

## **Chandrayaan-1 now in lunar orbit**

November 10 2008



This artist's concept shows the Indian lunar orbiter Chandrayaan-1. The spacecraft will carry two European experiments on board which are direct descendents of ESA's SMART-1 - the infrared spectrometer, SIR2, and the X-ray spectrometer, C1XS, to study the mineralogy and the chemical composition of the lunar surface. The third European instrument on board is the SARA Sub-kiloelectronvolt Atom Reflecting Analyser, that will study the interaction between the lunar surface and the solar wind. Credits: ISRO

(PhysOrg.com) -- Chandrayaan-1, the Indian Space Research Organisation's (ISRO) lunar orbiter, was captured into orbit around the Moon on 8 November. One day later, the spacecraft performed a manoeuvre that lowered the closest point of its orbit down to 200 km from the Moon.



The spacecraft's liquid-fuel propelled engine was fired at 12:21 CET (16:51 Indian Standard Time) when it was at a distance of about 500 km from the Moon. This reduced the spacecraft's velocity, enabling the Moon's gravitational field to capture Chandrayaan-1 into lunar orbit. In this configuration, the orbit's point closest to the lunar surface was at 504 km and the spacecraft circled the Moon in 11 hours.

This lunar orbit insertion manoeuvre was executed from the Chandrayaan-1 Spacecraft Control Centre at ISRO's Telemetry, Tracking and Command Network at Bangalore. The performance of all the systems on board Chandrayaan-1 was registered as normal.

Yesterday, at 15:33 CET (20:03 Indian Standard Time), the spacecraft's engine was fired for about 57 seconds, reducing the orbit's point closest to the lunar surface to 200 km while the farthest point remained unchanged at 7502 km. In this elliptical orbit, Chandrayaan-1 takes about ten and a half hours to circle the Moon once.

Over the next few days, the height of the spacecraft's orbit around the Moon will be carefully reduced in steps to achieve a final 100-km polar lunar orbit. The Moon Impact Probe (MIP) will then be released to hit the lunar surface, after which the other instruments on board will be turned on.

Chandrayaan-1 was launched on 22 October by from India's spaceport at Satish Dhawan Space Centre SHAR, Sriharikota. The launcher placed the spacecraft in an elliptical orbit around Earth.

In the past two weeks, the Terrain Mapping Camera (TMC), one of the eleven scientific instruments of the spacecraft, was successfully operated twice to take pictures.

Provided by ESA



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