

Thursday, May 18, 2017

GALE CRATER SAND DUNES: IN SITU OBSERVATIONS FROM MARS

8:25 a.m. Zion Room

Session dedicated to the memory of Nathan T. Bridges

**Chairs: David Rubin
James Zimbelman**

- 8:25 a.m. Introduction and dedication of the session
- 8:30 a.m. Bridges N. T. Ehlmann B. L. Achilles C. Cousin A. Edwards C. Ewing R. Johnson J. Lapotre M. Newman C. * O'Connell-Cooper C. Rubin D. Sullivan R.
[*Investigation of the Bagnold Dunes by the Curiosity Rover: Summary of Results from the First Investigation of an Active Dune Field on Another Planet*](#) [#3031]
Results from the first phase of Bagnold Dune Campaign are presented. We report on remote sensing studies, current processes, structures, grain characteristics, compositions, and mineralogies, and discuss implications for sand sources and transport mechanisms.
- 8:50 a.m. Rubin D. M. * Banham S. G. Gupta S. Anderson R. B. Bridges N. A. Edgar L. A. Lewis K. W. Newman C. E.
[*Long-Term Changes in Direction of Sand-Transporting Winds in Gale Crater, Mars*](#) [#3042]
We have interpreted eolian sand-transport directions in three deposits spanning much of the evolution of Gale Crater: Eolian cross-strata within the upper formation of Mt. Sharp and in the Stimson sandstone, and in the active Bagnold dunes.
- 9:10 a.m. Cornwall C. * Bourke M. C. Jackson D. W. T. Cooper J. A. G.
[*Grainflow Morphologies and High Resolution Airflow Modeling of Bagnold Dunes, Gale Crater, Mars*](#) [#3019]
We present a comparison between terrestrial field observations and images of the Namib dune slipface on Mars as well as an investigation of complex wind patterns on the Namib dune that may influence grainflow behavior and dune migration.
- 9:30 a.m. Silvestro S. * Vaz D. A. Yizhaq H. Popa C. Deniskina N. Esposito F.
[*Large Ripples in Gale Crater \(Mars\): Morphology and Dynamic*](#) [#3023]
Large ripples morphology and dynamic in the MSL landing site is different from terrestrial impact ripples.
- 9:50 a.m. Banham S. G. * Gupta S. Rubin D. M. Watkins J. A. Sumner D. Y. Grotzinger J. P. Lewis K. W. Edgett K. S. Edgar L. A. Stack K. M. Bell J. Ewing R. C. Day M. D. Lapotre M. G. A.
[*Anatomy of an Ancient Aeolian Sandstone on Mars: The Stimson Formation in Gale Crater*](#) [#3039]
The Stimson formation, Gale Crater, is interpreted to represent a dry aeolian dune system. Water played no role in the accumulation of this unit.
- 10:10 a.m. Newman C. E. * Richardson M. I. Gómez-Elvira J. Marin M. Navarro S. Torres J. Viúdez-Moreiras D. Day M. Kocurek G. A.
[*Dune and Wind Observations and Predictions in Gale Crater on Mars*](#) [#3058]
Recently the MSL rover provided the first in situ wind data for planetary dunes, which is invaluable for understanding how the dunes formed and as ground truth for validating models. We will present results and model predictions of winds and dunes.

- 10:30 a.m. Richardson M. I. * Newman C. E.
[*Preliminary Large Eddy Simulation \(LES\) of the Flow Over Martian Dunes Using MarsWRF and HiRISE DTM Topography*](#) [#3055]
In this presentation we will describe preliminary Large Eddy Simulations (LES) of the air flow over barchan dunes on Mars.
- 10:50 a.m. Bristow N. R. * Wang C. Blois G. Best J. Anderson W. Christensen K. T.
[*Experimental Measurements of Turbulent Flow Structure Associated with Colliding Barchan Dunes*](#) [#3046]
Presented here are experimental measurements of turbulent flow structure around laterally offset barchan dunes in a collision process, where we use fixed-bed models in a refractive index matching flume to perform particle image velocimetry of the flow.
- 11:10 a.m. PANEL DISCUSSION
- 11:30 a.m. Lunch