

Results from the MARSIS radar sounder on Mars Express

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The Mars Advanced Radar for Subsurface and Ionospheric Sounding (MARSIS) has been in operation on the Mars Express orbiter since June 2005. The instrument was developed, delivered and operated as a joint effort between the Italian Space Agency and the U.S space agency NASA. The instrument has two major operative modes: subsurface sounding and ionospheric sounding. In this paper, we provide a summary of the results from the subsurface sounding observations. Early observations of the north polar region indicate that the MARSIS signal penetrates to polar layered deposits to their base. Subsequent observations of the south polar layered deposits have allowed mapping of the bed of the deposits to depths greater than 3.5 km. MARSIS also detects fine details of internal layering of the deposits. A 200-300 km diameter buried impact basin was detected in the Chryse region. Evidence of additional basins has been found.