

**Tuesday, May 19, 2015**  
**POSTER SESSION**  
**6:00 p.m. Lookout Room**

Williams D. A.

[Update on NASA's Planetary Aeolian Laboratory](#) [#8001]

This presentation will provide the community a status update on the Planetary Aeolian Laboratory and future plans.

Runyon K. D. Lisse C. M. Cheng A. F. Bridges N. T. Lewis K.

[Controls on and Implications of Aeolian Geomorphology on Comet 67P](#) [#8037]

Simple mathematical modelling and physical arguments suggest putative aeolian geomorphologies on Comet 67P are indeed aeolian and most likely ripples formed from jets and amorphous outgassing.

Neakrase L. D. V.

[Terrestrial Analogs for Venusian Dunes: Sub-Aqueous, Seafloor Dune Fields](#) [#8023]

Terrestrial seafloor dune fields could serve as a more appropriate analog for venusian dunes due to similarities in the higher-pressure fluid environment in which they form, including remote sensing techniques for discerning dune morphologies.

Lorenz R. D. Fenton L. Lancaster N.

[The Tallest Dunes in the Solar System? Dune Heights on Earth, Mars, Titan and Venus](#) [#8031]

Whose dunes are tallest? / Many Mars dunes seem stunted / But Russell wins out.

Lorenz R. D. Radebaugh J.

[Giant Linear Dunes as the Formation Pathway to Megabarchan Chains: Titan and the Rub 'Al Khali](#) [#8003]

We suggest megabarchans cannot grow from barchans. Rather sand accumulates as giant linear dunes in a bidirectional regime which has since become more unidirectional. We see this pattern on Titan and in the field in the United Arab Emirates.

Bishop B. B. Radebaugh J. R. Christiansen E. H. Lewis R. C.

[Geographic Position of Dunes Relative to the Belet Sand Sea Margins and Correlation with Dune Width and Spacing](#) [#8055]

Dune width variability in Belet's sand sea decreases with increasing distance to the margin. Distinct groups of width data at 100 km intervals from the sand sea margin showed a decreasing standard deviation with increasing distance from the margin.

Charnay B. Barth E. Rafkin S. Narteau C. Lebonnois S. Rodriguez S. Courrech du Pont S. Lucas A.

[Methane Storms as a Driver of Titan's Dune Orientation](#) [#8046]

We propose that the eastward propagation of Titan's dune is caused by tropical methane storms producing fast eastward gusts thanks to a coupling with the superrotation.

Radebaugh J. Lorenz R. D. Paillou P. Northrup D.

[Morphologies, Morphometries and SAR Brightnesses of Yardangs and Dunes on Earth and Titan](#) [#8048]

Yardangs, Earth, Titan / Wind erodes, not deposits / SAR can tell apart.

Northrup D. Radebaugh J. Lorenz R. D. Bishop B. Lewis R. C. Christiansen E. H.

[Comparative Analysis of Yardang Morphologies in China](#) [#8053]

A study on yardang morphologies in the Dunhuang Yardang field of western China. Yardang length, width, spacing, and sinuosity were measured to better understand yardang morphologies and aid in distinguishing yardangs from dunes on celestial bodies.

Jessar A. D. Zimbelman J. R. Hennig L. A.

[TARs on Mars: A Study of the Spatial Variability and Physical Characteristics of Martian Transverse Aeolian Ridges](#) [#8022]

We present the results from our analysis of HiRISE images from a 70°E–80°E pole-to-pole swath, in which we examined both the spatial variability and morphology of Martian Transverse Aeolian Ridges. We also propose new image analysis techniques.

Scheidt S. P. Palafox L. F. Hamilton C. W. Zimbelman J. R.

[Automated Detection of Transverse Aeolian Ridges on Mars Using Convolutional Neural Networks and a Field-Based Terrestrial Orthoimage Training Set](#) [#8047]

This work uses field-based photogrammetric data of ripple bedform topography and orthoimages to train a machine learning algorithm to map transverse aeolian ridges (TARs) in planetary remote sensing data of Mars.

Diniega S. Hansen C. J.

[Tracking Gully Activity Within the North Polar Erg, Mars](#) [#8027]

Sand flows; gully forms. / Is frost involved, Or just winds? / Hard to say, it's dark.

Dinwiddie C. L. Hooper D. M.

[Parameterization of Finite-Element Cryo-Hydrologic Sand Dune Model to Constrain Debris-Flow-Initiating Subsurface Temperatures and Pore-Water Pressures, Great Kobuk Sand Dunes, Alaska](#) [#8018]

To explain how debris flows form at subfreezing air temperatures, we present meteorology-driven, numerical simulation-derived subsurface temperature and pore-water pressure profiles in the Great Kobuk Sand Dunes of Alaska, for incipient flow events.

