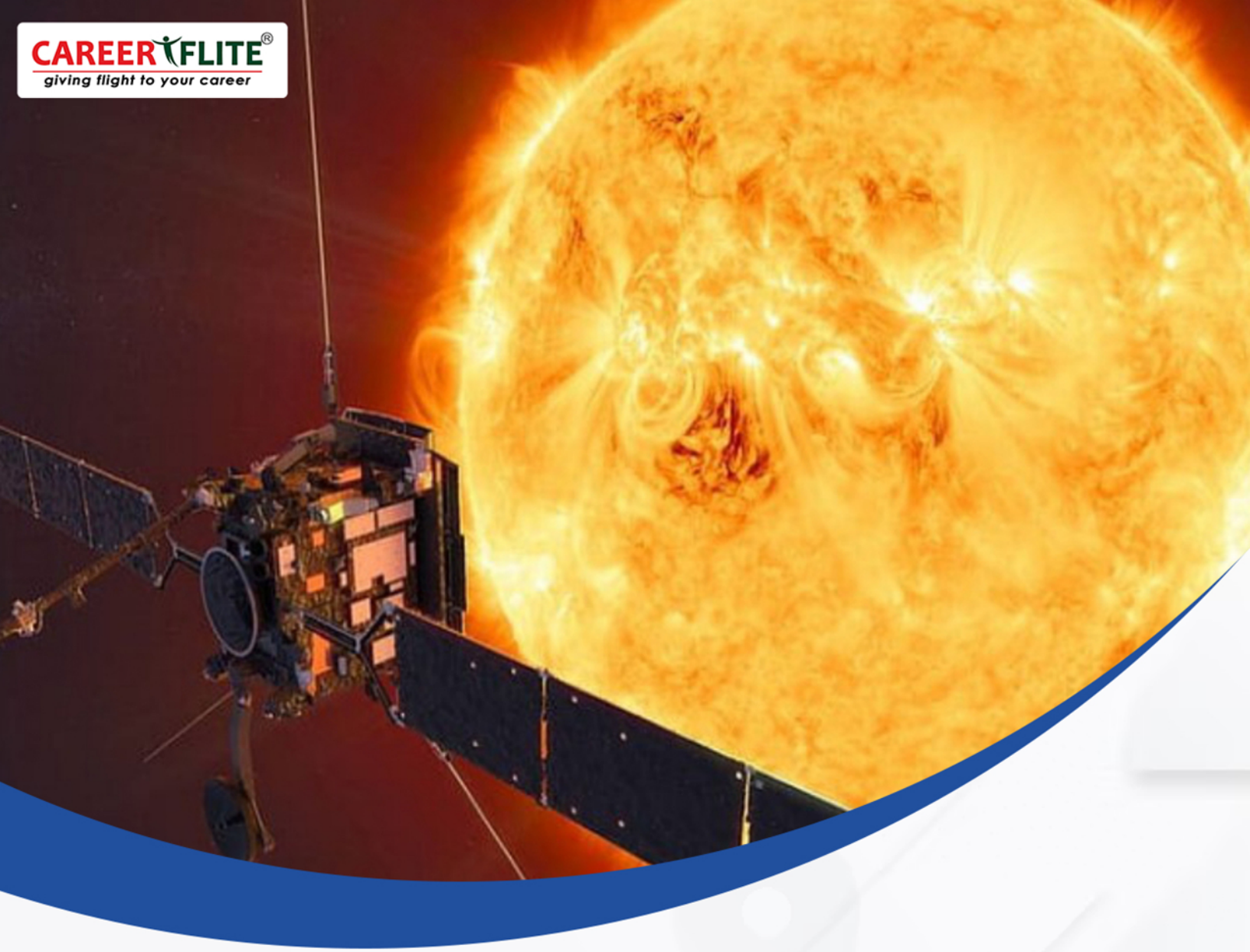
CAREERFLITE®
giving flight to your career



# ADITYA L1 MISSION

## The 1st Indian Space-Based Observatory-Class Mission To Unlock The Mysteries Of The Sun


www.careerflite.com

Chandmari Centre
3rd Floor, Above Bimal Auto Agency
Chandmari Flyover U Turn, Guwahati
76700 46464

Adabari Centre
2nd Floor, Letu Ram Das Market
Adabari Tiniali, Adabari, Guwahati
98640 93327

# Aditya L1: India's mission to study the Sun


ISRO's spacecraft succesfully launched from Satish Dhawan Space Centre, Sriharikota on 02 Sept 2023. With this, India inched one step closer for the completion of its maiden Solar expedition. ISRO's trusted PSLV carried the Aditya L1 mission on a 125-day voyage to the Sun. The Aditya L1 spacecraft will stay in Earth's orbit for sixteen days. After four months of journey, the satellite will be placed on the L1 point in the halo orbit around the Sun. Aditya L1 is designed to provide remote observations of the Solar corona and conduct in-situ observations of the Solar wind at L1 (Sun-Earth Lagrangian point), which is about 1.5 million kilometres from the Earth.

