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- NASA’s historic Parker Solar Probe mission will revolutionize our understanding of the sun, where changing conditions can propagate out into the solar system, affecting Earth and other worlds.

- Parker Solar Probe will travel through the sun’s atmosphere, closer to the surface than any spacecraft before it, facing brutal heat and radiation conditions — and ultimately providing humanity with the closest-ever observations of a star.

- The primary science goals for the mission are to trace how energy and heat move through the solar corona and to explore what accelerates the solar wind as well as solar energetic particles.

What is the need for studying the sun and the solar wind?

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The sun is the only star we can study up close. By studying this star we live with, we learn more about stars throughout the universe. The sun is a source of light and heat for life on Earth. The more we know about it, the more we can understand how life on Earth developed.

The sun also affects Earth in less familiar ways. It is the source of the solar wind; a flow of ionized gases from the sun that streams past Earth at speeds of more than 500 km per second (a million miles per hour).

Disturbances in the solar wind shake Earth's magnetic field and pump energy into the radiation belts, part of a set of changes in near-Earth space known as space weather.

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- Space weather can change the orbits of satellites, shorten their lifetimes, or interfere with onboard electronics. The more we learn about what causes space weather – and how to predict it – the more we can protect the satellites we depend on.

- The solar wind dominates the space environment. As we send spacecraft and astronauts further and further from home, we must understand this space environment just as early seafarers needed to understand the ocean.

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What is the significance of this study?

The Sun is far more complex than meets the eyes as it is a dynamic and magnetically active star. The Sun's atmosphere constantly sends magnetised material outward, enveloping the Solar System far beyond the orbit of Pluto and influencing every world along the way.

The corona gives rise to the solar wind, a continuous flow of charged particles that permeates the solar system.

Unpredictable solar winds cause disturbances in our planet's magnetic field and can play havoc with communications technology on the earth. The findings of the probe will enable scientists to forecast changes in the earth's space environment.