



## Mapping ozone in Martian atmosphere from the 1.27 $\mu\text{m}$ O<sub>2</sub> emission in the OMEGA spectra

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OMEGA is the imaging spectrometer on board the ESA mission Mars Express acquiring spectra in the range from the visible to 5.1 micron with a mean spectral resolution of about 15 nm. Although this resolution is not enough to resolve the O<sub>2</sub> day glow band at 1.27 micron, the spectral data allow estimation the total intensity of this emission and a high spatial resolution (up to 1 km at the limb) enables to obtain the vertical profile of the emission. The O<sub>2</sub> day glow is a result of the photolysis of ozone: about 90 % of ozone molecules produce oxygen at the a<sup>1</sup>DELTA<sub>g</sub> state de-activated by emission or by collisions with the CO<sub>2</sub> molecules (below some level of the atmosphere). In this work the OMEGA limb observations are used to determine the vertical distribution of the O<sub>2</sub> emission and the apparent ozone abundance and to retrieve the vertical profile of the ozone number density. For the latter procedure the quenching is taken into account using the simultaneously obtained vertical CO<sub>2</sub> profiles from the PFS LWC data. Intensity losses by aerosol absorption may be estimated using the vertical dust profile from the limb observations by OMEGA (above 10 km height) and from PFS LWC data (below 10 km). OMEGA nadir observations are used to study the latitude, local time and seasonal variation of the apparent ozone abundance in the Martian atmosphere. We acknowledge IFSI-INAF for support to Russian CoIs and the Russian Foundation of Basic Research for financial support, grant RFFI 04-02-16856a.