



The Mars flyby of Rosetta: an opportunity for atmospheric sounding

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The Mars flyby of Rosetta will provide a valuable opportunity for sounding the martian atmosphere in the infrared and submillimeter range. In particular, the VIRTIS-H infrared spectrometer, covering the 2-5 micron range with a resolving power of 1200-3000, will be able to measure, from limb to limb, the surface pressure, the temperature profile, and the variations of the H₂O and CO abundances. It will be able to search for other minor species (CH₄, H₂CO. . .) and to study possible local variations, if exist. The MIRO sounder will observe submillimetric transitions of H₂O and its isotopes around 557 GHz, as well as the CO(5-4) transition. Information will be retrieved on the H₂O and CO vertical distributions, on the temperature profile, on the oxygen isotopic ratios in H₂O, and on the wind velocities in the middle atmosphere. Simultaneous observations with MIRO and VIRTIS will allow, in particular, independent determinations of the CO mixing ratio, the surface pressure and the thermal profile.