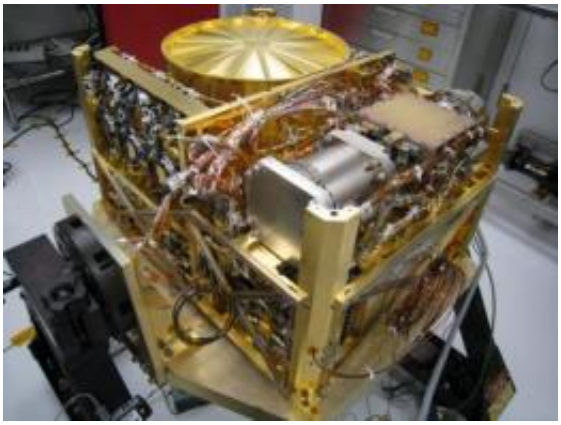
NASA's Mobile Mars Laboratory almost ready for flight

October 8 2010



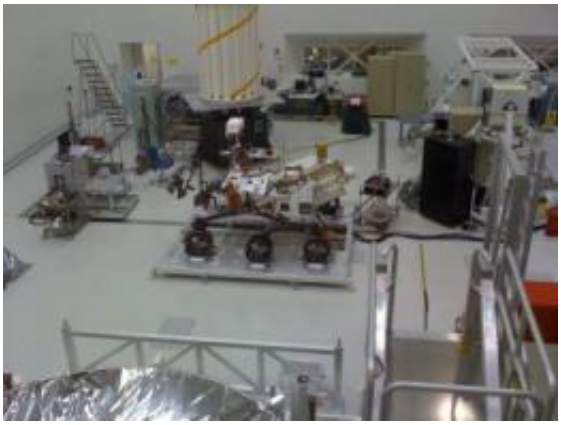
This is the SAM laboratory prior to installation of side panels. Credit: NASA/Goddard/SAM

The Sample Analysis at Mars (SAM) instrument suite has completed assembly at NASA's Goddard Space Flight Center in Greenbelt, Md., and is nearly ready for a December delivery to NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., where it will be joined to the Curiosity rover. SAM and Curiosity are set to fly on the on the upcoming Mars Science Laboratory (MSL) rover mission scheduled for launch in the fall of 2011.

SAM will become an automated, mobile laboratory as it is carried across Mars by the rover when the mission arrives at the Red Planet in 2012. Together with other instruments on Curiosity, SAM will assess whether

Mars ever was, or is still today, an environment able to support microbial life.

"We expect Curiosity will make amazing discoveries," said SAM Principal Investigator Dr. Paul Mahaffy of NASA Goddard, "and we are looking forward to the contributions our mobile chemistry laboratory can make to a better understanding of the history of our neighboring planet."



This is the MSL Curiosity rover. Credit: NASA/JPL/MSL Project

SAM is in flight configuration, meaning its instruments are in the condition they will be during launch and are ready to begin operations on Mars. The instrument suite (a mass spectrometer, gas chromatograph, and tunable laser spectrometer) has started final environmental testing this week, which includes vibration and thermal testing to ensure SAM can survive the launch, deep space flight, and conditions on Mars.

Once at Mars, SAM will examine the planet's habitability by exploring molecular and elemental chemistry relevant to life. SAM will analyze samples of Martian rock and soil to assess carbon chemistry through a

search for organic compounds. The lab will also determine the chemical state of light elements other than carbon, and look for isotopic tracers of planetary change.

Provided by NASA's Goddard Space Flight Center