

India readies 1st moon mission in Asian space race

By GAVIN RABINOWITZ and SETH BORENSTEIN, Associated Press Writers – Tue Oct 21, 5:11 pm ET

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AP – In this undated photo provided by the Indian Space Research Organization, Chandrayaan-1, India's maiden ...



Slideshow: India Moon Mission

NEW DELHI – Scientists have better maps of distant Mars than the moon where astronauts have walked. But India hopes to change that with its first lunar mission.

Chandrayaan-1 — which means "Moon Craft" in ancient Sanskrit — is scheduled to launch from the Sriharikota space center in southern India at 8:20 p.m. EDT Tuesday in a two-year mission aimed at laying the groundwork for further Indian space expeditions.

Chief among the mission's goals is mapping not only the surface of the moon, but what lies beneath. If the launch is successful, India will join what's shaping up as a 21st century space race with Chinese and Japanese crafts already in orbit around the moon.

The United States, which won the 1960s race to send men to the moon, won't jump in this race with its new lunar probe until next spring, but it is providing key mapping equipment for India's mission.

As India's economy has boomed in recent years, it has sought to convert its new found wealth — built on its high-tech sector — into political and military clout and stake a claim as a world leader. It is hoping that a moon mission — coming just months after it finalized a deal with the United States that recognizes India as a nuclear power — will further enhance that status.

"It is a remarkable technological achievement for the country," said S. Satish, a spokesman for the Indian Space Research Organization, which plans to use the 3,080-pound lunar probe to create a high-resolution map of the lunar surface and what minerals are below. The mapping instruments are a joint project with NASA.

Until now, India's space launches have been more practical, with weather warning satellites and communication systems, said former NASA associate administrator Scott Pace, director of space policy at the George Washington University.

"You're seeing India lifting its sights," Pace said.

To date only the U.S., Russia, the European Space Agency, Japan and China have sent missions to the moon.

While much of the technology involved in reaching the moon has not changed since the Soviet Union and

the U.S. did it more than 4 decades ago, analysts say current mapping equipment allows the exploration of new areas, including below the surface.

In the last year, Asian nations have taken the lead in exploring the moon. In October 2007, Japan sent up the Kaguya spacecraft. A month later, China's Chang'e-1 entered lunar orbit.

Those missions took high resolution pictures of the moon, but aren't as comprehensive as Chandrayaan-1 will be or NASA's upcoming half-a-billion-dollar Lunar Reconnaissance Orbiter, Pace said. The most comprehensive maps of the moon were made about 40 years ago during the Apollo era, he said.

"We don't really have really good modern maps of the moon with modern instrument," Pace said. "The quality of the Martian maps, I would make a general argument, is superior to what we have of the moon."

NASA has put probes on Mars' frigid polar region, but not on the rugged poles of the moon. Yet the moon's south pole is where NASA is considering setting up an eventual human-staffed lunar outpost, Pace said.

The moon's south pole is "certainly more rugged than where Neil Armstrong landed. It's more interesting. It's more dangerous," Pace said. "We need better maps."

And while the moon race in the 1960s was a two-country sprint between the United States and the U.S.S.R, more countries are involved this time. China, in particular, has been forging ahead in space.

Beijing sent shock waves through the region in 2003, when it became the first Asian country to put its own astronauts into space. It followed that last month with its first spacewalk.

More ominously, last year China also blasted an old satellite into oblivion with a land-based anti-satellite missile, the first such test ever conducted by any nation, including the United States and Russia.

While this is India's first space expedition beyond Earth's orbit, the head of India's space agency believes it can quickly catch China, its rival for Asian leadership.

"Compared to China, we are better off in many areas," Indian Space Research Organization chairman G. Madhavan Nair said in an interview with India's Outlook magazine this week, citing India's advanced communication satellites and launch abilities.

India lags behind only because it has chosen not to focus on the more expensive manned space missions, he said. "But given the funds and necessary approvals we can easily catch up with our neighbor in this area."

The mission is not all about rivalry and prestige. Analysts say India stands to reap valuable rewards from the technology it develops and, according to Pace, it already shows increased confidence in difficult engineering and quality control.

"Each nation is doing its own thing to drive its research technology for the well-being of that nation," said Charles Vick, a space analyst for the Washington think tank GlobalSecurity.org.

"Traditionally, for every dollar put into space research, we get that much more back," he said.

India is also collaborating closely with other countries on the mission.

Of the 11 instruments carried by the satellite, five are Indian, three are from the European Space Agency, two from the U.S. — including radar that can search for ice under lunar poles — and one from Bulgaria.

Beyond 3-D mapping the moon and scanning for mineral deposits, the \$80 million mission will test systems for a future moon landing, the Indian space agency said.

India plans to follow this mission with landing a rover on the moon in 2011 and eventually a manned space program, though this has not been authorized yet.

And the Indian space agency was already dreaming of more.

"Space is the frontier for mankind in the future. If we want to go beyond the moon, we have to go there first," said Satish.

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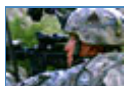
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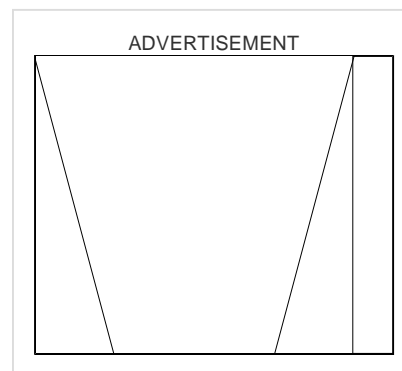
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