1
00:00:00,000 --> 00:00:04,000
(Music)

2
00:00:04,000 --> 00:00:07,000
I'm Ashwin Vasavada, deputy project scientist.

3
00:00:07,000 --> 00:00:09,000
I'm Matt Heverly, a rover driver.

4
00:00:09,000 --> 00:00:11,000
And this is your Curiosity Rover Report.

5
00:00:11,000 --> 00:00:16,000
Curiosity has been on Mars for one Mars year. That's 687 Earth days.

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00:00:16,000 --> 00:00:20,000
Our goal over that time was to find a habitable environment and we did!

7
00:00:20,000 --> 00:00:24,000
We found a lake bed on Mars that we drilled into and found the ingredients

8
00:00:24,000 --> 00:00:28,000
and conditions that could've supported microbial life, if life ever was on Mars.

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00:00:28,000 --> 00:00:31,000
It hasn't all been smooth sailing for the rover on Mars.

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00:00:31,000 --> 00:00:34,000
After we left Yellowknife Bay where we did our first drilling,

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00:00:34,000 --> 00:00:39,000
we noticed that the wheels were taking much more damage than we had expected.

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00:00:39,000 --> 00:00:43,000
Sharp embedded rocks on the surface of Mars were really giving trouble to our wheels.

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00:00:43,000 --> 00:00:48,000

We think we understand what's causing those holes from a lot of tests we've done here in the Mars yard

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00:00:48,000 --> 00:00:53,000
and a lot of analysis of the terrain from our orbital images.

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One of the other things we've done here in the Mars yard to understand the wheel wear issue

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00:00:57,000 --> 00:01:01,000
is we built a half of a rover that we're driving over the simulated terrain

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so we can watch how the wheels really wear.

18
00:01:04,000 --> 00:01:07,000
We think we've got new techniques to be able to drive the rover safely

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00:01:07,000 --> 00:01:10,000
and identify some safe paths.

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00:01:10,000 --> 00:01:13,000
Using our new driving techniques we made it to a site called 'the Kimberley,'

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00:01:13,000 --> 00:01:16,000
where Curiosity drilled its third drill hole of the mission.

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00:01:16,000 --> 00:01:21,000
We drilled into a site where water flowed across the surface and deposited a series of sandstones.

23
00:01:21,000 --> 00:01:24,000
We drilled into one of those sandstones, acquired rock powder

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00:01:24,000 --> 00:01:29,000
and fed it to our two analytical laboratories located inside the rover body.

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00:01:29,000 --> 00:01:34,000
While the rover was at the Kimberley doing its drilling campaign, it even took some time to take a selfie.

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00:01:34,000 --> 00:01:39,000
It reached out its robotic arm just like me with my camera phone and it used the MAHLI to take a series

27
00:01:39,000 --> 00:01:43,000
of pictures that it stitched together to take its self portrait.

28
00:01:43,000 --> 00:01:48,000
The rover took a selfie before drilling and after so you could even see where it drilled a hole on Mars.

29
00:01:48,000 --> 00:01:52,000
As we drive from the Kimberley to Murray Buttes at the base of Mount Sharp.

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00:01:52,000 --> 00:01:57,000
We tried to identify the best path for the rover. This means driving through sand.

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00:01:57,000 --> 00:02:01,000
We took the Scarecrow rover to the Mojave Desert where we drove over similar sandy terrain

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00:02:01,000 --> 00:02:05,000
to make sure that we know what's going to happen once we get there.

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00:02:05,000 --> 00:02:09,000
The focus of the mission is really now on driving as we approach the base of Mount Sharp.

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00:02:09,000 --> 00:02:13,000
In our first Martian year, we've driven almost eight kilometers of total distance with the rover.

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00:02:13,000 --> 00:02:17,000
We get a little bit closer to the base of that mountain every day.

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00:02:17,000 --> 00:02:20,000
Over the next few months the science team is real excited to get to Mount Sharp

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00:02:20,000 --> 00:02:25,000
where we think the layered rocks there have captured the major climate changes in Mars history.