

Oceanography Seminar

Dr. C. Swann
NRL Stennis

New Thresholds Predict Earth-like Transport on Mars

1200 Thursday, October 25, 2018
Spanagel Hall, Room 316

Wind-blown sand occurs on Mars despite wind speeds rarely exceeding predicted thresholds for motion. This paradox has riddled the planetary community for decades, framing the desert landscape of Mars as relatively inactive when compared to deserts on Earth. To address this conundrum, we made new wind tunnel observations in simulated Martian conditions and employed new methods to reassess the Martian threshold. Here, we find the frequency of sand motion on Mars comparable to transport on Earth.

We show that threshold wind speeds necessary to initiate sand transport on Mars are 100-300% slower than previously thought, and Martian winds exceed the threshold over 6% of *Curiosity's* 2-year wind record with 96% of winds capable of sustaining transport once initiated. This Earth-like transport on Mars gives rise to a picture in which frequent aeolian sand transport over millions of years was capable of transforming the martian landscape from one carved by water to one sculpted by wind.