

NASA Curiosity rover analysing Mars rocks again

NASA's Curiosity rover used the Mars Hand Lens Imager (MAHLI) to capture this set of 55 high-resolution images, which were stitched together to create this full-color self-portrait. | Photo Credit: [NASA](#)

Curiosity rover will start analysing drilled samples on Mars in one of its onboard labs for the first time in more than a year, the US space agency said.

On May 20, a technique called “feed extended drilling” allowed Curiosity to drill its first rock sample since October 2016, and on May 31, an additional technique called “feed extended sample transfer” successfully trickled rock powder into the rover for processing by its mineralogy laboratory. Delivery to its chemistry laboratory will follow in the week ahead.

“This was no small feat. It represents months and months of work by our team to pull this off,” said Jim Erickson, project manager of the Mars Science Laboratory mission, which is led by NASA’s Jet Propulsion Laboratory in Pasadena in the US. “JPL’s engineers had to improvise a new way for the rover to drill rocks on Mars after a mechanical problem took the drill offline in December 2016.”

Testing of both the new drilling method and sample delivery will continue to be refined as Curiosity’s engineers study their results from Mars, NASA said in a statement.

“The science team was confident that the engineers would deliver..so confident that we drove back to a site that we missed drilling before. The gambit paid off, and we now have a key sample we might have never gotten,” said Ashwin Vasavada of JPL, the mission’s project scientist. “It’s quite remarkable to have a moment like this, five years into the mission. It means we can resume studying Mount Sharp, which Curiosity is climbing, with our full range of scientific tools.”

The sample transfer technique allows Curiosity to position its drill over two small inlets on top of the rover’s deck, trickling in the appropriate amount of rock powder for the onboard laboratories to do their analyses. This delivery method had already been successfully tested at JPL. However, that’s here on Earth; on Mars, the thin, dry atmosphere provides very different conditions for powder falling out of the drill.

“On Mars we have to try and estimate visually whether this is working, just by looking at images of how much powder falls out,” said John Michael Moorokian of JPL. Too little powder, and the laboratories can’t provide accurate analyses. Too much, and it could overflow the instruments, clogging parts or contaminating future measurements. A successful test of the delivery method on May 22 led to even further improvements in the delivery technique.

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