

**LA-UR-14-22507**

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Title: Exploring Mars with Curiosity

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Intended for: UC Redents Visit, 2014-04-07 (Los Alamos, New Mexico, United States)

Issued: 2014-04-15



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# Exploring Mars with *Curiosity*

*Roger Wiens, LANL*  
*ChemCam Laser Instrument Lead*

*Amy Williams, UC Davis*  
*Grad Student on Curiosity*

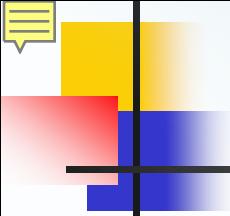
*UC Regents Visit*  
*April 7, 2014*

# Abstract (for LA-UR)

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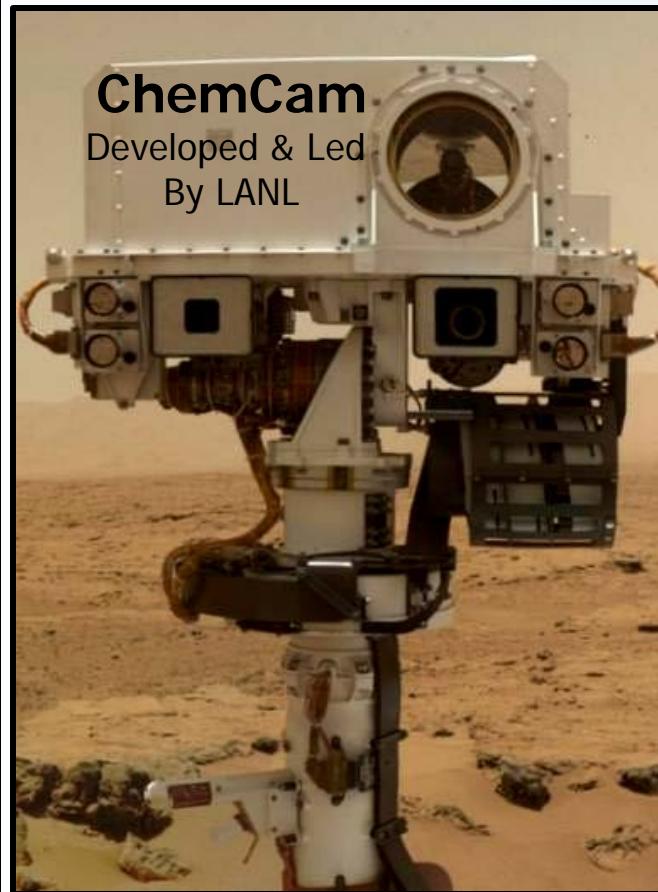


This presentation gives an update on the status of the Curiosity Mars rover including the ChemCam experiment. It also highlights the work of UC Davis graduate student Amy Williams, who is participating on the MaHLI microscopic imager experiment and on the ChemCam Remote Micro-Imager.

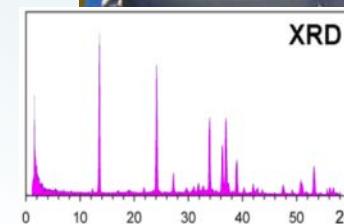


# Los Alamos Involvement in Curiosity

**ChemCam**  
Developed & Led  
By LANL



NASA/JPL-Caltech /MSSS



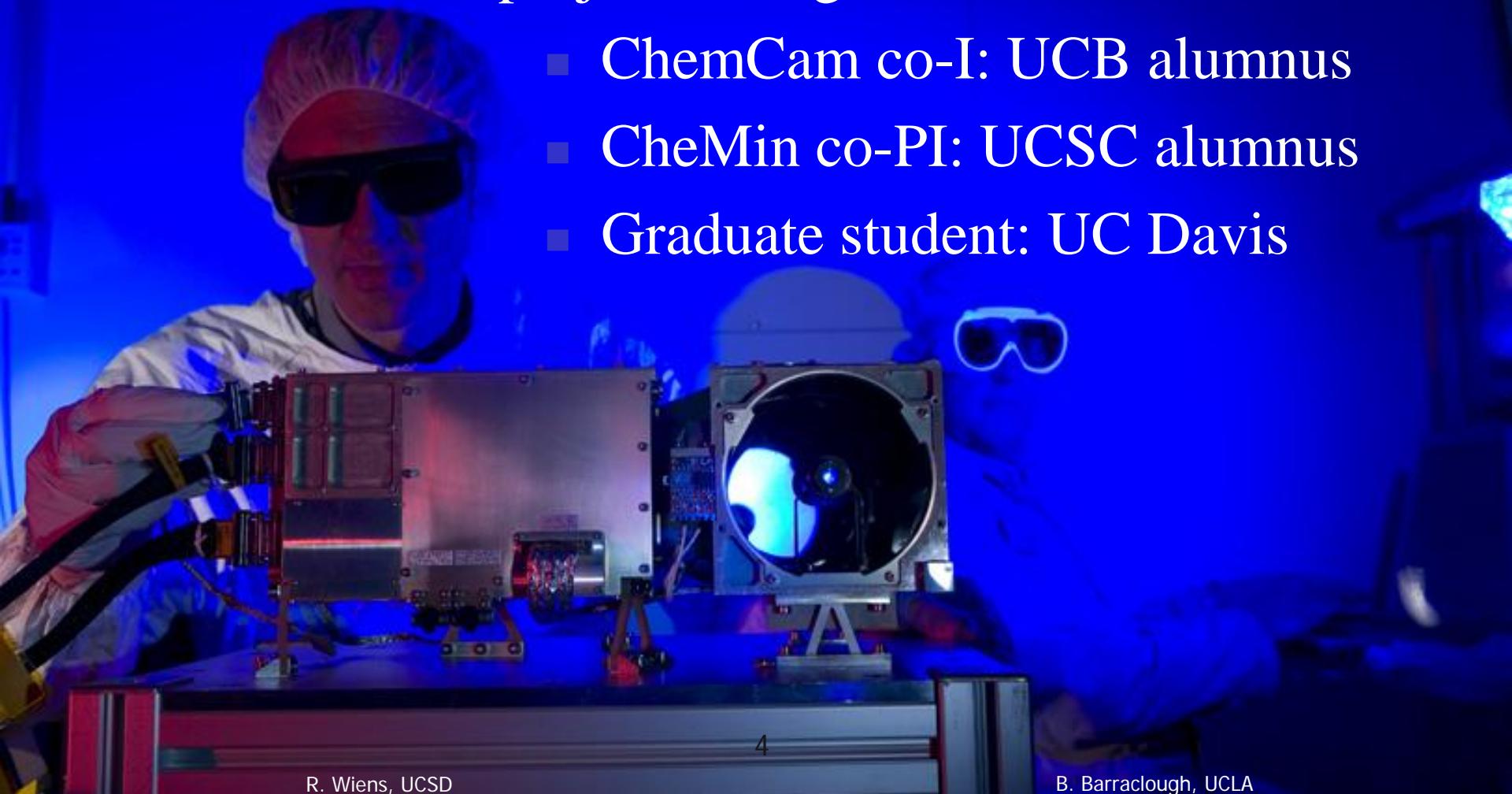
**CheMin**  
Science Co-lead is  
from LANL



