

Enhanced Reporting of Mars Exploration Rover Telemetry

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Mars Exploration Rover Enhanced Telemetry Extraction and Reporting System (METERS) is software that generates a human-readable representation of the state of the mobility and arm-related systems of the Mars Exploration Rover (MER) vehicles on each Martian solar day (sol). Data are received from the MER spacecraft in multiple streams having various formats including text messages, sparsely-sampled engineering quantities, images, and individual motor-command histories. Typically, only parts of this data generated on Mars are received the same day they were created, so the summary report tools have to work

well even when data is missing. All information is grouped by type into easily-browsable Web pages (see Figure 1).

METERS is the first software to provide an integrated view of the mobility and arm operations even when data are missing. METERS combines the data received in the various telemetry streams during an entire sol, making clear what has occurred and annotating what data are missing. METERS comprises a set of software tools (primarily in C, C++) and Perl language scripts for robustly combining these data into a concise, human-readable format. Raw data products are converted into Hypertext Markup Lan-

guage files, compatible with Web-browser software, that include thumbnail images (see Figure 2), summaries of motions, and plots of engineering data. Automatically generated reports also summarize the classes of mobility and arm activities that occur during each sol.

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This software is available for commercial licensing. Please contact Karina Edmonds of the California Institute of Technology at (626) 395-2322. Refer to NPO-45366.

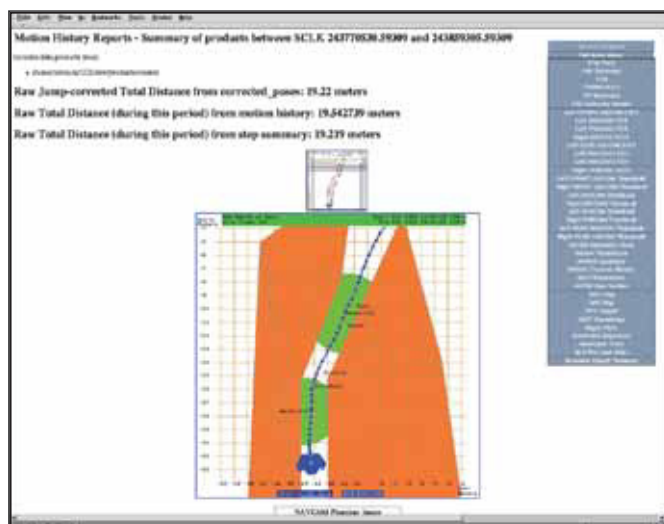


Figure 1. This top view of a METERS Auto-Generated Main Web Page includes a motion summary in plain text, graphical course plot, and a pull-down menu to select individual reports.

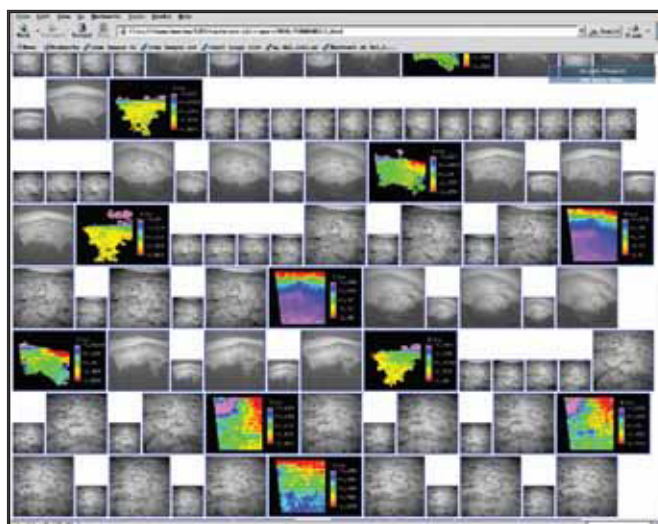


Figure 2. Another page includes Thumbnail Views of All Images, including thumbnail-sized elevation data automatically extracted from stereo pairs of images.