

HIGH-RESOLUTION ATLAS OF PHOBOS DERIVED FROM MARS EXPRESS IMAGES.

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Over 800 images of the Martian moon Phobos were acquired by the High Resolution Stereo Camera (HRSC) and its Super Resolution Channel (SRC) during more than 110 flybys of the Mars Express spacecraft in the last four years [1], [2]. Orientations of 53 SRC images and 16 Viking images were improved during a control point network computation for Phobos [3]. The improved orientation parameter were applied to 26 SRC and 8 Viking images and projected onto a digital terrain model to derive a high-resolution digital orthomosaic in 12m/pixel resolution (see fig. 1). The mosaic is primarily stored in a Simple Cylindrical projection. The underlying Digital Terrain Model has a resolution of 100 m per pixel, exceeding the accuracy of previous models by a factor four. The atlas of Phobos consisting of four quadrangles on three sheets with a resolution of 1:50 000 was produced on the basis of this mosaic. We will show the three sheets during our presentation. For the equatorial parts of the atlas a Mercator map projection was used while the poles are in polar Stereographic map projection. Nomenclature of the surface features is marked according to the International Astronomical Union (IAU) conventions. The individual map sheets and the complete Phobos atlas will be available for download at [<http://europa.planet.dlr.de/>] after publishing [4].

References: [1] Jaumann, R., Neukum, G., Behnke, T., Duxbury, T.C., Eichentopf, K., Flohrer, J., Gasselt, S.v., Giese, B., Gwinner, K., Hauber, E., Hoffmann, H., Hoffmeister, A., Köhler, U., Matz, K.-D., McCord, T.B., Mertens, V., Oberst, J., Pischel, R., Reiss, D., Ress, E., Roatsch, T., Saiger, P., Scholten, F., Schwarz, G., Stephan, K., Wählisch, M., and the HRSC Co-Investigator Team, (2007) *Planet. Space Sci.* 55, 928–952. [2] Oberst, J., Schwarz, G., Behnke, T., Hoffmann, H., Matz, K.-D., Flohrer, J., Hirsch, H., Roatsch, T., Scholten, F., Hauber, E., Brinkmann, B., Jaumann, R., Williams, D., Kirk, R., Duxbury, T., Leu, C., Neukum, G., (2008) *Planet. Space Sci.* 56, 473–491. [3] Willner, K., Oberst, J., Hussmann, H., Giese, B., Hoffmann, H., Matz, K.-D., Roatsch, T., Duxbury, T. (2009) *EPSL* <http://dx.doi.org/10.1016/j.epsl.2009.07.033>, in press. [4] M. Wählisch, K. Willner, J. Oberst, K.-D. Matz,

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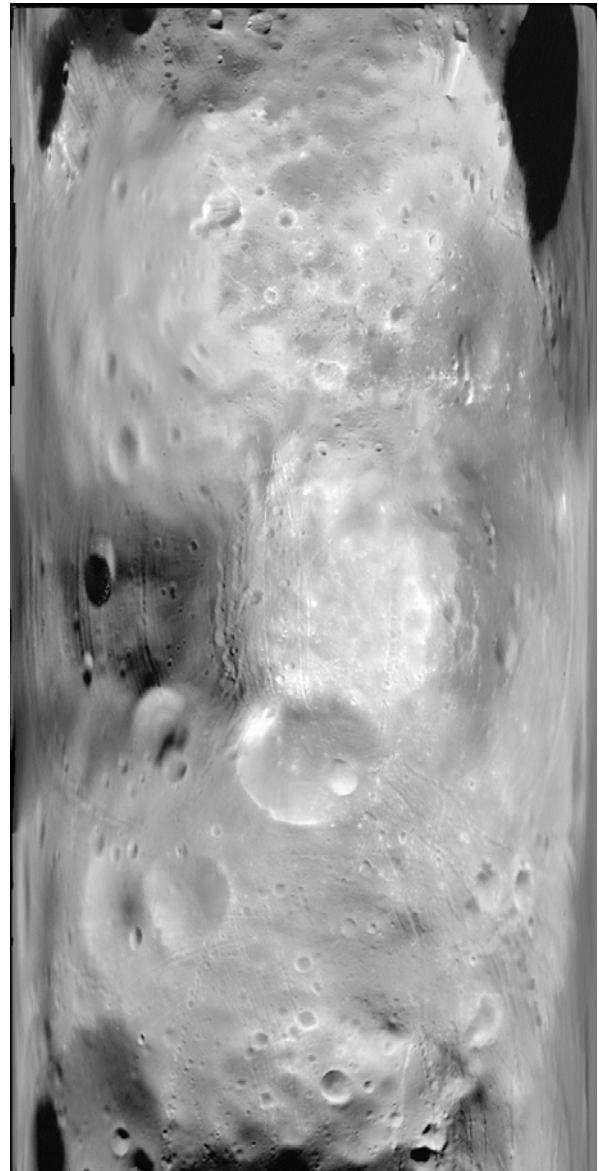


Fig. 1: Orthomosaic of entire Phobos rotated 90° anticlockwise, 0° is in the center.