

Thursday, March 15, 2007

POSTER SESSION II: MARS DATA PROCESSING AND ANALYSES
6:30 p.m. Fitness Center

Bornstein B. Fukunaga A. Castano A. Biesiadecki J. Castano R. Chien S. Greeley R. Whelley P. Neakrase L. Lemmon M.

Onboard Science on the Mars Exploration Rovers: Cloud and Dust Devil Detection [#2420]

We have developed algorithms that analyze images onboard rovers to identify the presence of dust devils and clouds. This code is now running on the Mars Exploration Rovers.

Bue B. D. Wagstaff K. L. Castano R. Davies A. G.

Automatic Onboard Detection of Planetary Volcanism from Images [#1717]

A computationally efficient algorithm for detecting volcanic plumes from image data has been developed and tested using several widely used image datasets. The algorithm is currently able to correctly detect 78% of plumes in test images.

Gehrke S. Haase I.

HRSC Data Processing by Matching in Object Space: Joint Derivation of DTM and Orthoimage for an Impact Crater on Mars [#1496]

DTM and orthoimage derivation from HRSC data is combined by matching in object space. Thus, interconnections between these surface models are implicitly regarded. The flexible approach is the basis for future BRDF integration (e.g., Hapke's model).

Dulova I. A. Skuratovsky S. I. Bondarenko N. V. Kornienko Yu. V.

Photometric Method of Topography Reconstruction: Mars Relief from a Single Image [#1464]

We present a new rigorous photometric method of topography reconstruction. Here we validate the method in application to topography reconstruction from a single image. HRSC images are used as examples.

Spiegel M. Schmidt R. Stilla U. Neukum G.

Improvement of Exterior Orientation of Mars Express HRSC Imagery Using a Photogrammetric Block [#1608]

The HRSC imaged neighboring strips forming a block. The exterior orientation of this data is investigated for using the nominal orientation, the improved orientation with single strips, and the improved orientation adjusted in a block.

Kim J. R. Muller J.-P. Blame M. Murray J. B.

Geometric Ground Control of Very High Resolution Imagery Using HRSC Intersection Points and a Non-Rigorous Camera Model [#1811]

For geodetic control of high resolution optical sensors on Mars, we developed non-rigorous sensor modelling. A HRSC-MOC-NA matching scheme has been also developed which uses SPICE kernel together with conjugate tie points as the GCPs for the establishment of a non-rigorous camera model.

Albertz J. Gehrke S. Lehmann H. Wählisch M. Neukum G. HRSC Co-Investigator Team

An Overview of HRSC Map Products [#1517]

A variety of maps has been generated from HRSC data since 2004, mainly the sheets of the Topographic Image Map Mars 1:200,000 series but also related products including thematic maps.

Zender J. Heather D. Barthelemy M. Arviset C. Witasse O. Rossi A.

The ESA Planetary Science Archive [#1271]

ESA's Planetary Science Archive (PSA) will be presented. An overview of missions for which data is available is given. The individual online services of the PSA will be presented and an outlook to next data ingestions, new services and activities is given.

Eliason E. M. Castalia B. Espinoza Y. Fennema A. Heyd R. Leis R. McArthur G. McEwen A. Milazzo M. Motazedian T. Schaller C. Spitale I.

HiRISE Data Processing and Standard Data Products [#2037]

Data processing activities at the HiRISE Operations Center (HiROC) are presented.

Bornstein B. Gilmore M. Castano R. Greenwood J.

Automated Mineral Detection in Visible/Near-Infrared Spectra for Focus-of-Attention [#2339]

We are developing automated supervised algorithms that will rapidly classify hyperspectral data and identify geologically important minerals. These detectors will provide a mechanism to search full data sets for targets of interest.

Douté S. Deforas E. Schmidt F. Oliva R. Schmitt B.

A Comprehensive Numerical Package for the Modeling of Mars Hyperspectral Images [#1836]

We present a system that implements and integrates all the elements needed to achieve the modeling of Mars hyperspectral images. Processing of an image provides physical and structural maps of the surface.

Hughes C. G. Ramsey M. S. Tonooka H.

Super-Resolving THEMIS Data for Improved Temperature, Composition, and Spatial Resolution [#1810]

The current study investigates the applicability of a super-resolution algorithm to the fusion of THEMIS visible and infrared data, to enhance image interpretation and aid in the search for sub-pixel scale temperature and/or compositional anomalies.