



Strong signatures of Low Calcium Pyroxene in Eastern Valles Marineris.

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The Modified Gaussian Model allowed us to model the entire OMEGA dataset and to obtain the global distribution of both High and Low Calcium Pyroxene (LCP) on the Martian surface. Among other identifications, these global maps allowed us to locate deep LCP signatures (more than 10%) inside Coprates and Eos Chasmata as well as in an extended area south east of Valles Marineris. The study of the corresponding MOC, THEMIS and HRSC images show that the strong signatures correspond either to bedrock or to mobile material originating from LCP rich bedrock. It is interesting to note that close to LCP rich outcrops, we find LCP poorer outcrops. Though these outcrops have different mineralogical compositions, they have similarly high values in night time THEMIS images (high thermal inertia). This shows that the dust coverage is not responsible for the absence of the LCP signature, and that the processes at stake lead to localized LCP rich outcrops. The LCP content of a rock brings us interesting information on the melting temperature and the cooling history of the magma as well as on alteration processes. These LCP rich outcrops, all located in the Noachian terrains, have spectral signatures comparable to the orthopyroxenite ALH84001.