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Thermal measurements with HP3/TEM on ExoMars

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Thermal measurements constitute an important part of the Heat Flow and Physical Properties Package (HP3) proposed for the ExoMars mission. The planetary temperature gradient and thermal conductivity of the regolith shall be determined up to a maximum depth of 5 m by a system comprising of an instrumented mole and a tether equipped with integrated thermal sensors. A breadboard model of such a system has been developed over the last 2 years as part of the ESA HP3 Payload Compartment study. The performance of this system is currently under investigation and tests under realistic ambient conditions are scheduled for March 2007. First results from these tests and possible consequences for future developments of a flight model are presented in this paper.