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Mapping the mineralogical composition of the Pinaria region (Av-11) of Vesta

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We present the mineralogical map of a quadrant of the southern hemisphere of Vesta spanning 0-90 degrees longitude, and -21 to -66 degrees latitude; a region named Pinaria. The region, named after the Roman vestal virgin (c. 600 B.C.), includes an approximately 37km diameter crater, also named Pinaria. Several additional large craters are in this region as is the western most region of the rim of Rhea Silvia, named Matronalia Rupes.
Mineralogical maps are based on data acquired by the Visible and Infrared Mapping Spectrometer (VIR-MS) and the Framing Camera (FC) on the Dawn spacecraft that has been orbiting Vesta since July 2011. VIR-MS is sensitive to wavelengths from 0.25um to 5.1um with a spatial resolution that depends upon the mission phase: nominally from 2.5 up to 0.8 km/pixel during the approach, 0.8 km/pixel during survey, 0.2 km/pixel during the high altitude orbit (HAMO) and about 0.05 km/pixel during the low altitude orbit (LAMO). This spatial resolution does not include the effects of the spacecraft's nor Vesta's motion.
FC data from Survey orbit with a spatial resolution of about 250 m/pixel have been mapped using filter band parameters selected to enhance the anticipated mineralogy of Vesta. Global color maps of Vesta's surface using these color differences and ratios are generated.
VIR data show that Vesta's surface is dominated by pyroxenes, with no evidence for the presence of other minerals observed at the scale of the survey measurements. The spectral parameters of the two major pyroxene absorption bands including band centers, depths and band areas and their variation within the Pinaria region, suggest mineralogical variation representing different compositional and/or textural terrains. Matronalia Rupes has band parameters suggesting different composition or grain size possibly resulting from down slope motion of regolith revealing different material beneath.
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