## Mission Details

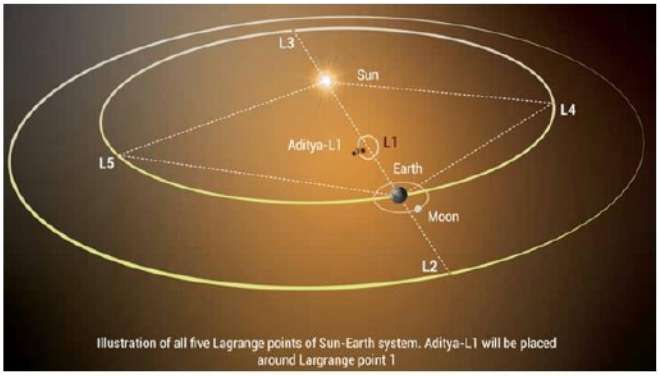


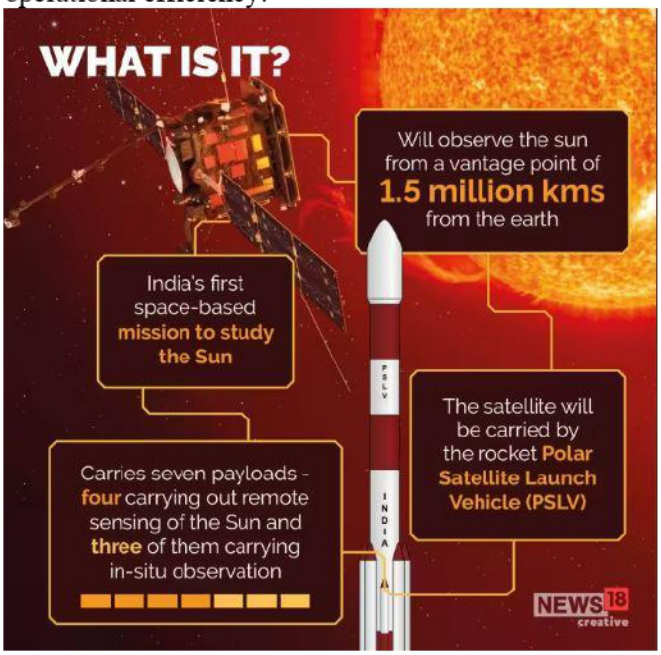
Illustration of all five Lagrange points of Sun-Earth system. Aditya-L1 will be placed around Largrange point 1

Aditya-L1 is a satellite dedicated to the comprehensive study of the Sun. It has 7 distinct payloads developed, all developed indigenously. Five by ISRO and two by Indian academic institutes in collaboration with ISRO. Aditya in Sanskrit means the Sun. L1 here refers to Lagrange Point 1 of the Sun-Earth system. For common understanding, L1 is a location in space where the gravitational forces of two celestial bodies, such as the Sun and Earth, are in equilibrium. This allows an object placed there to remain relatively stable with respect to both celestial bodies.

Following its launch on September 2, 2023, Aditya-L1 stays Earth-bound orbits for 16 days, during which it undergoes 5 maneuvres to gain the necessary velocity for its journey. Subsequently, Aditya-L1 undergoes a Trans-Lagrangian1 insertion maneuvre, marking the beginning of its 110-day trajectory to the destination around the L1 Lagrange point. Upon arrival at the L1 point, another maneuvre binds Aditya-L1 to an orbit around L1, a balanced gravitational location between the Earth and the Sun. The satellite spends its whole mission life orbiting around L1 in an irregularly shaped orbit in a plane roughly perpendicular to the line joining the Earth and the Sun.

The strategic placement at the L1 Lagrange point ensures that Aditya-L1 can maintain a constant, uninterrupted view of the Sun. This location also allows the satellite to access solar radiation and magnetic storms before they are influenced by Earth's magnetic field and atmosphere. Additionally, the L1 point's

gravitational stability minimizes the need for frequent orbital maintenance efforts, optimizing the satellite's operational efficiency.




**Quick Facts:** Aditya-L1 will stay approximately 1.5 million km away from Earth, directed towards the Sun, which is about 1% of the Earth-Sun distance. The Sun is a giant sphere of gas and Aditya-L1 would study the outer atmosphere of the Sun. Aditya-L1 will neither land on the Sun nor approach the Sun any closer.

**Mission Objective:**

The suits of Aditya L1 payloads are expected to provide most crucial information to understand the problem of coronal heating, coronal mass ejection, pre-flare and flare activities and their characteristics, dynamics of space weather, propagation of particle and fields etc.

**Payloads:**

The instruments of Aditya-L1 are tuned to observe the solar atmosphere mainly the chromosphere and corona. In-situ instruments will observe the local environment at L1. There are total seven payloads on-board with four of them carrying out remote sensing of the Sun and three of them carrying in-situ observation.


**Nigar Shaji: Scientist behind ADITYA L1 Mission**

Hailing from the greens of Sengottai, Tamil Nadu, Nigar Shaji is a graduate of the Madurai Kamaraj University. She joined ISRO in 1987 and currently resides in Bengaluru. Before joining the maiden solar mission, Shaji was transferred to UR Rao Satellite Centre in Bengaluru where she worked in different verticals building her expertise. She was also involved in the design of India's remote sensing, communication and interplanetary satellites in different capacities.