

# Isro looking at two Aditya satellites to study the Sun

## Project To Be Launched In 2019-2020

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**Bengaluru:** Following the success of the Mars Orbiter Mission (MOM), the Centre has granted permission for the 400-kg Aditya project to study the Sun, and, the Indian Space Research Organisation (Isro) is preparing for a 2019-2020 launch from Sriharikota.

Prof U R Rao, chairman of the national committee that clears Isro's projects, told TOI that the agency is looking at two satellites as part of the project, and not just one. "Isro has always wanted to do research in new areas so as to build a competitive edge and this project will be similar. The proposal for the second satellite and its clearance are all yet to happen, but the work on the same is over."

Isro's reputation post MOM has skyrocketed, allowing the agency to have multiple ambitious projects in the pipeline, including a second Aditya satellite to study the Sun, work on which will begin simultaneously with the first, even if the launch is not on the same day. The clearance for Aditya came after a seven-year-long wait.

Isro and the Centre have

■ **VISIBLE EMISSION LINE CORONAGRAPH (VELC):** To study the diagnostic parameters of solar corona and dynamics of coronal mass ejections

(To be developed by Indian Institute of Astrophysics, Bengaluru)

■ **SOLAR ULTRAVIOLET IMAGING TELESCOPE (SUIT):** To image the spatially resolved solar photosphere and chromosphere

(By Inter-University Centre for Astronomy & Astrophysics, Pune)

■ **ADITYA SOLAR WIND PARTICLE EXPERIMENT (ASPEX):** To study the variation of solar wind properties

(By Physical Research Laboratory, Ahmedabad)

been talking about Aditya as a single satellite to study the largely unknown areas of the Sun, including the corona. One of the clear advantages it would provide the Indian space community is to have their own models of space weather, something we are dependent on the US as of now.

A senior scientist from Isro, while conceding the development, said: "Right now we've got clearance for Aditya-L1 and we're focussed on it."

Lagrangian point-1 (L1) is

## THE PAYLOADS

■ **PLASMA ANALYSER PACKAGE FOR ADITYA (PAPA):**

To understand the composition of solar wind and its energy distribution

(Space Physics Laboratory, VSSC, Thiruvananthapuram)

■ **SOLAR LOW ENERGY X-RAY SPECTROMETER (SOLEXS):** To monitor the X-ray flares for studying the heating mechanism of the solar corona

(Isro Satellite Centre (ISAC), Bengaluru)

■ **HIGH ENERGY L1 ORBITING X-RAY SPECTROMETER (HELIOS):** To observe the dynamic events in the solar corona

(ISAC & Udaipur Solar Observatory)

■ **MAGNETOMETER:** To measure the magnitude and nature of the interplanetary magnetic field

(Laboratory for Electro-optic Systems and ISAC)

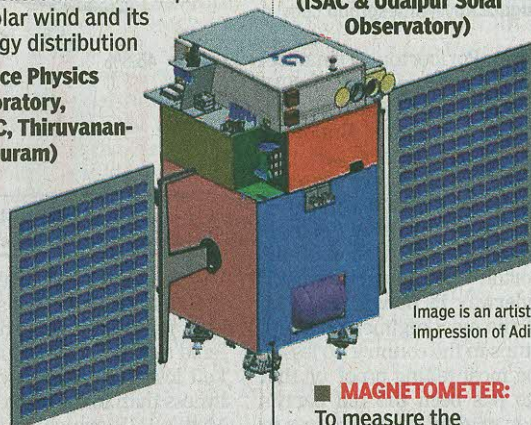


Image is an artist's impression of Aditya

Source: Isro

the point on the halo orbit that Isro is planning to place the first Aditya, the clearance for which has already come. "The point of the Sun-Earth system has the major advantage of continuously viewing the Sun without any occultation/eclipses, which is why the choice," Isro officials have said.

Rao explained that points L1 to L5 are five points of maximum advantage on the Halo Orbit as discovered in the 1800s. "Our second satel-

lite will be placed at L5, which is behind the Earth and will see the Sun five days before the Earth sees it and that will give us scope to study the Sun from two different points," Rao said.

Aditya-L1 will carry seven payloads (see box) as per Isro, which the agency says provides an opportunity to solar scientists from multiple institutions within the country to participate in space-based instrumentation and observations.