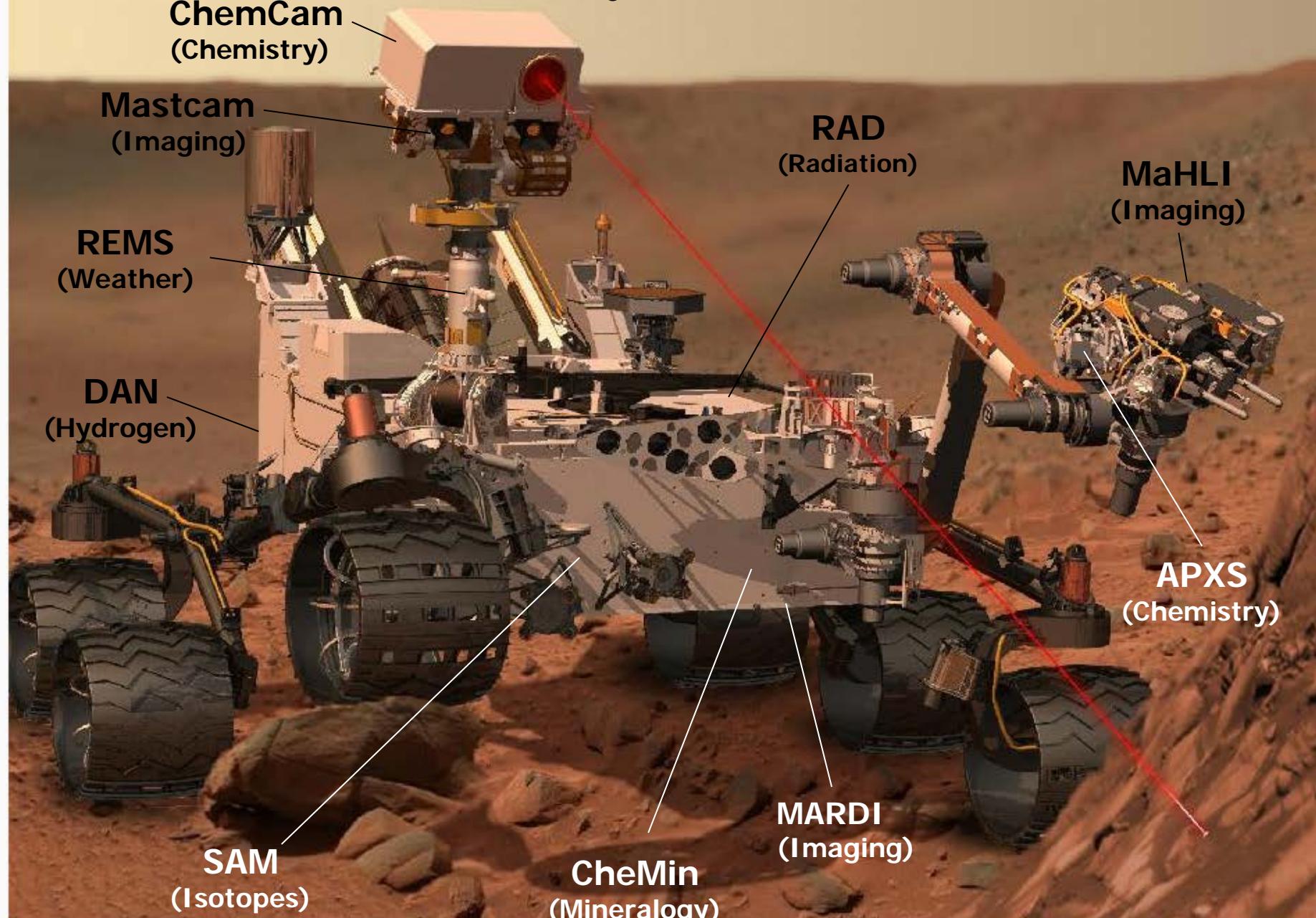
# UC Connections



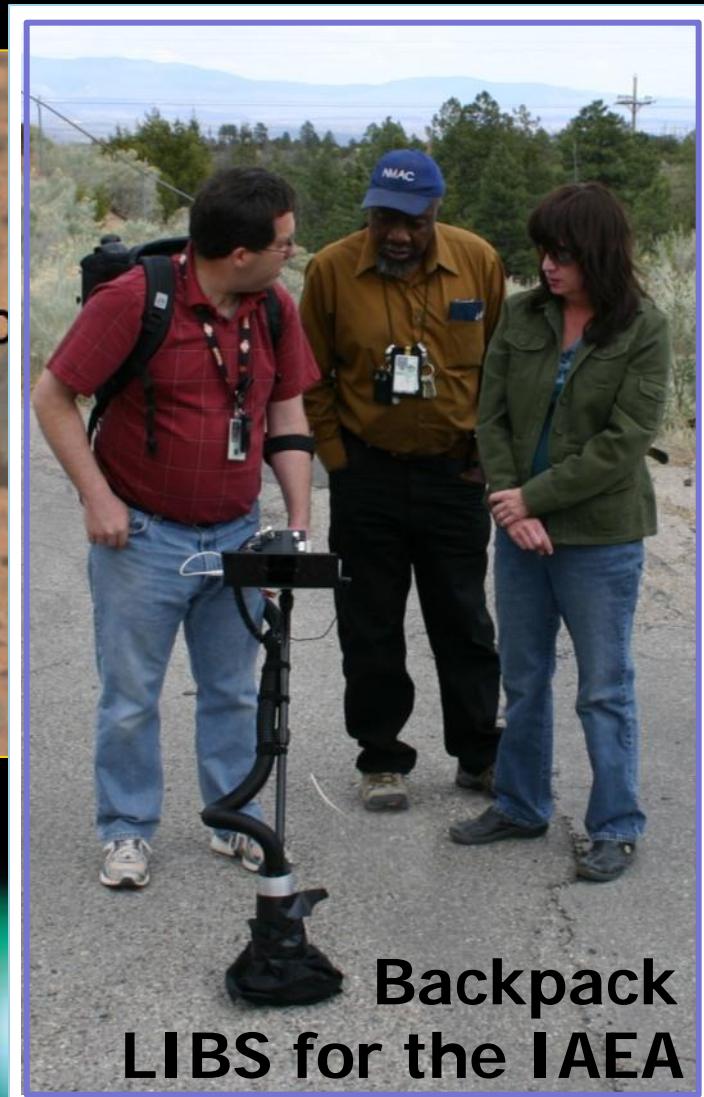
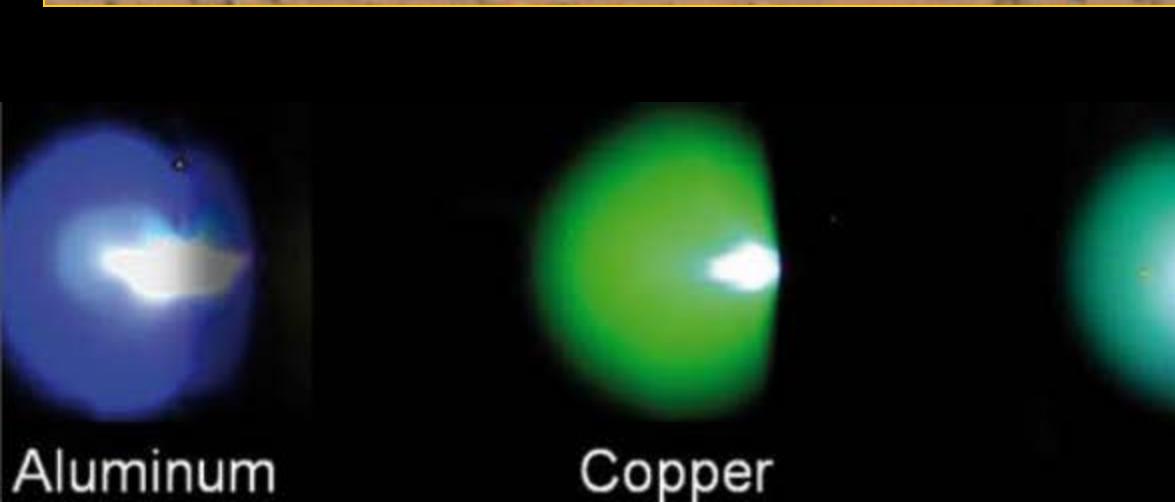
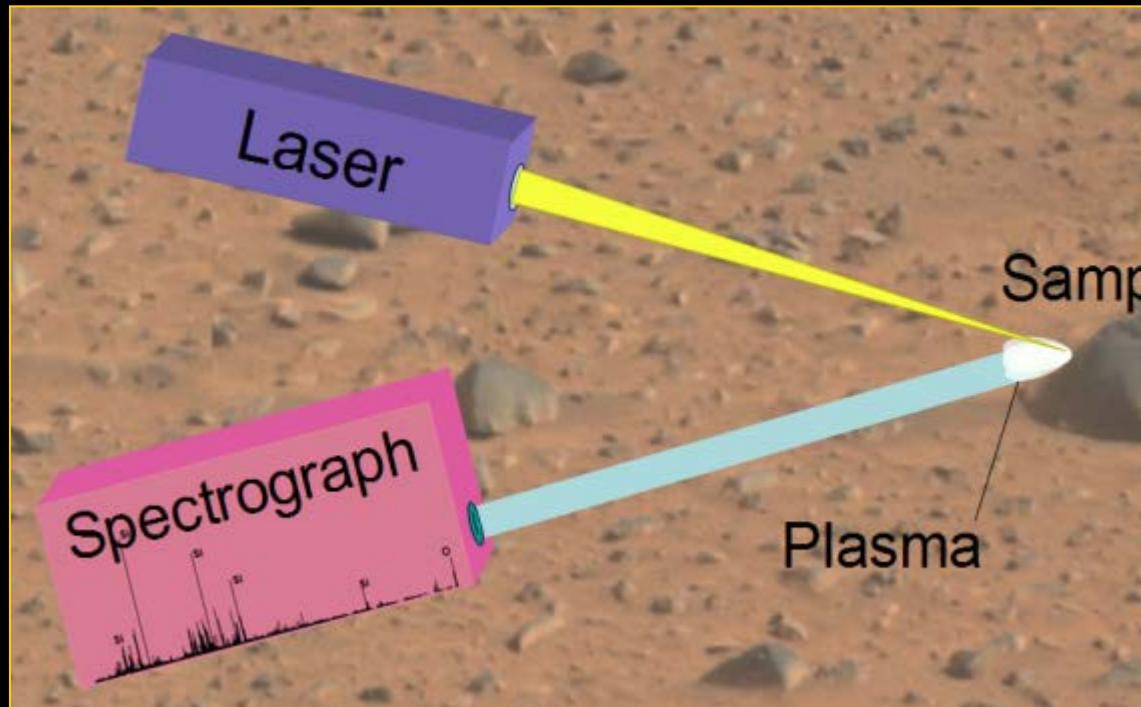
- ChemCam PI: UCSD post-doc
- ChemCam project manager: UCLA alumnus
  - ChemCam co-I: UCB alumnus
  - CheMin co-PI: UCSC alumnus
  - Graduate student: UC Davis



