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MINERALOGICAL MAPPING OF THE OCCATOR QUADRANGLE

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The NASA's Dawn spacecraft orbited Ceres for more than one year, observing almost entirely its surface by means of the hyperspectral images provided from the Visible and Infrared (VIR) spectrometer and from the Framing Camera (FC) [1].

This work is focused on the mineralogical mapping of the Occator quadrangle, extending at latitudes from 22°S to 22°N and at longitudes from 214°E to 288°E. Mapping is based on VIR spectral data, in particular albedo at visible and infrared wavelengths, and depth of the bands at 2.7 um (due to OH [2]), 3.05 um (due to NH4 [2]), at 3.4 um and 3.9 um (due to carbonates [3]), as well on Ceres' shape model.

The most peculiar feature of the quadrangle is the Occator crater, the brightest feature of the whole Ceres surface [3], presenting very shallow 2.7 and 3.05 um band with respect to the surroundings and very deep 3.4 and 3.9 um bands: this indicates a carbonates enrichment and a depletion of ammoniated phyllosilicates. On the contrary, the Occator ejecta are very dark and show very deep OH and NH4 bands.

The Lociyo crater also show a low albedo, and ammoniated phyllosilicates bands deeper than surroundings, whereas the opposite behavior (larger albedo a shallow bands) is observed on the Azacca crater.

A comparison between geological and mineralogical mapping is also part of this work, aimed at identifying possible correlations between composition and geological context.

References

[1] Russell C. T. and Raymond, C.A., 2011, *SSR* 163, 3-23

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T159. Ceres' Surface Composition as an Indication of Interior Evolution (Posters)
Monday, 26 September 2016: 9:00 AM-6:30 PM

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