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Study of payload accommodation and payload support systems for the ExoMars rover

Wolfgang Schulte, Peter Hofmann

Kayser-Threde GmbH, Wolfratshauser Str. 48, 81379 Munich, Germany,
wolfgang.schulte@kayser-threde.com, Phone: +49-89-72495-225, Fax: +49-89-72495-215;
peter.hofmann@kayser-threde.com, Phone: +49-89-72495-211, Fax: +49-89-72495-215

ESA's ExoMars mission will search for traces of past and present life on Mars; it will improve the knowledge of the Martian environment and identify possible surface hazards to future human missions. ExoMars will also support technology developments in space robotics and instrumentation in Europe. Rock/regolith samples shall be collected from the Martian subsurface and surface by a drilling system and the samples shall be distributed to the analytical instruments of the Pasteur exobiology payload. Prior to analysis the samples shall be prepared for the specific analyses. An industrial study carried out until early 2005 by Kayser-Threde GmbH, Munich/Germany, with MDA, Canada, as prime contractor focused on the sample preparation and distribution system, using advanced sample preparation methods, and on the payload accommodation on the rover with payload-specific support systems which function as interface between payload instruments and the Mars rover system. This paper outlines the studied concepts.