

Mars rover Curiosity uses arm camera at night

January 24 2013, by Guy Webster



This image of a Martian rock illuminated by white-light LEDs (light emitting diodes) is part of the first set of nighttime images taken by the Mars Hand Lens Imager (MAHLI) camera at the end of the robotic arm of NASA's Mars rover Curiosity. MAHLI took the images on Jan. 22, 2012 (PST), after dark on the 165th Martian day, or sol, of the rover's work on Mars. This rock target in the "Yellowknife Bay" area of Mars' Gale Crater is called "Sayunei." The image covers an area about 1.3 inches by 1 inch (3.4 by 2.5 centimeters). The illumination came from one of MAHLI's two groups of white LED pairs. This allowed surface features to cast shadows and provide textural detail. Credit: NASA/JPL-Caltech/MSSS



(Phys.org)—NASA's Mars rover Curiosity has for the first time used the camera on its arm to take photos at night, illuminated by white lights and ultraviolet lights on the instrument.

Scientists used the rover's Mars Hand Lens Imager (MAHLI) instrument for a close-up nighttime look at a rock target called "Sayunei," in an area where Curiosity's front-left wheel had scuffed the rock to provide fresh, dust-free materials to examine. The site is near where the rover team plans to begin using Curiosity to drill into a rock in coming weeks. The images of the rock Sayunei and of MAHLI's <u>calibration target</u> were taken on Jan. 22 (PST) and received on Earth Jan. 23.

The MAHLI, an adjustable-focus color camera, includes its own LED (light-emitting diode) illumination sources.





This image of a Martian rock illuminated by ultraviolet LEDs (light emitting diodes) is part of the first set of nighttime images taken by the Mars Hand Lens Imager (MAHLI) camera at the end of the robotic arm of NASA's Mars rover Curiosity. MAHLI took the images on Jan. 22, 2012 (PST), after dark on the 165th Martian day, or sol, of the rover's work on Mars. The image covers an area about 1.3 inches by 1 inch (3.4 by 2.5 centimeters). This rock target in the "Yellowknife Bay" area of Mars' Gale Crater is called "Sayunei." It is in an area that Curiosity's front left wheel scuffed to provide fresh, dust-free materials to examine. The illumination came from MAHLI's two ultraviolet LEDs, which emit light in a waveband centered at a wavelength of 365 nanometers. The exposure duration was 30 seconds. The purpose of acquiring observations under ultraviolet illumination was to look for fluorescent minerals. This image and caption are being posted before analysis is completed about whether fluorescent minerals are present. Credit: NASA/JPL-Caltech/MSSS

"The purpose of acquiring observations under ultraviolet illumination was to look for fluorescent minerals," said MAHLI Principal Investigator Ken Edgett of Malin Space Science Systems, San Diego. "These data just arrived this morning. The science team is still assessing the observations. If something looked green, yellow, orange or red under the ultraviolet illumination, that'd be a more clear-cut indicator of fluorescence."





This image of a calibration target illuminated by ultraviolet LEDs (light emitting diodes) is part of the first set of nighttime images taken by the Mars Hand Lens Imager (MAHLI) camera at the end of the robotic arm of NASA's Mars rover Curiosity. Image credit: NASA/JPL-Caltech/MSSS

NASA's Mars <u>Science Laboratory</u> project is using Curiosity to investigate whether the study area within Gale Crater has offered environmental conditions favorable for <u>microbial life</u>. JPL, a division of the California Institute of Technology in Pasadena, manages the <u>Mars</u> <u>Science</u> Laboratory mission for the NASA Science Mission Directorate, Washington.

More information: For more information about the mission, visit <u>www.nasa.gov/msl</u> and <u>mars.jpl.nasa.gov/msl</u>.



Provided by NASA

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