

# Curiosity rover maneuvers around 'Kimberley' seeking potential red planet drill sites

April 7 2014, by Ken Kremer

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Curiosity maneuvers into 'Kimbeley' and scans scientifically intriguing Martian rock outcrops in search of next drilling location exhibiting several shallow hills in foreground and dramatic Gale crater rim backdrop. Rover tracks at right in this colorized Navcam photomosaic assembled from raw images snapped on Sol 589, April 3, 2014. Credit: NASA/JPL/Marco Di Lorenzo /Ken Kremer

NASA's car sized Curiosity rover has arrived at a scientifically enticing science destination at "The Kimberley Waypoint" where researchers hope to carry out the next drilling operation into alien Martian terrain in search of further clues about ancient Red Planet environments that may have been favorable for life.

"We are officially in 'The Kimberley' now," Curiosity Principal Investigator John Grotzinger, of the California Institute of Technology, Pasadena, told Universe Today.

Since arriving in the Kimberley region, Curiosity's earth-bound handlers have been maneuvering the 1 ton robot to thoroughly survey the destination dubbed "The Kimberley".

Why was Kimberley chosen as a science destination? "The Kimberley" has interesting, complex stratigraphy," Grotzinger told me.

The team moved the six wheeled robot further this week in search of a suitable location to conduct the next drilling operation. The terrain is replete with diverse rock types and extensive outcrops.

I asked Grotzinger if today's (April 5) location at 'The Kimberley' is the intended drill site?

"It's a possible drill site," Grotzinger replied. "Pending further evaluation," he noted.

Curiosity drove the final stretch of some 98 feet (30 meters) on Wednesday, April 2, required to arrive at a major stopping waypoint planned since early 2013 for up close study of the Red Planet's rocks.

Along the recent dune filled path to 'The Kimberley', Curiosity snapped breathtaking landscapes around the irresistible 'Junda' outcrop, much

like a tourist.



Curiosity scans scientifically intriguing rock outcrops of Martian terrain at ‘The Kimberley’ waypoint in search of next drilling location, beside low hill at right. Mastcam color photomosaic assembled from raw images snapped on Sol 590, April 4, 2014. Credit: NASA/JPL/MSSS/Ken Kremer/Marco Di Lorenzo

See our photomosaics showing the spectacularly inviting terrain around Kimberly and Junda, above and below, by Marco Di Lorenzo and Ken Kremer.

The state-of-the-art robot now sits at a vantage point at "The Kimberley" enabling a detailed photographic survey of the rock exposures and surroundings with the high resolution Mastcam cameras.

The new imagery will be used to select the most scientifically productive drilling locations.

"It is named after a remote region of western Australia," Grotzinger informed me.

The team chose Kimberley because its lies at the intersection of four different types of rocks, including striated rocks overlain by others and

deposited in a decipherable geological relationship to each other.

Researchers directed Curiosity on a pinpoint drive to 'Kimberley' after high resolution imagery and mineral mapping spectrometry gathered by NASA's powerful telescopic cameras aboard the Mars Reconnaissance Orbiter (MRO) circling overhead piqued their interest.

"This is the spot on the map we've been headed for, on a little rise that gives us a great view for context imaging of the outcrops at the Kimberley," said Melissa Rice, Curiosity science planning lead, of Caltech.

The team expects Curiosity to investigate Kimberley for several weeks of observations, including sample-drilling and onboard laboratory analysis of the area's rocks with the CheMin and SAM miniaturized chemistry labs.

If drilling is warranted, Kimberley would be the site of Curiosity's first [drilling operation](#) since boring into the 'John Klein' and 'Cumberland' outcrop targets during the spring of 2013 at Yellowknife Bay.



Martian landscape with rows of curved rock outcrops at 'Kimberley' in the foreground and spectacular Mount Sharp on the horizon. NASA's Curiosity Mars rover pulled into Kimberley waypoint dominated by layered rock outcrops as

likely drilling site. This colorized navcam camera photomosaic was assembled from imagery taken on Sol 576 (Mar. 20, 2014). Credit: NASA/JPL-Caltech/Marco Di Lorenzo/Ken Kremer

The robot has conducted cleaning activities of SAM, CheMin and the CHIMRA sample handling mechanism in anticipation of boring into the Martian outcrops and delivering powdery, pulverized samples of cored Martian rocks to SAM and CheMin – waiting patiently inside the robots belly to eat something exciting from the Red Planet.

Curiosity departed the Yellowknife Bay region in July 2013 where she discovered a habitable zone and thereby accomplished the primary goal of the mission.

To date, Curiosity's odometer totals 3.8 miles (6.1 kilometers) since landing inside Gale Crater on Mars in August 2012. She has taken over 137,000 images.

The sedimentary foothills of Mount Sharp, which reaches 3.4 miles (5.5 km) into the Martian sky, is the 1 ton robots ultimate destination inside Gale Crater because it holds caches of water altered minerals. Such minerals could possibly indicate locations that sustained potential Martian life forms, past or present, if they ever existed.

Curiosity has some 4 kilometers to go to reach the base of Mount Sharp.

She may arrive at the lower reaches of Mount Sharp sometime in the latter half of 2014, but must first pass through a potentially treacherous dune field.

Meanwhile, NASA's sister Opportunity rover is exploring clay mineral

outcrops by the summit of Solander Point on the opposite side of Mars at the start of her 2nd Decade investigating the Red Planet's mysteries.

A pair of new orbiters are streaking to the Red Planet to fortify Earth's invasion fleet- NASA's MAVEN and India's MOM.

Source: [Universe Today](#)

Citation: Curiosity rover maneuvers around 'Kimberley' seeking potential red planet drill sites (2014, April 7) retrieved 26 April 2024 from <https://phys.org/news/2014-04-curiosity-rover-maneuvers-kimberley-potential.html>

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