Geophysical Research Abstracts
Vol. 20, EGU2018-9238, 2018
EGU General Assembly 2018

A New View Of Mars Aqueous Alteration: First Results From The Mars Orbital Catalog Of Chemical Alteration Signatures (MOCCAS)

John Carter
IAS / CNRS, Bat 121, Orsay, France (john.carter@ias.u-psud.fr)

Aqueous minerals are a prime target for Mars exploration, and as such have been under much scrutiny from orbital and roving missions. The latter provide in-depth investigations but highly localized in space and geologic age, while the former only provide a coarse view of the mineralogy but at a global spatial and temporal scale. Orbital investigations have uncovered thousands of locations on Mars with aqueous mineral deposits, of all major Earth types: salts, hydroxides, hydrous clay and clay like minerals. Piecing together all these data into a coherent, global timeline for water at Mars has been tedious however, and few refinements have been made since the established paradigm of Mars's waning activity around the Noachian. One important limitation has been the heavily disrupted nature of the oldest terrains on Mars. Another one has been the difficulty in providing a global repository of aqueous deposits on Mars at the orbital scale.
Here we report on the completion of the MOCCAS (Mars Orbital Catalog of Chemical Alteration Signatures) project. A decade of mapping hydrated minerals on Mars at the sub km resolution, using principally the OMEGA/MEx and CRISM/MRO imaging spectrometers, now provides a global view of aqueous alteration at Mars. The approach here is hybrid between the early mapping works and subsequent cataloging projects. This new vectorial database combines detailed spectral analysis providing the aqueous mineralogy, with high resolution spatial mapping for morphologic context and global scale distribution.
Collectively, these early results show that Mars's alteration is still largely un-investigated, and there exist several regions of particular interest which would warrant further study and in-situ exploration. Several such example regions will be presented.