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Dune Morphology and Substrate Dependence on Titan GRAHAM VIXIE, JASON BARNES, University of Idaho, JANI RADEBAUGH, Brigham Young University — We are using Cassini's Visual and Infrared Mapping Spectrometer (VIMS) to study Titan's sand. Specifically, we are constraining the sand's composition, the precise composition of which is still unknown. Water ice has been ruled out, leaving atmospherically-derived hydrocarbons as the best fit. The means of constraint involved spectrally unmixing images of Titan's dunes. We selected our spectral endmembers using high resolution VIMS IR images (noodle maps), specifically from T20. We have 5 spectral endmembers, labeled by color from VIMS IR maps: dark brown, dark blue, Xanadu bright, equatorially bright, and 5- micron bright. We set up a linear model to test on mixed substrate pixels from the northern Fensal sand dunes. Our model assumes some percent dark brown (sand) and some percent one other endmember. The product is a substrate map of Titan's dune fields, which we will compare with RADAR maps of the same area. Our results will determine if substrate type plays a role in dune morphology and location.

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