

SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Part 1 (3A)

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MARS SCIENCE LABORATORY'S CURIOSITY ROVER ON MARS

Abstract

The Mars Science Laboratory (MSL) – ‘Curiosity’ rover is the most recent vehicle on the surface of Mars, joining her older sister Opportunity. Launched on November 26, 2011, Curiosity arrived on Mars on August 6, 2012 using new technology that enabled it to immediately begin a continuing journey into the history books. After a short checkout phase where the operations team enabled and checked out the basic rover capabilities and the science instrument suite, the operations team began using the rover to study the surrounding location. Simultaneously, the operations team also continued to finish development of additional capabilities for the rover to use during the mission. Previous papers have discussed the mission status up through the surface checkout phase. This paper is reporting on the primary mission, from the end of the surface checkout phase, as well as the plans for the first extended mission. This look will include the engineering challenges and accomplishments so far, as well as a quick peek at some of the still developing science stories, images, and data that the rover is unfolding for the team. Some of the key engineering accomplishments will include the story behind the first hole drilled on Mars, as well as the challenges of delivering the drill tailings to the Chemistry Mineralogy X-Ray Diffraction/X-Ray Fluorescence Instrument (CheMin) and Sample Analysis at Mars (SAM) Instruments.