

Aditya-L1, India's maiden solar sat, to soar into skies at 11.50 am today

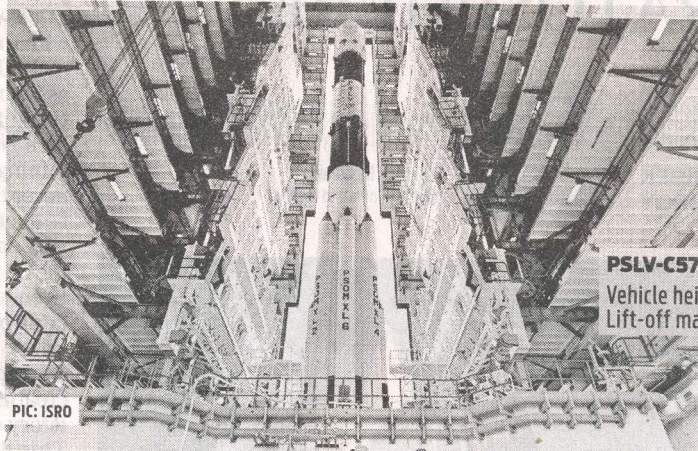
PSLV-C57 rocket to lift-off from Sriharikota carrying seven indigenously-developed payloads

SV KRISHNA CHAITANYA @ Chennai

THE 23 hours and 40 minutes countdown for the ambitious Sun mission has begun on Friday afternoon. The Aditya-L1 satellite with seven indigenously developed scientific payloads will lift-off from the second launch pad of Satish Dhawan Space Centre (SDSC-Shar) at Sriharikota on a PSLV-C57 rocket today at 11.50 am.

Initially, the Aditya spacecraft will be placed in a highly eccentric Earth bound orbit and will later perform orbital maneuvers using its onboard Liquid Apogee Motor (LAM) to reach Sun-Earth Lagrange Point L1, (1.5 million kilometers from Earth, in a halo orbit) traveling for about four months. LAM developed by the ISRO's Liquid Propulsion Systems Centre (LPSC) has been crucial in satellite/spacecraft propulsion in India's major space achievements, be it the three Chandrayaan expeditions or the 2013 Mars Orbiter Mission (MOM).

The total lift-off mass of the PSLV rocket would be 321 tonnes and the Aditya-L1 spacecraft weights 1480.7kg. ISRO Chairman S Somanath said the Sun mission will take 125 days to reach the exact radius. Aditya L1 is designed for providing remote observations of the solar corona and conduct in-situ



PIC: ISRO

PSLV-C57 CHARACTERISTICS

Vehicle height: 44.4m

Lift-off mass: 321 tonnes

observations of the solar wind at L1.

Sun is the nearest star and the largest object in the solar system. The estimated age of sun is about 4.5 billion years. The distance to the sun from the earth is about 150 million kilometers, and is the source of energy for our solar system.

Aditya-L1 will be the

first space based observatory class Indian solar mission to study the sun. The L1 point has major advantage of continuously viewing the Sun without any occultation/eclipse. The spacecraft that carries seven payloads to observe the photosphere, chromosphere, and the outermost layers of the Sun (the corona) using electromagnetic and particle detectors, are expected to provide most crucial information to understand the problems of coronal heating, coronal mass ejection, pre-flare and flare activities, and their characteristics, the ISRO said.

SDSC-Shar director A Rajarajan told *TNIE* several precautionary measures were taken for this mission like 24/7 pure nitrogen purging of the spacecraft and the payloads to ensure no dust particle even the size of a micron settles on them.

PAYLOADS

The satellite carries 7 scientific payloads for systematic study of the Sun

	PAYLOAD NAME	CAPABILITY
Remote sensing payloads	Visible Emission Line Coronagraph (VELC)	Corona/Imaging & Spectroscopy
	Solar Ultraviolet Imaging Telescope (SUIT)	Photosphere and Chromosphere Imaging-Narrow & Broadband
	Solar Low Energy X-ray Spectrometer (SoLEXS)	Soft X-ray spectrometer: Sun-as-a-star observation
In-situ Payloads	High Energy L1 Orbiting X-ray Spectrometer (HELIOS)	Hard X-ray spectrometer: Sun-as-a-star observation
	Aditya Solar wind Particle Experiment (ASPEX)	Solar wind/Particle Analyzer Protons & Heavier Ions with directions
	Plasma Analyser Package For Aditya (PAPA)	Solar wind/Particle Analyzer Electrons & Heavier Ions with directions
	Advanced Tri-axial High Resolution Digital Magnetometers	In-situ magnetic field