

Working with Curiosity's ChemCam Laser
Curiosity Update Oct. 26, 2012

Hi, I'm Nina Lanza, I'm a **post**-doc on the ChemCam instrument and this is your Curiosity rover update.

This has been a very exciting week for the Curiosity rover. It delivered its 3rd sample to the CHIMRA to complete its cleaning regimen and also **we've done our first CheMin analysis and we've got a second one on the way.**

In its spare time, Curiosity has also been making measurements with other instruments, including the ChemCam instrument, which is what I work on.

ChemCam is actually two instruments in one. It includes a camera with a telephoto lens and it also has a laser that vaporizes a very small amount of rock so we can tell what its chemical composition is. And as of this week, we will have done 10,000 shots with the ChemCam laser.

This week we've been analyzing rocks in an area called Rocknest, and I'll tell you in particular about one called Zephyr. This one is interesting because it appears to be made of 2 different types of materials.

It's got this harder, more resistant material on the top, capping it, and then beneath it has a lighter colored softer material that appears to erode more easily.

It's actually eroded into a set of natural arches, so some of our team members have taken to calling it, "Stonehenge."

This feature **is really only an inch long and we're shooting this from** about 8 feet away, making the pointing very difficult.

So that's why we decided to do 9 points instead of just 2, just to make sure we would hit the material of interest.

We ended up hitting both the dark and the light material and we found that there was indeed a compositional difference.

In addition to composition, we've also been able to make a three-dimensional model of the surface of this target using images from the Remote Micro-Imager part of ChemCam.

We've also used ChemCam to measure soils, such as crestaurum. Here you can see a before image, and then after image where you can see the crater left by the laser.

This week ChemCam did its very first depth profile, in which we shot the laser 600 times in a single location, in order to tunnel through the surface of the rock. Now, this only tunnels about one millimeter in depth, but it can help us understand how the composition of the sample changes from the surface to the interior.

Coming up, we'll be able to use this information that we've learned from ChemCam in order to decide which targets we should hit next with other instruments.

This has been your Curiosity rover report. Please check back for more updates.