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# The structure of the lower Mars Ionosphere

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## Abstract

The Mars Express Radio Science Experiment MaRS sounds the ionosphere of Mars at microwavelengths and covers altitudes from the base of the ionosphere at 80 km to the ionopause at altitudes between 300 km and 600 km.
The lower Mars ionosphere consists of a secondary layer M1 at about 110 km, and the main layer M2 at about 135 km altitude, both formed mainly by solar radiation at X-ray and EUV, respectively. The peak altitudes and densities of both layers depend on the solar zenith angle. Occasionally, a region of enhanced ionisation below the M1 layer can be observed which is caused by the infall of meteors into the atmosphere. These occurrences are sporadic or correlated with crossings of Mars with cometary orbit planes creating meteor showers in the Mars atmosphere. Occurrence rates, morphology, repeatability of the ionospheric meteor layers shall be discussed.