# Curiosity Rover

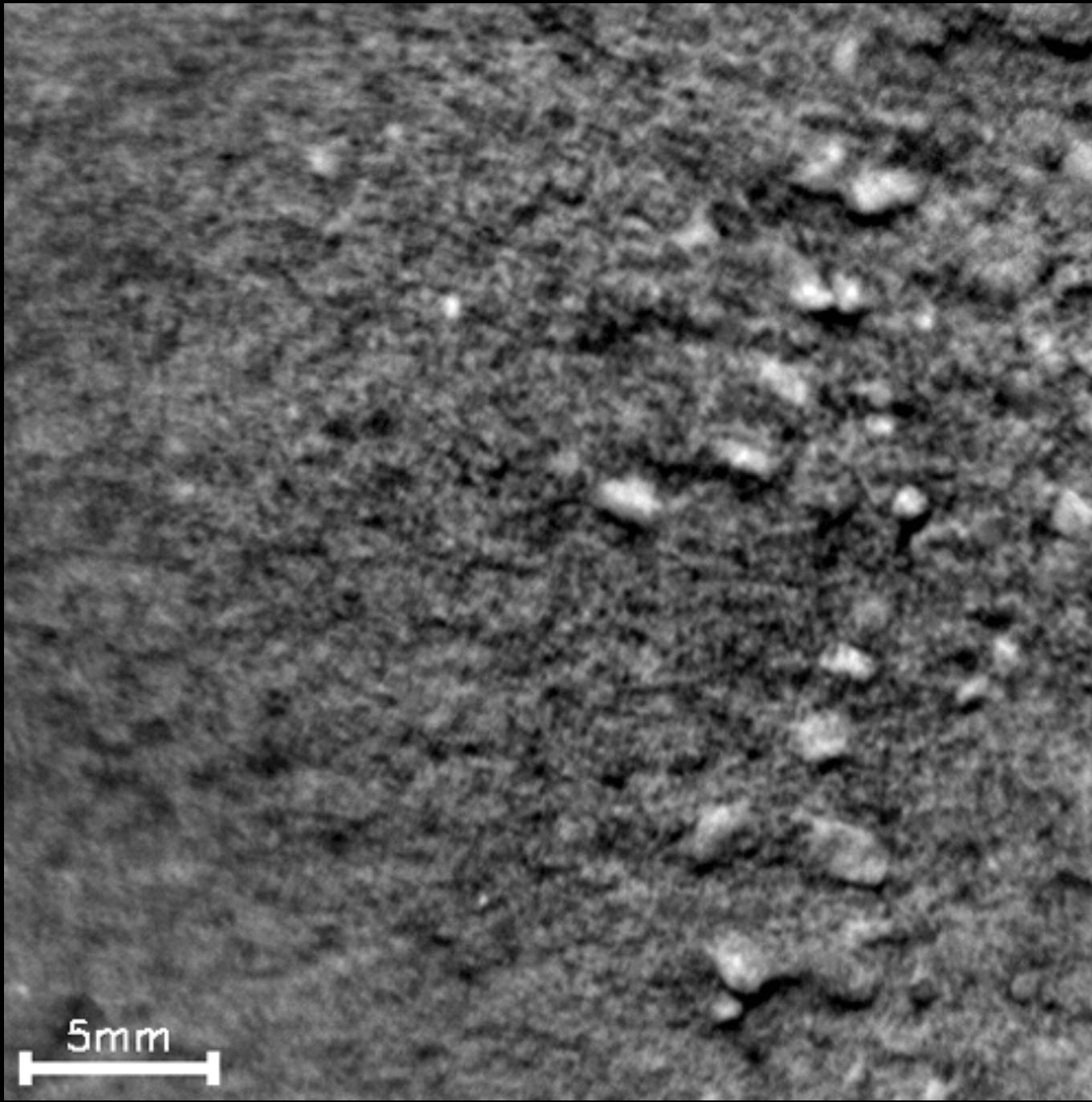


# Laser-Induced Breakdown Spectroscopy (LIBS)

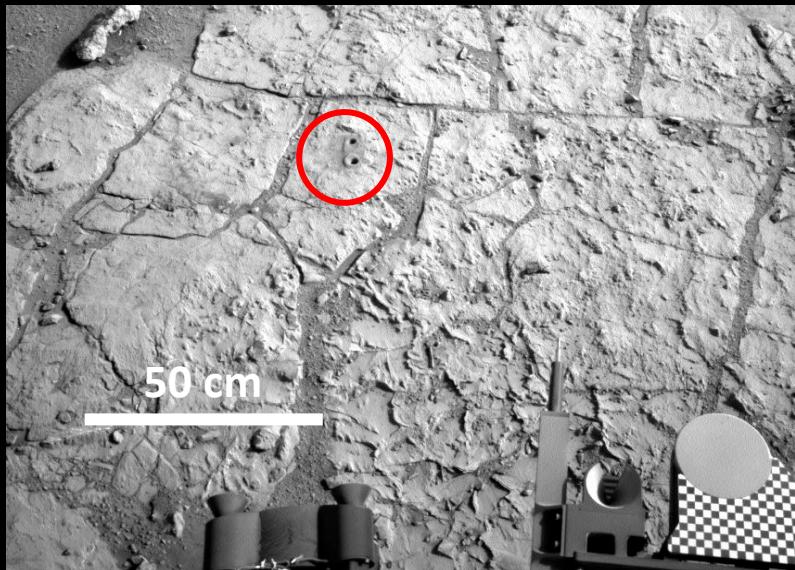


# Soil Shots

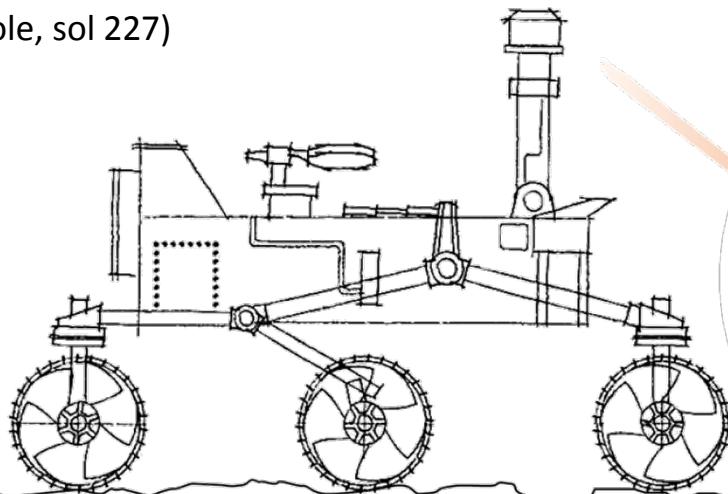
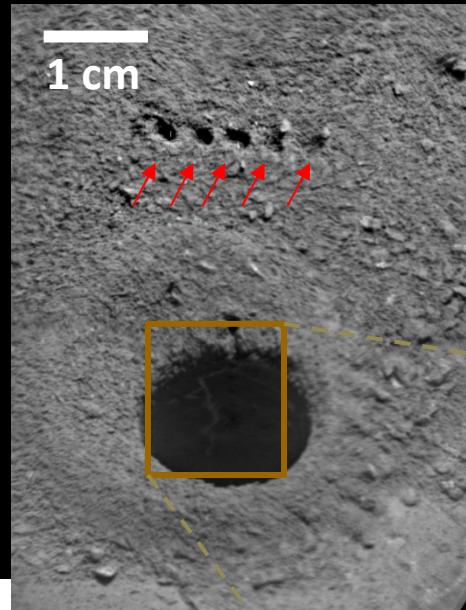
## Discovered Water in Mars' Soil



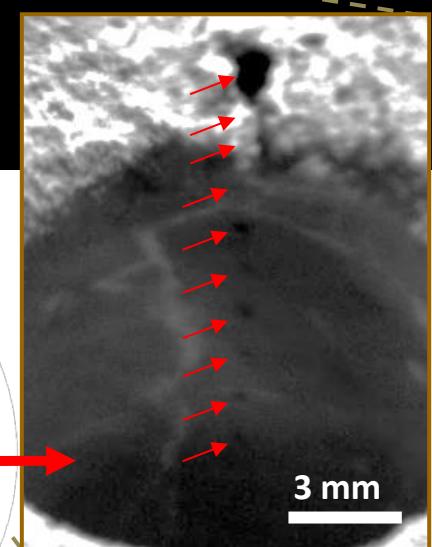
# ChemCam Fine Pointing



(Drill hole, sol 227)

