

# Mars rover Curiosity views spectacular layered rock formations

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This view from the Mast Camera (Mastcam) in NASA's Curiosity Mars rover shows an outcrop with finely layered rocks within the "Murray Buttes" region on

lower Mount Sharp. The buttes and mesas rising above the surface in this area are eroded remnants of ancient sandstone that originated when winds deposited sand after lower Mount Sharp had formed. Curiosity closely examined that layer -- called the "Stimson formation" -- during the first half of 2016, while crossing a feature called "Naukluft Plateau" between two exposures of the Murray formation. The layering within the sandstone is called "cross-bedding" and indicates that the sandstone was deposited by wind as migrating sand dunes. The image was taken on Sept. 8, 2016, during the 1454th Martian day, or sol, of Curiosity's work on Mars. Credit: NASA

The layered geologic past of Mars is revealed in stunning detail in new color images returned by NASA's Curiosity Mars rover, which is currently exploring the "Murray Buttes" region of lower Mount Sharp. The new images arguably rival photos taken in U.S. National Parks.

Curiosity took the [images](#) with its Mast Camera (Mastcam) on Sept. 8. The rover team plans to assemble several large, color mosaics from the multitude of images taken at this location in the near future.

"Curiosity's science team has been just thrilled to go on this road trip through a bit of the American desert Southwest on Mars," said Curiosity Project Scientist Ashwin Vasavada, of NASA's Jet Propulsion Laboratory, Pasadena, California.

The Martian buttes and mesas rising above the surface are eroded remnants of ancient sandstone that originated when winds deposited sand after lower Mount Sharp had formed.

"Studying these buttes up close has given us a better understanding of ancient sand dunes that formed and were buried, chemically changed by groundwater, exhumed and eroded to form the landscape that we see today," Vasavada said.



This view from the Mast Camera (Mastcam) in NASA's Curiosity Mars rover shows sloping buttes and layered outcrops within the "Murray Buttes" region on lower Mount Sharp. The buttes and mesas rising above the surface are eroded remnants of ancient sandstone that originated when winds deposited sand after lower Mount Sharp had formed. Curiosity closely examined that layer -- called the "Stimson formation" -- during the first half of 2016, while crossing a feature called "Naukluft Plateau" between two exposures of the Murray formation. The layering within the sandstone is called "cross-bedding" and indicates that the sandstone was deposited by wind as migrating sand dunes. The image was taken on Sept. 8, 2016, during the 1454th Martian day, or sol, of Curiosity's work on

Mars. Credit: JPL/NASA

The new images represent Curiosity's last stop in the Murray Buttes, where the rover has been driving for just over one month. As of this week, Curiosity has exited these buttes toward the south, driving up to the base of the final butte on its way out. In this location, the rover began its latest drilling campaign (on Sept. 9). After this drilling is completed, Curiosity will continue farther south and higher up Mount Sharp, leaving behind these spectacular formations.





This view from the Mast Camera (Mastcam) in NASA's Curiosity Mars rover shows a sloping hillside within the "Murray Buttes" region on lower Mount Sharp. The rim of Gale Crater, where the rover has been active since landing in 2012, is visible in the distance, through the dusty haze. The image was taken on Sept. 8, 2016, during the 1454th Martian day, or sol, of Curiosity's work on Mars. Credit: JPL/NASA

Curiosity landed near Mount Sharp in 2012. It reached the base of the mountain in 2014 after successfully finding evidence on the surrounding

plains that ancient Martian lakes offered conditions that would have been favorable for microbes if Mars has ever hosted life. Rock layers forming the base of Mount Sharp accumulated as sediment within ancient lakes billions of years ago.

On Mount Sharp, Curiosity is investigating how and when the habitable ancient conditions known from the mission's earlier findings evolved into conditions drier and less favorable for life.



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Provided by JPL/NASA

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