SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Part 2 (3B)

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THE MARS RECONNAISSANCE ORBITER: STATUS OF THE PRIMARY MISSION; PLANS FOR THE EXTENDED MISSION

Abstract

The Mars Reconnaissance Orbiter (MRO) is the newest operating spacecraft in the fleet surrounding the Red Planet. Launched in August of 2005, MRO arrived at Mars on March 10, 2006 and began a series of dips into the Martian atmosphere to change the orbit of the spacecraft from the highly elliptical arrival orbit to a nearly circular science orbit. After achieving the desired science orbit, the Primary Science Phase began in November 2006. This paper is reporting on the Primary Mission to date (due to be completed on December 31, 2010), as well as the plans for the Extended Mission that will begin January of 2011. The mission has returned a treasure trove of over 100 Terabits of science data, while supporting the Mars Program as both a relay asset and the premier source for landing site analysis and validation. Detailing the science results, as well as the engineering plans and history during this period, this paper will convey to the reader the record breaking achievements of the mission to date – the fascinating images from the cameras and imaging spectrometer, the atmospheric discoveries, the unique look beneath the surface achieved by the sounding radar, as well as the engineering challenges and accomplishments that enabled these discoveries.