



Inventory of detached layers detected by Omega/Mex

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The dynamic of solid particles transport and condensation/sublimation in the Martian atmosphere results in the formation of high altitude detached layers of dust and/or ice. Recent studies have highlighted the complexity and diversity of formation mechanisms for detached layers, which are thus difficult to predict and simulate in climate models.

The capability to orient Mars Express (MEX) allows a great diversity of observations modes, in particular nadir and limb. During day and night limb's observations, 4 out of 7 MEX instruments (the spectrometers: SPICAM, OMEGA, PFS and the high-resolution camera HRSC) work together to provide spectra (0.12 μm to 45 μm) of the Martian atmosphere, at each altitude step, with the associated image [1].

Since the beginning of the mission (2004) Omega has observed a large numbers of detached aerosols layers at different locations, time and altitude. We can quantify the effective particle size of each layers using the visible channel of OMEGA (0.5 μm to 0.95 μm), and thanks to the mid-IR channels (0.9 μm to 5.2 μm) of we can infer the dominant composition of particles (dust, H₂O ice, CO₂ ice).

We will present an inventory of 8 Martian years of detections. We hope that this inventory will improve our ability to understand and model these detached layers.

[1] The Mars Express limbs observations database Gondet et al, EGU 2015