



Mineralogical composition of the Martian Noachian crust and more recent lava outflows, inferred from OMEGA/MEx data

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Using classical methods of spectral identification (spectral parameter, MGM, linear mixing), OMEGA has provided a consensus on the identification and spatial distribution of several classes of mafic minerals. The Noachian crust is enriched in low-Ca pyroxene, with respect to more recent lavas flows in which high-Ca pyroxene dominates, whereas olivine is present without hydrated phases in dunes and eroded layers corresponding to ancient lava flows or melt ejectas. Nevertheless, it is important to develop a bridge between classical methods of classification and the information in term of type of mixture, mineral abundance and grain size that is available from spectral deconvolution using radiative transfer theories. Using the model of Shkuratov, we have attempted to derive the relative abundances and the grain sizes of several specific regions of Mars enriched in mafic components, both in Noachian outcrops and within volcanic outflows. The results and the implications for the Mars magmatic evolution will be discussed.