



Six Martian years of CO₂ clouds survey by OMEGA/MEx.

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Mesospheric clouds have been detected first from Earth (Bell et al 1996 [1]), then from Mars orbit (MGS/TES and MOC, Clancy et al 1998 [2]). Their composition (CO₂) was inferred from temperature. Similar detection and temperature-inferred composition was then performed by Spicam and PFS on board Mars Express (Monmessin et al [3], Formisano et al [4], 2006).

The first direct detection and characterization (altitude, composition, velocity) was performed by OMEGA/ Mars Express (then coupled to HRSC/ Mars Express, and confirmed by CRISM/MRO (Montmessin et al. [5], 2007, Maattanen et al [6], Scholten et al. [7], 2010, Vincendon et al [8], 2011).

Omega is a very powerful tool for the study of CO₂ clouds as it is able to unambiguously identify the CO₂ composition of a cloud based on a near-IR spectral feature located at 4.26 μm [5]. Therefore since the beginning of the Mars Express mission (2004) OMEGA as done a systematic survey of these mesospheric clouds. Thanks to the orbit of Mars Express, we can observe this clouds from different altitudes (from apocenter to pericenter) and at different local times.

We will present the result of 6 Martians years of observations and point out a correlation with the dust activity.

We also observe that their time of appearance/disappearance varies slightly from year to year.

We will mention also the existence of mesospheric H₂O clouds.

References [1] JF Bell. et al. JGR 1996; [2] RT Clancy et al., GRL 1998 [3] F. Montmessin et al. JGR 2006; [4] V. Formisano et al., Icarus 2006; [5] F. Montmessin et al JGR 2007 [6] A. Määttänen et al. Icarus 2010; [7] F. Scholten et al. PSS 2010; [8] M. Viencendon et al. JGR 2011