Anderson W. Blois G. Christensen K. T. Best J. Kocurek G. A.

[Attributes of Flow Structures During Turbulence Extrema in Close Proximity to Dunes](#) [#8002]

Conditional averaging based on pre-defined criteria in the flow close to dunes is used during simulations and experiments. This averaging procedure offers a unique perspective on flow structures present during intermittent, elevated erosion.

Smith I. B. Spiga A. Tyler D. Ewing R. C.

[Wind at the North Pole of Mars: Comparisons of Modeling and Observations](#) [#8013]

We simulate the winds at the north pole above 75° N at mesoscale resolution throughout a spring and summer season. The wind vectors extracted from our simulations agree with observations at these locations and provide a two-way feedback to compare.

Johnson M. B. Zimbelman J. R.

[Mapping Winds over Martian Sand Dunes from Ripples and Digital Terrain Models](#) [#8015]

Sand dunes preserve wind flow patterns in their ripple formations. DTMs can be used with wind modeling software to simulate wind speed and direction over these dunes. Results can be compared and together offer a more complete picture of recent wind.

Vaz D. A. Sarmiento P. T. K. Silvestro S. Cardinale M.

[Ripple Pattern Analysis in Herschel Crater](#) [#8044]

We present the analysis of a dataset that integrates several ripple pattern characteristics for a dune field located in Herschel crater. Our aim is to use this source of information to understand ripple pattern variations.

Fenton L. K. Michaels T. I. Chojnacki M.

[The Sediment State of Meridiani Planum, Mars](#) [#8020]

Meridiani: / winds strengthened, new ripples form, / then the winds die down.

Fernandez-Cascales L. Lucas A. Rodriguez S. Narteau C. Allemand P. Spiga A.

Courrech du Pont S. Garcia A.

[Tow Modes for Dune Orientation on Mars](#) [#8041]

Do the two modes of dune orientation exist on Mars and can we know more precisely the climate from them ?

Kerber L. Hamilton C. W. Scheidt S. P.

[\*The Aerodynamic Roughness of Mars-Like Surfaces\*](#) [#8033]

A field study was conducted to measure aerodynamic roughness lengths over under-characterized, Mars-like terrains in Hawai'i for the purpose of improving Mars climate models.

Garcia A. Courrech du Pont S. Rodriguez S. Valance A. Narteau C. Gao X. Lucas A.

[\*Genesis of Dune Fields Under Unidirectional Wind with Sand Input Flux Control: An Experimental Approach\*](#) [#8042]

Our experimental studies with control of wind and sediment source will characterize more precisely the different modes of dune formation and long-term evolution, and constrain the physics behind the morphogenesis and dynamics of dunes fields.

Van Kooten S. J. Putzig N. E. Fenton L. K.

[\*Investigating the Poleward Trend of Southern Dune Field Stabilization on Mars Using Thermophysical Observations\*](#) [#8052]

We hypothesize that dune fields near Mars' south pole are stabilized by shallow ground ice, a linkage that would make dune morphology a tracer for local climate. We investigate with thermal inertia measurements and thermal models and find surprises.

Charles H. R. Titus T. N.

[\*Mineral Abundance Estimates and Distribution Derived from Mars Dune Field #2938-497\*](#) [#8014]

The goal of this analysis was to determine the presence or absence of feldspar and examine its distribution if present in dune field #2938-497. We deconvolved thermal emissivity data from TES to identify mineral abundances in the dune field.

Titus T. N. Hayward R. K. Bogle R. Zimbelman J.

[\*Sediment Flux Measurements at a Mars Analog Site\*](#) [#8006]

The goal of the Grand Falls project was to measure sediment flux at a Mars analog site and to field test whether hysteresis can be responsible for the flux rate observed on Mars.

Hayward R. K. Titus T. N. Zimbelman J. R.

[\*Mars Aeolian Analog: Instrument Evaluation\*](#) [#8007]

As part of a study of flux rates at a Mars analog site, we installed an experimental sediment collector equipped with a time-lapse camera. We will evaluate the suitability of the experimental instrument for sediment flux studies on Mars.

Wishard C. A. Zimbelman J. R.

[\*Wind Patterns on the Southern End of the Bruneau Dunes Compared to Remote Automatic Weather Station Data from Mountain Home, Idaho\*](#) [#8016]

This study compared remote automatic weather data to data collected from an on site camera in order to study the wind patterns affecting the Bruneau sand dune.

Cornwall C. \* Jackson D. W. T. Bourke M. C. Cooper J. A. G.

[\*Investigation of Martian Aeolian Dynamics Using Terrestrial Dune Analogues and Airflow Modelling\*](#) [#8050]

We combine field observations, 3D computational fluid dynamics modeling and remote sensing data from Mars to constrain grain flow events that occur on lee slopes of dunes to improve estimates of dune field migration and sediment flux on Mars.