CRR DUNE CAMPAIGN TRANSCRIPT
12-15-15

(Music)

I'm Bethany Ehlmann, MSL Scientist. We're here in the JPL Mars yard and this is your Curiosity Rover Report.
Curiosity is now roving through the Bagnold dune field on lower Mount Sharp.

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

Sand dunes form as wind bounces sand grains across the ground.

Dunes are common on Earth, but this is the first investigation of an active sand field on another planet.

Here are pictures from Mars Reconnaissance Orbiter's HiRise camera. The dunes have migrated up to a few meters. This has been seen from orbit over the last few years.

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

Will they be different, considering that the Mars atmosphere is less than 1% as thick as Earth's, and the gravity is only 1/3 of that of Earth's.

The Bagnold dunes are made from basaltic minerals, including olivine and pyroxene, which give them their dark color.

We also see from orbit that the winds are sorting minerals in the dunes and perhaps, separating the olivine from the other minerals.

Recently, engineers performed mobility tests at a sand patch near one of the large dunes in the Bagnold field to evaluate the performance of the rover.
This is important because Curiosity has easily gone up and over some sands but has been challenged by others.

Once Curiosity is near the Bagnold Dunes. It will reach out and scoop some of the sands. We want to understand how sands of different grain sizes may have different mineralogies and chemistries. So we'll pass the sands into the Curiosity's instruments Chemin and SAM.

As a quick demo, the rover will bring in a portion of the sand into it's handling system, shake the sample up, and the rover does something similar with its sample and handling system on the rover arm.

What we've been previously been able to analyze on Mars is this fine grain fraction. What we'll be able to get this time is a coarser grain fraction to see if it's different chemically or mineralogically.

This first part of the "Bagnold dune campaign" will take Curiosity into the New Year. After driving for a few months around more of the dune field, we'll make a final stop at a less active dune on the way up Mt. Sharp.

I'm Bethany Ehlmann with your Curiosity Rover Report. Check back soon for more updates.