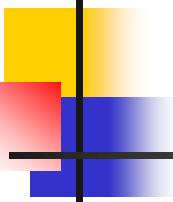


To Scale

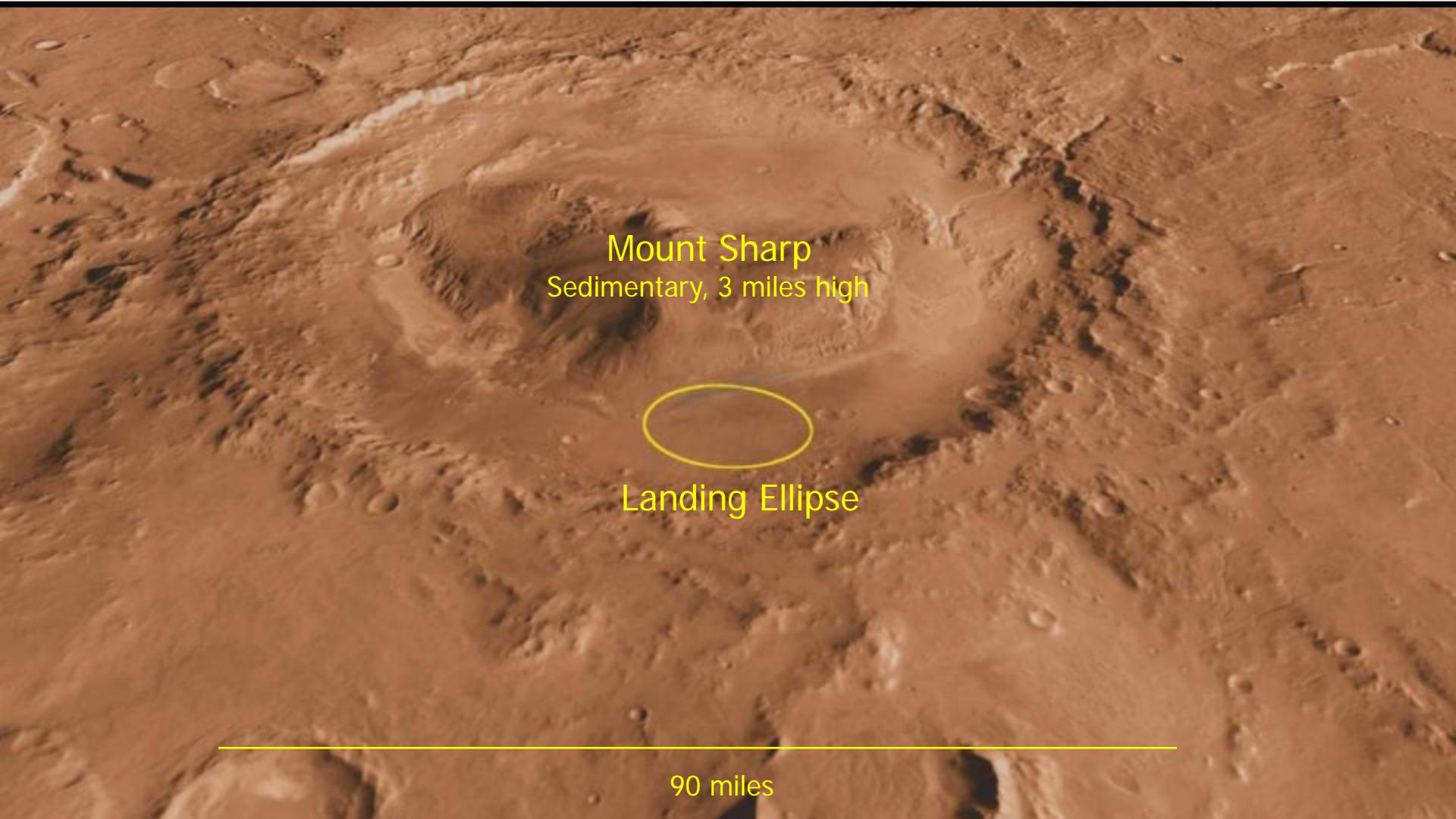


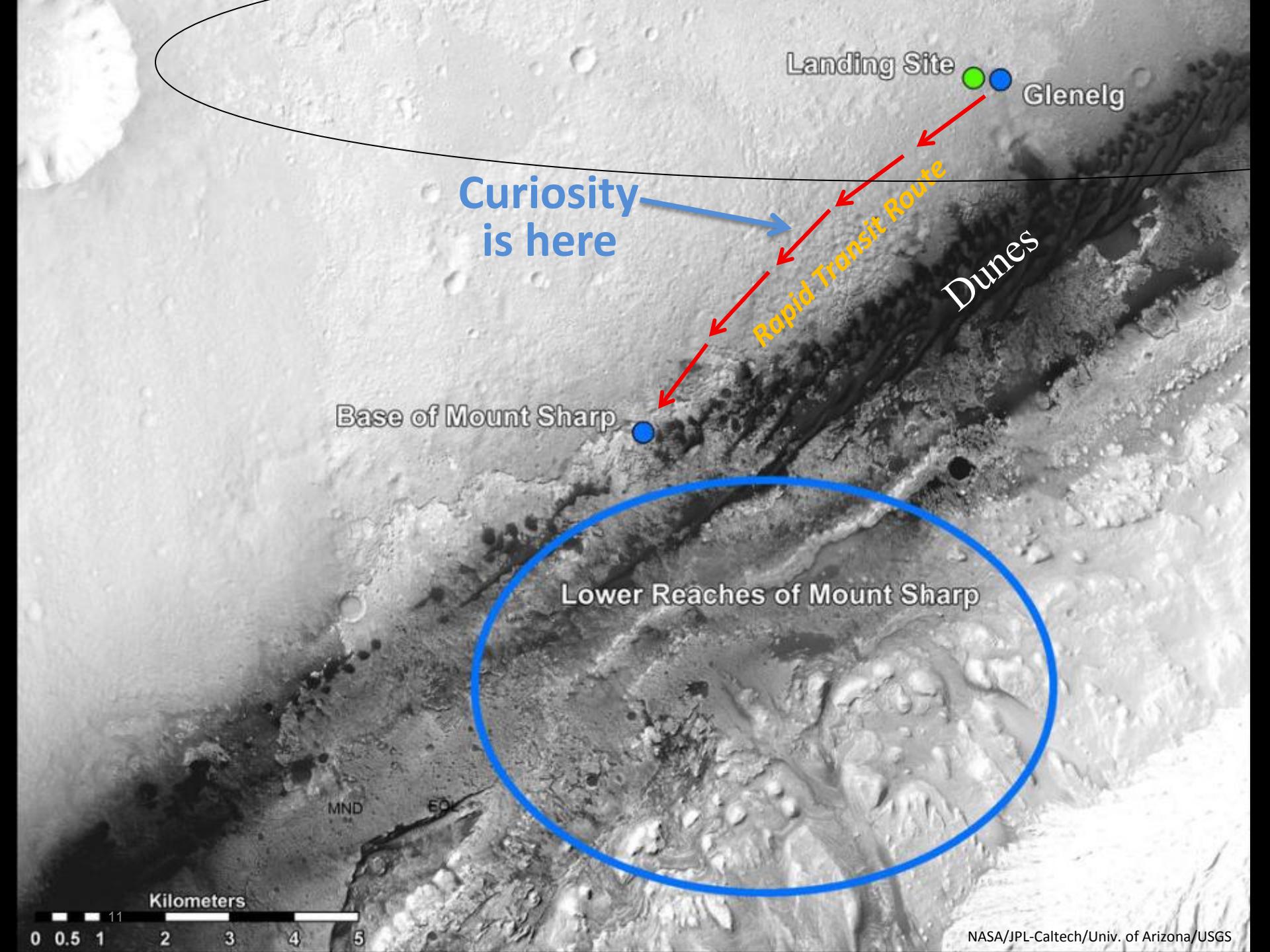
# Curiosity/ChemCam Operations at Los Alamos





