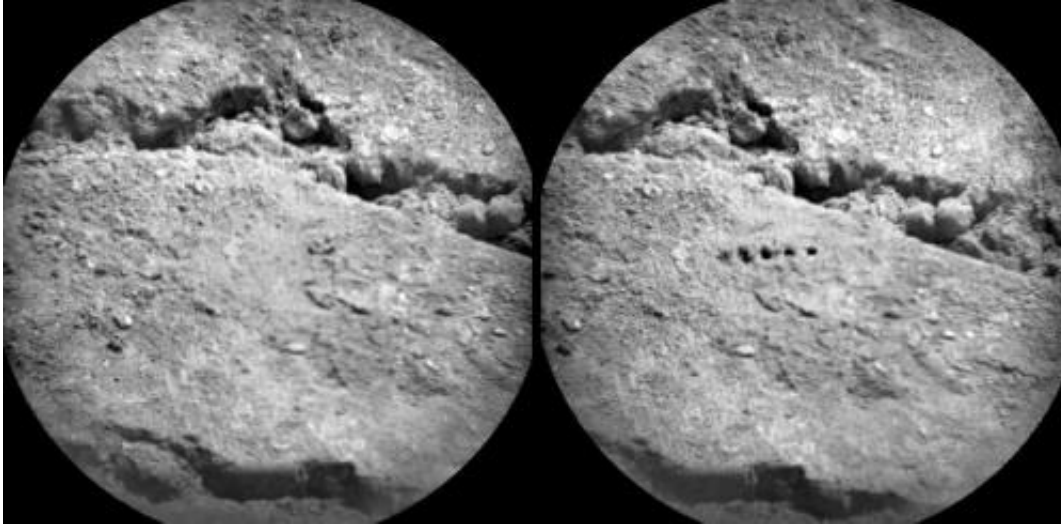


# Curiosity's laser leaves its mark

August 31 2012, by Jason Major

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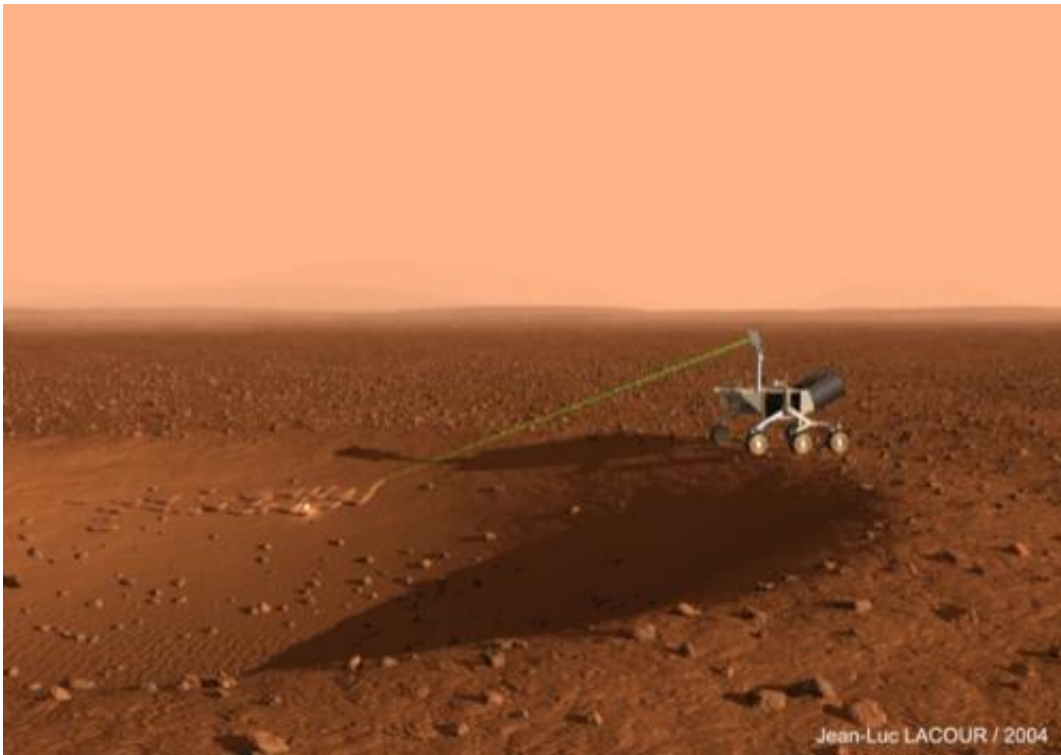
Before-and-after images from Curiosity's ChemCam micro-imager show holes left by its million-watt laser. Credit: NASA/JPL-Caltech/LANL/CNES/IRAP/LPGN/CNRS

Curiosity's head-mounted ChemCam did a little target practice on August 25, blasting millimeter-sized holes in a soil sample named "Beechey" in order to acquire spectrographic data from the resulting plasma glow. The neat line of holes is called a five-by-one raster, and was made from a distance of about 11.5 feet (3.5 meters).

Sorry Obi-Wan, but Curiosity's blaster is neither clumsy nor random!

Mounted to Curiosity's "head", just above its Mastcam camera "eyes", ChemCam combines a powerful laser with a telescope and [spectrometer](#)

that can analyze the light emitted by zapped materials, thereby determining with unprecedented precision what Mars is really made of.



ChemCam's laser allows Curiosity to zap and examine targets up to 23 feet (7 meters) away. Credit: J-L. Lacour/CEA/French Space Agency (CNES)

For five billionths of a second the laser focuses a million [watts](#) of energy onto a specific point. Each of the 5 holes seen on Beechey are the result of 50 laser hits. 2 to 4 millimeters in diameter, the holes are much larger than the laser point itself, which is only .43 millimeters wide at that distance.

"ChemCam is designed to look for lighter elements such as carbon, [nitrogen](#), and oxygen, all of which are crucial for life," said Roger Wiens, principal investigator of the ChemCam team. "The system can

provide immediate, unambiguous detection of water from frost or other sources on the surface as well as carbon – a basic building block of life as well as a possible byproduct of life. This makes the ChemCam a vital component of [Curiosity's](#) mission."

**More information:** [www.msl-chemcam.com/](http://www.msl-chemcam.com/)

Source: [Universe Today](#)

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