Transcript: Curiosity Rover Report:
4th Year on Mars
August 4, 2016

NASA's Mars rover Curiosity celebrates its fourth year on Mars since landing at Gale crater on August 5, 2012. Let's take a quick look back at the past year.

The rover operations team at JPL has hit its stride. Four years of experience allows them to plan challenging and complex activities much faster. It used to take a month to drill and analyze a rock sample. Now it takes just a week.

In spite of the expected wear and tear, Curiosity is fully functional and as busy as ever.

The drill, the sample processing system, and every science instrument continue to do what they were designed to do.

The wheels are slowly gettin' beat up, but testing of spare wheels at JPL has shown that with careful driving, they will last long enough to get the rover to all the places on Mount Sharp that the science team wishes to explore.

Much of the past year was spent on an obstacle course of sorts on lower Mount Sharp. Our athletic rover climbed over a rocky plateau and had to wind its way through the Bagnold Dune field, a stretch of beautiful and currently active sand dunes that skirts the lower mountain, blocking Curiosity from heading straight toward higher elevations.

But the rover reached a spot where it could drive around the dunes, making a long-awaited left turn and beginning a more aggressive climb.

As Curiosity crossed the Naukluft Plateau, it studied fractures in the ancient sandstone where groundwater once flowed and permeated the surrounding rock, causing changes in chemistry that created light-toned haloes around the fractures.

The science team compared rock powder drilled from the halo with that drilled from unaltered rock. The haloed regions were enriched in silica but depleted in other chemical elements. It appears that groundwater transported chemical elements from some rock layers and deposited them in others.

Recently, NASA gave Curiosity the best anniversary gift it could hope for – an extension of its mission for at least two more years. We'll use it to reach progressively higher and younger rocks on Mount Sharp, including rock types we've not yet explored. We can't wait to see how the story of the ancient habitability of Mars continues to unfold.