

Wednesday, Oct. 17, 325 McCone Hall
Noon – 1:00pm

Jason W. Barnes (NASA Ames)

Titan's Sand Dunes: Window to a New World

Despite theoretical predictions that Titan would not be able to support sand dunes on its surface, the Cassini orbiter has found an extensive set of sand seas astride the equator. The dunes are longitudinal in nature and resemble Earth's dunes in Namibia, the Sahara, and Arabia in height and spacing. Their spectra are consistent with hydrocarbon grains, not water ice as might be expected from erosion of an icy crust. Even with the total dune coverage of ~20%, though, the visible dune sands cannot alone account for the missing hydrocarbons expected to have been produced photochemically from atmospheric methane. With present understanding of the nature of Titan's surface and the processes that operate here still in its formative stages, the discovery of these familiar forms allows us a window into the global geology of this newly revealed world.