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Williams, Amy J.

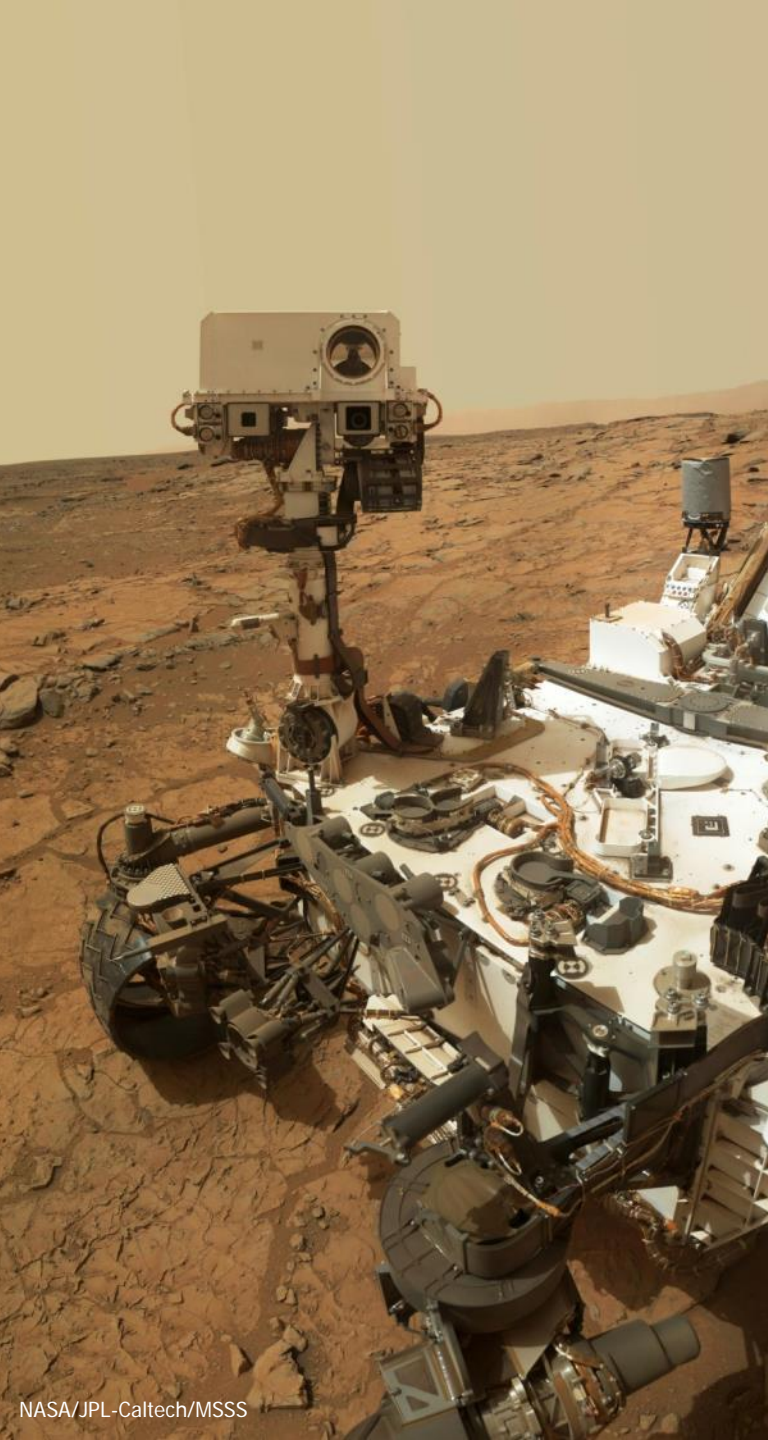
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Exploring Mars *with Curiosity*

*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)



