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research highlights

MARS

Touching alien deserts

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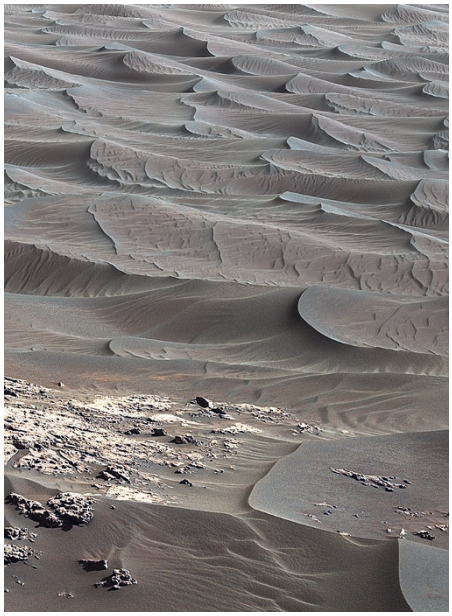

NASA/JPL-CALTECH/MSSS

Dune fields, areas made up of sand-like particles and shaped by wind, are not exclusive to Earth; they have now been detected by spacecraft in widely different planetary environments, from Venus to the nucleus of the Rosetta comet. Far from being just a geomorphological curiosity, dunes give us clues about the action of various atmospheric and surface processes and, more broadly, planetary evolution. Only recently, though, we had our first chance to study an active dune field *in situ* outside Earth, when the Curiosity rover reached a vast region (pictured) named after pioneering dune scientist Ralph Bagnold.

Nathan Bridges and colleagues compared the Curiosity observations with images of the Bagnold Dunes obtained from orbit by the HiRISE camera, in order to study temporal variations associated with wind activity. Unfortunately, Curiosity arrived at Bagnold during a period of minimal aeolian activity, but its proximity to the dunes allowed the rover to observe small-scale variations that were then put into the context of seasonal activity thanks to the HiRISE images. Not predicted by models, dune activity at such an unfavourable moment in the Martian year suggests the presence of more complex processes than those currently included in simulations. In addition, these results provide much-needed information to understand the processes active on Mars at periods of low wind activity, such as during low obliquity eras, and their impact on Martian geology.

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