# Gale Crater Landing Site





Curiosity  
is here

Landing Site

Glenelg

Rapid Transit Route

Dunes

Base of Mount Sharp

Lower Reaches of Mount Sharp

MND

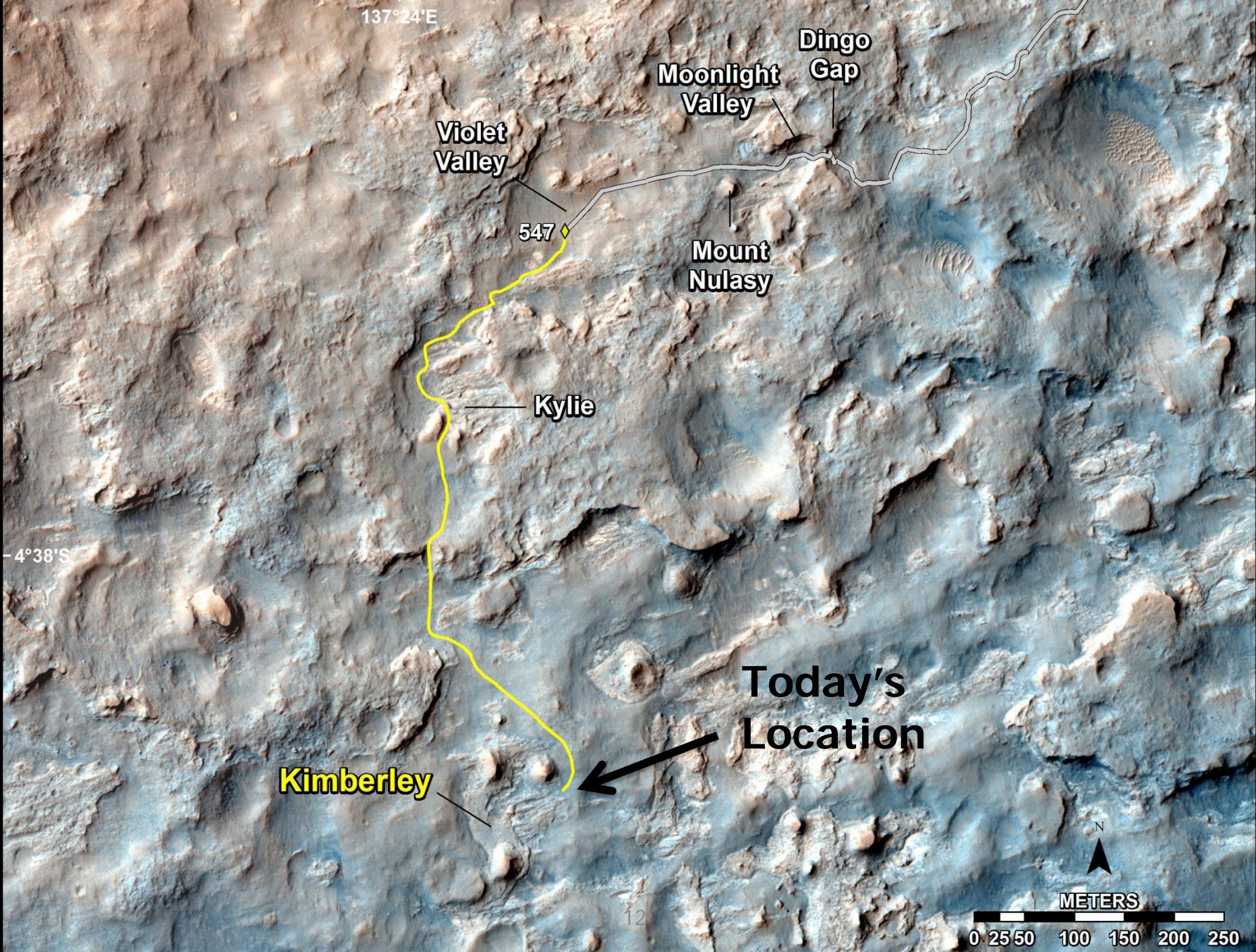
ED

Kilometers

0 0.5 1 2 3 4 5

NASA/JPL-Caltech/Univ. of Arizona/USGS

137°24'E



# Current Location: The Kimberley

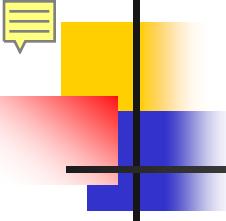


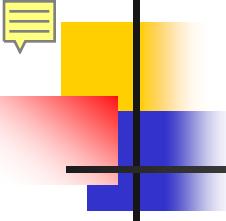


This boulder is the  
size of Curiosity

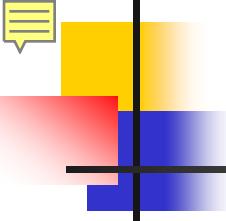
NASA/JPL-Caltech/MSSS

 Destination: The Canyons & Buttes of 3-mile-high  
Mt. Sharp

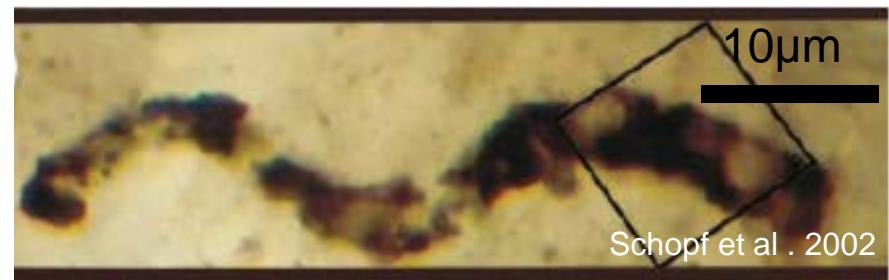
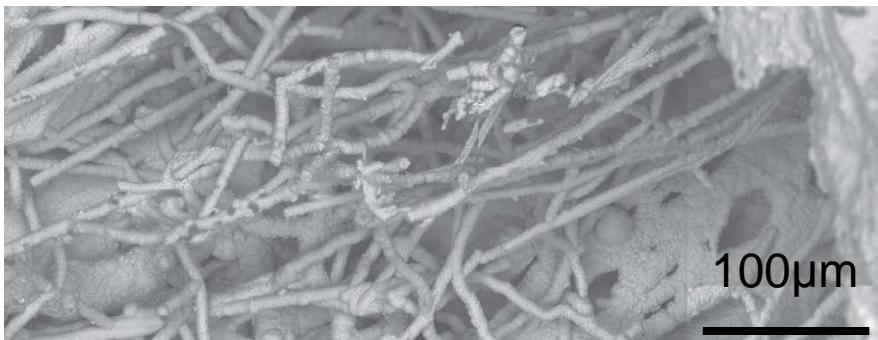
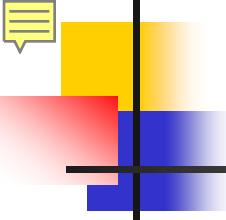


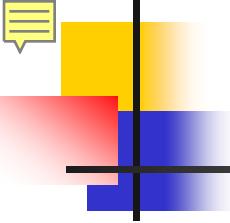


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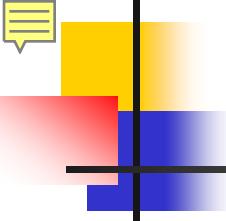


[archosaurmusings.wordpress.com](http://archosaurmusings.wordpress.com)

