Enabling Mars Rover Science Operations

Silver Lake, California April and October 1999 Field Tests

FIDO

ROVER
- 110 cm x 97 cm x 53 cm and 62 kg
- 100 W, solar powered with replaceable batteries
- Rocker bogie structure with 20 cm diameter wheels
- Commandable using Web Interface for Telescience

PAYLOAD
REMOTE SENSING (MAST)
PANCAM
- 15 cm stereobaseline, 0.35 mrad/pixel, false color
NAVCAM
- 23 cm stereobaseline, 1.5 mrad/pixel, monochrome
INFRARED POINT SPECTROMETER
- Eyeball sighted with Navcam
- 1.3-2.5 pm with 13 cm spectral resolution and 16 bit encoding, and 9 PanCam-pixel spot size
ANALYTICAL CAPABILITIES (ARM)
COLOR MICROSCOPIC IMAGER
- Pixel size of 20 x 18 pm, FOV of ~1.5 cm
MOSSBAUER SPECTROMETER
- Fe-57 MB Spectrometer for detection of iron-bearing minerals and iron oxidation states
MINI-CORER DRILL AND BELLYCAM
- Acquires 5mm by 1.7 cm rock drill cores
- Cores cached in sample container
- Monitored with Bellycams

PRIMARY MISSION - ACQUIRING AND CACHING SAMPLES

First 90% of Mars Sample Return Rover mission will be focused on finding, sampling, and caching rocks and soils

April field tests verified ability to remotely identify, traverse to, drill, and verify successful sample acquisition from dolomite and diorite targets

EXTENDED MISSION - EXPLORATION AND DISCOVERY

The extended Mars Sample Return Rover mission will be focused on exploration and discovery

April 1999 tests simulated exploration and discovery traverses in breakout channel focusing on acquisition of Pancam, Navcam, and IPS data