

SPICAM-LIGHT: STUDY OF THE GLOBAL STRUCTURE AND COMPOSITION OF THE MARTIAN ATMOSPHERE

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SPICAM Light , a light-weight (4.7 kg) UV-IR instrument to be flown on Mars Express orbiter, is dedicated to the study of the atmosphere and ionosphere of Mars. A UV spectrometer (118 - 320 nm, resolution 0.8 nm) is dedicated to nadir viewing, limb viewing and vertical profiling by stellar and solar occultation (3.8 kg). It addresses key issues about ozone, its coupling with H₂O, aerosols, atmospheric vertical temperature structure and ionospheric studies. UV observations of the upper atmosphere will allow studies of the ionosphere through the emissions of CO, CO⁺, and CO₂⁺, and its direct interaction with the solar wind. An IR spectrometer (1.0 - 1.7 microns , resolution 0.5-1.2 nm) is dedicated primarily to nadir measurements of H₂O abundances simultaneously with ozone measured in the UV, and to vertical profiling during solar occultation of H₂O, CO₂, and aerosols. The SPICAM Light near-IR sensor employs a pioneering technology acousto-optical tuneable filter (AOTF), leading

to a compact and light design. Overall, SPICAM Light is an ideal candidate for future orbiter studies of Mars, after Mars Express, in order to study the interannual variability of martian atmospheric processes.