

Abstract Submitted
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NIR PCA of Mars PETER HARRISON, Rowan University, DAVID KLASSEN COLLABORATION — The possibility of upcoming human exploration of Mars and the refining of climate and weather models make understanding Mars' water cycle and budget an important undertaking. The research in this project, the study of Martian clouds, is a step in the overall scheme to this understanding. In order to measure the water content of clouds it is necessary to be able to remove the effect of the Martian surface on the data. I am using Principle Components Analysis (PCA) to look for baseline spectra which are consistent throughout all the data. These can then be used to search for surface spectral endmembers, as it is assumed that these should be unchanging. This research is comparing the PCA of some of our best observations of Mars to research previously done in order to provide a more comprehensive characterization of these surface endmembers. Over five successive oppositions, near-infrared images of Mars were taken at the NASA Infrared Telescope Facility. The data were then reduced, calibrated, and remapped. Using the stellar photometry from each night the most consistent nights for data collection were found. Finally, PCA was applied to these best data. I present the results from that PCA and compare it to previous results.

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