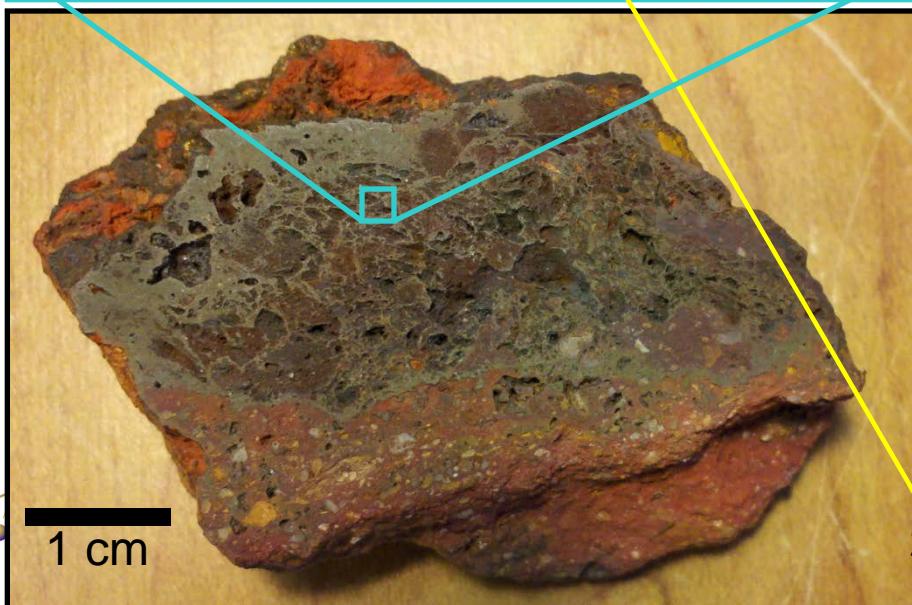
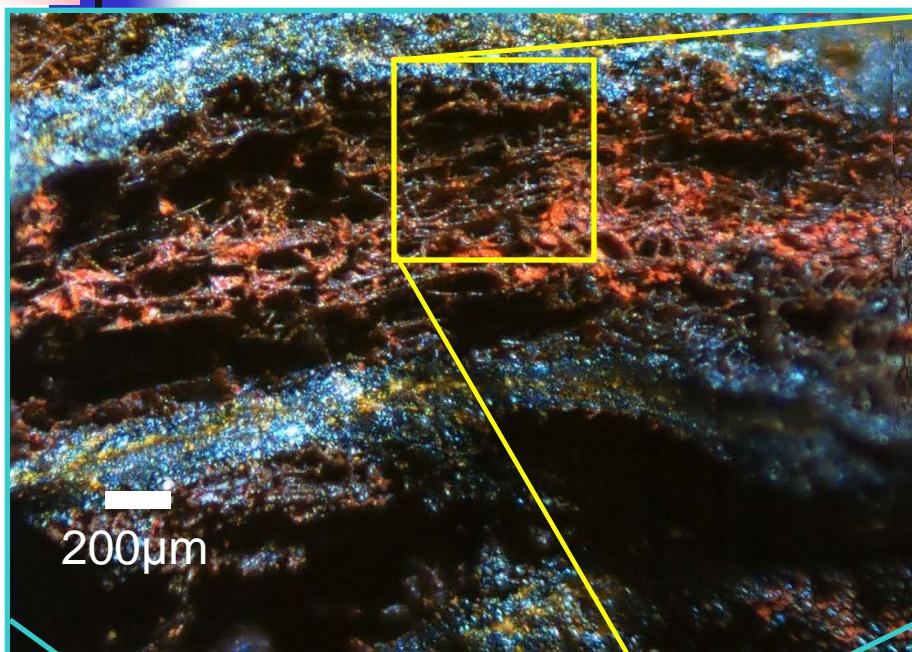
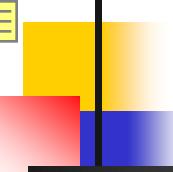




