

NASA counts down to launch of Mars orbiter

November 18 2013

NASA on Monday began the countdown to the launch of a new Mars spacecraft on a mission to study how the air on the Red Planet has changed over time.

Researchers have described the mission as a search for a missing piece to the puzzle of what happened to Mars' [atmosphere](#), perhaps billions of years ago, to transform Earth's neighbor from a water-bearing planet that might have been favorable for life to a dry, barren desert.

The launch of the unmanned Mars Atmosphere and Volatile Evolution (MAVEN), could happen as early as 1:28 pm (1828 GMT) from Cape Canaveral, Florida.

Despite some concerns about thick clouds, the weather forecast was 60 percent favorable for takeoff during a two-hour launch window, US Air Force officials said Monday.

After a 10-month journey to Mars, the orbiter will take measurements at various altitudes to help scientists learn about the atmosphere, which has never been studied before.

"MAVEN is the first spacecraft devoted to exploring and understanding the Martian upper atmosphere," the US space agency said.

"The spacecraft will investigate how the loss of Mars' atmosphere to space determined the history of water on the surface."

NASA has sent a series of rovers to explore the surface of the Red Planet, including its latest, Curiosity, which arrived last year.

The deep space orbiter launched earlier this month by India seeks to find traces of methane from Mars and may arrive two days later than the US spacecraft, if NASA's launch goes ahead as planned on Monday.

The science goals of the two do not overlap much. The Indian probe will be searching for methane which could prove the existence of some ancient life form, while the US probe seeks answers about the planet's climate change.

The entire MAVEN mission cost \$671 million.

The eight-foot (2.5 meter) cube-shaped spacecraft weighs 5,410 pounds (2,453 kilograms) and is posed to launch aboard an Atlas V 401 rocket from Cape Canaveral Air Force Station.

Arrival at Mars is scheduled for September 2014 and the science mission of the solar-wing paneled orbiter is set to begin in November 2014.

Much of its year-long mission will be spent circling the planet at a distance of 6,000 kilometers (3,800 miles) above the surface, but it will execute five deep dips to a height of just 125 kilometers (78 miles) to get readings of the atmosphere at various levels.

By measuring the current rate of escape to space and gathering information about how the atmosphere is thinning, scientists hope to be able to extrapolate back in time and estimate when it started and how it happened.

MAVEN's findings are expected to help pave the way for a future visit by humans to the Red Planet, perhaps as early as the 2030, NASA has

said.

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