



1  
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(Music)

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00:00:05,000 --> 00:00:15,000  
I'm Bethany Ehlmann, MSL Scientist. We're here in the JPL Mars yard and this is your Curiosity Rover Report.

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00:00:15,000 --> 00:00:18,000  
Curiosity is now roving through the Bagnold dune field on lower Mount Sharp.

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This huge field of sand dunes stands between the rover and higher levels of the mountain.

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00:00:23,000 --> 00:00:27,000  
Sand dunes form as wind bounces sand grains across the ground.

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00:00:27,000 --> 00:00:32,000  
Dunes are common on Earth, but this is the first investigation of an active sand field on another planet.

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00:00:32,000 --> 00:00:36,000  
Here are pictures from Mars Reconnaissance Orbiter's HiRise camera.

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The dunes have migrated up to a few meters. This has been seen from orbit over the last few years.

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Investigating the dunes let's us test the physics of what we understand about how they move.

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Will they be different considering that the Mars atmosphere is less than 1% as thick as Earth's

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and the gravity is only 1/3 of that of Earth's.

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The Bagnold dunes are made from basaltic minerals, including olivine and pyroxene,

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which give them their dark color. We also see from orbit that the winds are sorting minerals in the dunes

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and perhaps, separating the olivine from the other minerals.

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Recently, engineers performed mobility tests at a sand patch near one of the large dunes

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in the Bagnold field to evaluate the performance of the rover.

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This is important because Curiosity has easily gone up and over some sands but has been challenged by other

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Once Curiosity is near the Bagnold Dunes. It will reach out and scoop some of the sands.

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We want to understand how sands of different grain sizes may have different mineralogies and chemistries.

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So we'll pass the sands into the Curiosity's instrument, Chemin and SAM.

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As a quick demo, the rover will bring in a portion of the sand into its handling system,

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shake the sample up, and the rover does something similar

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with its sample and handling system on the rover arm.

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What we've been previously been able to analyze on Mars is this fine grain fraction.

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What we'll be able to get this time is a coarser grain fraction to see if it's different chemically

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or mineralogically.

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This first part of the 'Bagnold dune campaign' will take Curiosity into the New Year. After driving for a few