



HiRISE photometric observations of the Opportunity landing site and Mawrth Vallis.

N. Thomas (1), J.F. Bell (2), J. Grant (3), K. Herkenhoff (4), A.S. McEwen (5), P. Russell (1) and the HiRISE Team

(1) Physikalisches Institut, University of Bern, Sidlerstrasse 5, CH-3012 Bern, Switzerland (nicolas.thomas@space.unibe.ch Fax: +41 31 631 4405)

(2) Cornell University, Ithaca, USA

(3) Smithsonian Institution, Washington, D.C., USA

(4) USGS, Flagstaff, USA

(5) Lunar and Planetary Lab., University of Arizona, Tucson, USA.

The High Resolution Imaging Science Experiment (HiRISE) onboard the Mars Reconnaissance Orbiter has been acquiring data in its primary science phase since 6 November 2006. The system is able to produce three-colour images (536 nm, 694 nm, and 874 nm) of the surface at scales of around 30 cm/px. At the time of writing, calibration of the system pre-launch is being verified by comparison with quasi-simultaneous observations acquired by the Opportunity rover and with observations of standard stars. The results allow us to investigate the distributions of various, spectrally different materials at sites all over Mars. Mawrth Vallis has attracted considerable interest because of the existence of phyllosilicate absorption bands in the Mars Express/OMEGA spectra of the eroded flanks and cratered plateaux (Bibring et al., *Science*, 312, 400, 2006). Although the HiRISE colour ratios remain dominated by the strong reddening given by iron oxides, the first HiRISE enhanced colour composites of this region indicate spectral diversity at the highest spatial resolution. Comparison with the JPL database of mineral spectra (Grove, Hook, and Paylor III, *Laboratory Reflectance Spectra of 160 Minerals, 0.4 to 2.5 Micrometers*, JPL Publication 92-2, 1992) shows, however, that pure phyllosilicates (e.g. montmorillonite) as measured in the laboratory, appear to be too blue to match the present HiRISE data set. The presentation will discuss the colour calibration of HiRISE and provide a quantitative

assessment of the observations of Mawrth Vallis and the Opportunity landing site.