

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

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DESIGN AND EXPERIMENTS FOR A MARS METHANE ANALOGUE MISSION ROVER  
OPERATIONS

## Abstract

The search for signs of past or extant life on Mars is a high priority for future Mars exploration. This search will likely be undertaken with a variety of landed and orbital missions. The Canadian Space Agency (CSA), through its Analogue Missions program, is supporting a microrover-based analogue mission designed to simulate a Mars rover mission geared toward identifying and characterizing methane emissions on Mars. This analogue mission program will run until late 2012. In June 2011, we conducted our first Mars methane analogue mission deployment at the Jeffery Mine in Asbestos, Quebec. The deployment and testing was conducted over three days using a Pioneer Rover and scientific instruments including Raman, Piccaro, ASD and EMIS for testing rock and gas samples. This paper describes the rover operations carried out in this mission in terms of planning, deployment, communication and equipment setup, rover path parameters and evaluation throughout the whole deployment.