

Radio Sounding of the Solar Corona with Rosetta and Mars Express

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The Radio Science Experiment RSI on the ROSETTA spacecraft performs the radio sounding of the solar corona during superior solar conjunction in April 2006 at an apparent distance to the solar disk of two solar radii in the plane of sky. The transmitted radio signals at X-band (8.4 GHz) and S-band (2.3 GHz) have to propagate through the dense plasma of the solar corona. Changes in carrier frequency and propagation delay will reveal the large scale structure, the electron content, density and turbulence of the plasma as a function of distance to the sun. Comparison will be made with SOHO/LASCO images and other observations. The radio sounding of the Mars superior conjunction in August/September 2004 by the Radio Science Experiment MaRS on Mars Express is also presented where a CME passing the radio ray path could be observed.