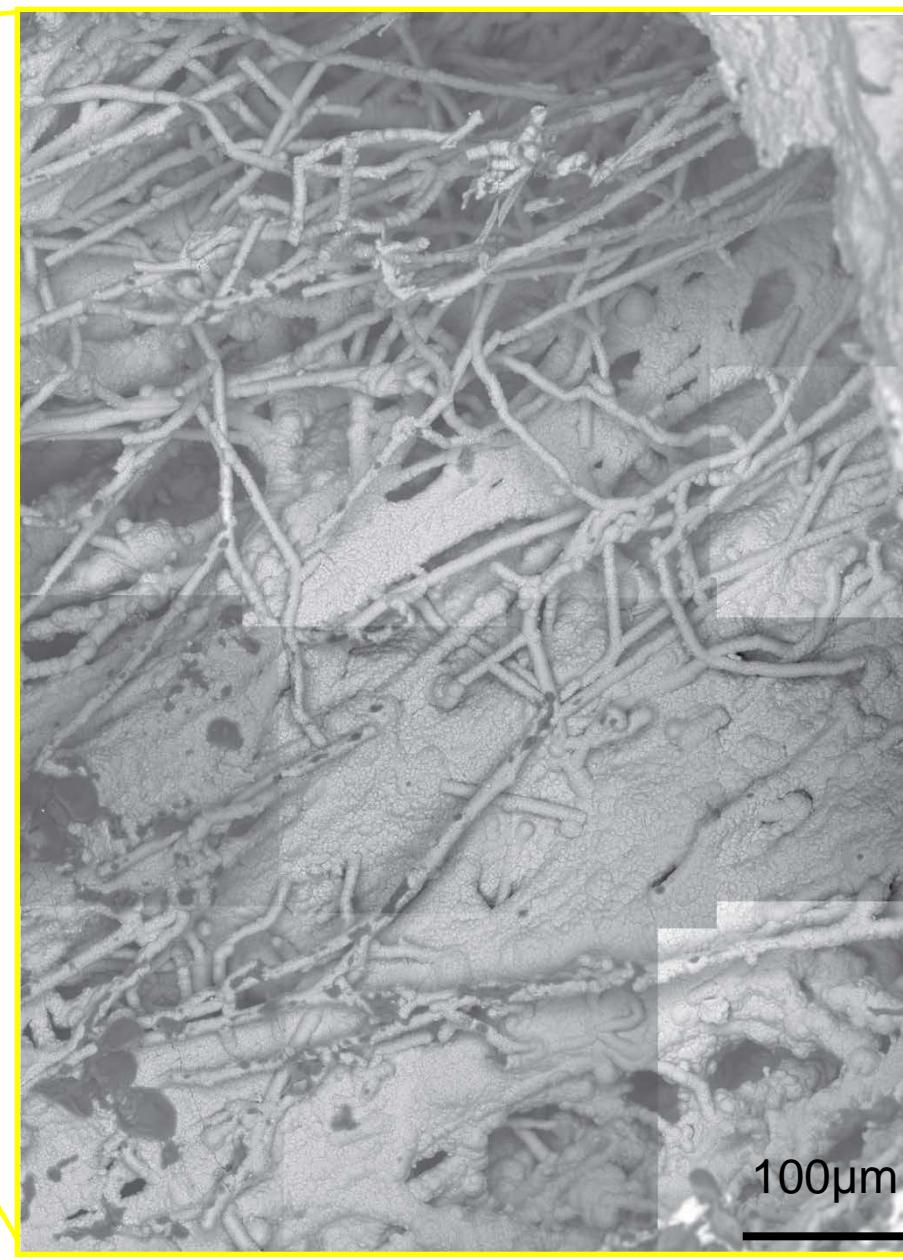
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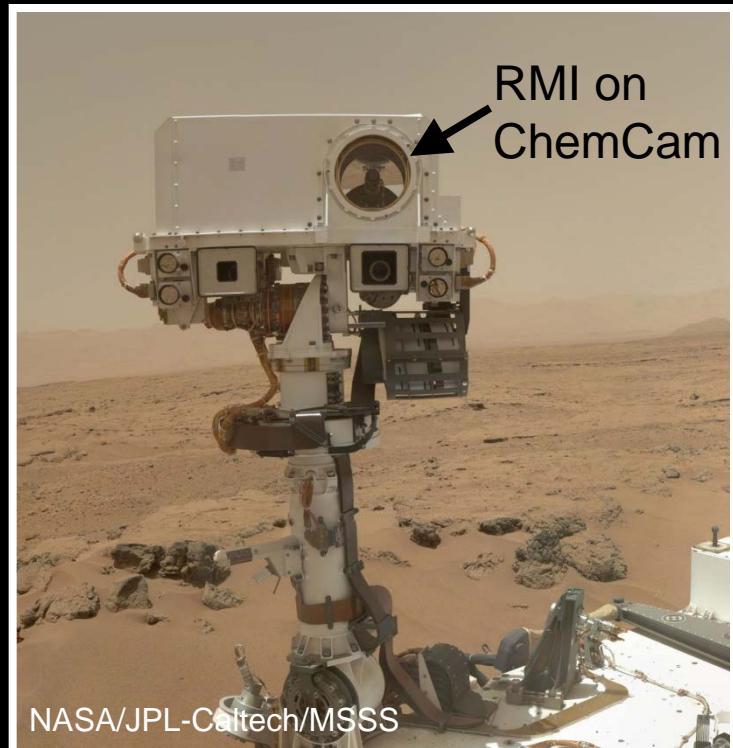
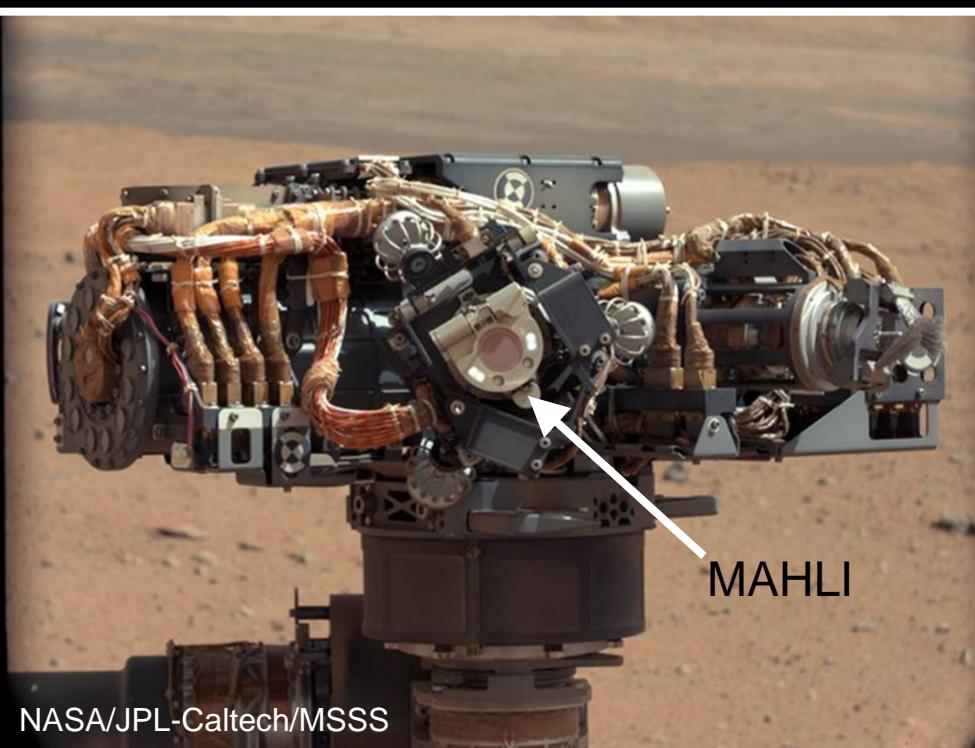
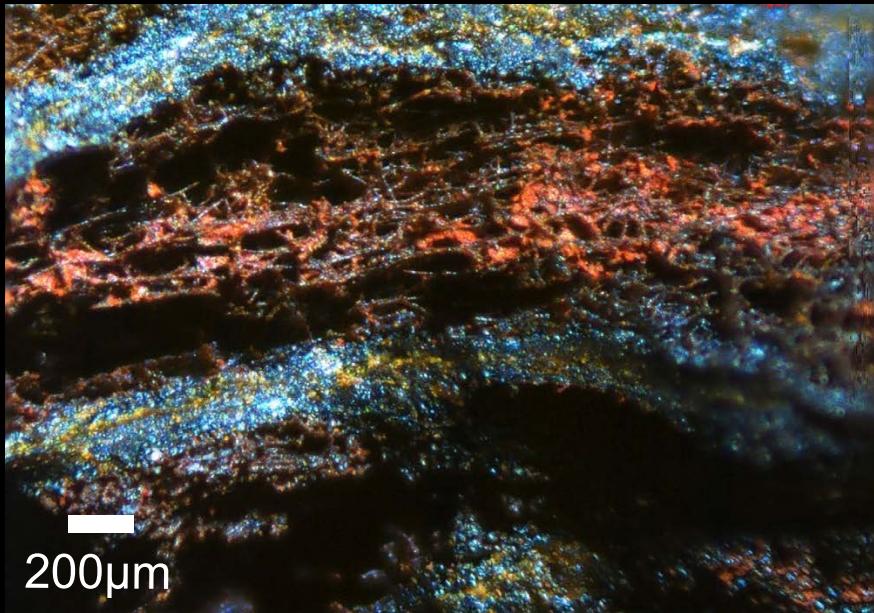


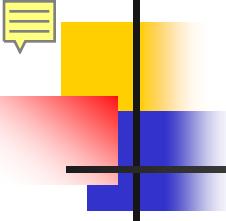
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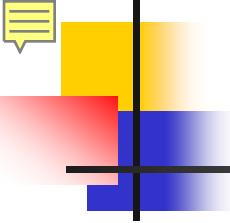


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## Mars Through Time July 8–11, 2014

*Presented at the Department of Earth and Planetary Sciences, the University of New Mexico*

**Who:** In-service and pre-service high school science teachers

**What:** A free, four day professional development training focusing on the nature and process of science, Mars science and Mars exploration

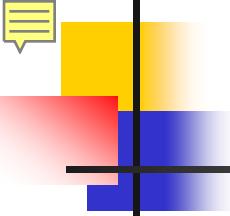
**Where:** Department of Earth and Planetary Sciences, the University of New Mexico, Albuquerque, NM

[Apply Here](#)

*Mars Through Time* is a four day, high school teacher professional development training focusing on Mars science and exploration and the nature and process of science. Participants explore the relationship between technology and science using the history of Mars exploration as an example. Participants also learn about and discuss the nature and process of science with each other and invited speakers. Registration is free. Travel stipends are available for select participants based on need.

**The workshop will:**

- Provide hands-on, standards-aligned classroom resources that allow you to bridge content from Mars to the Earth and address a variety of Nature of Science and science process skills
- Provide tools to address student misconceptions



# Thank you!