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

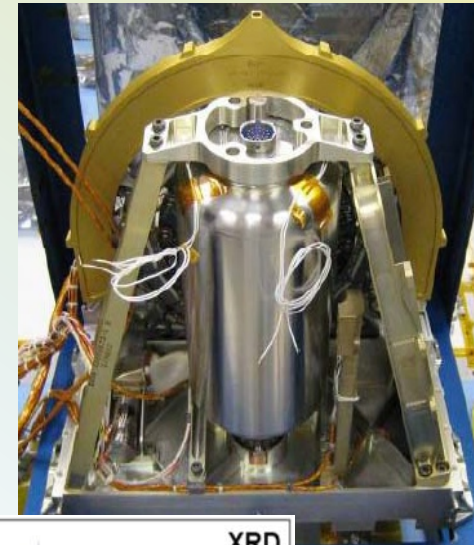
Developed & Led
By LANL



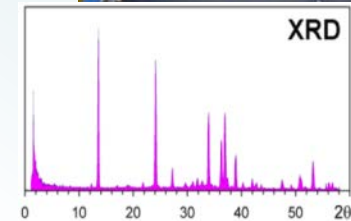
NASA/Cory Huston

Plutonium
for RTG

LANL



NASA/JPL-Caltech



CheMin

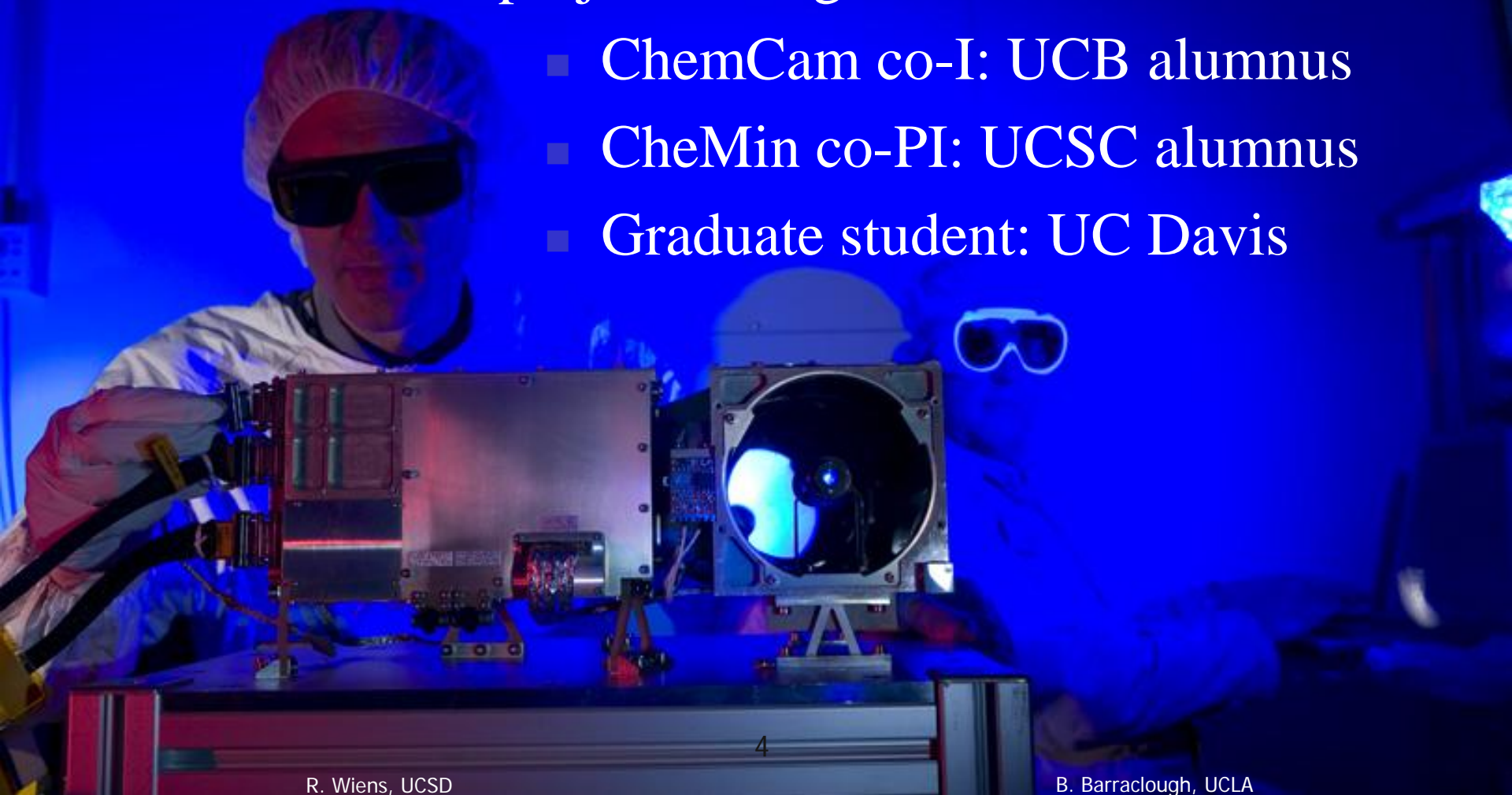
Science Co-lead is
from LANL



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

ChemCam
(Chemistry)

Mastcam
(Imaging)

REMS
(Weather)

DAN
(Hydrogen)

RAD
(Radiation)

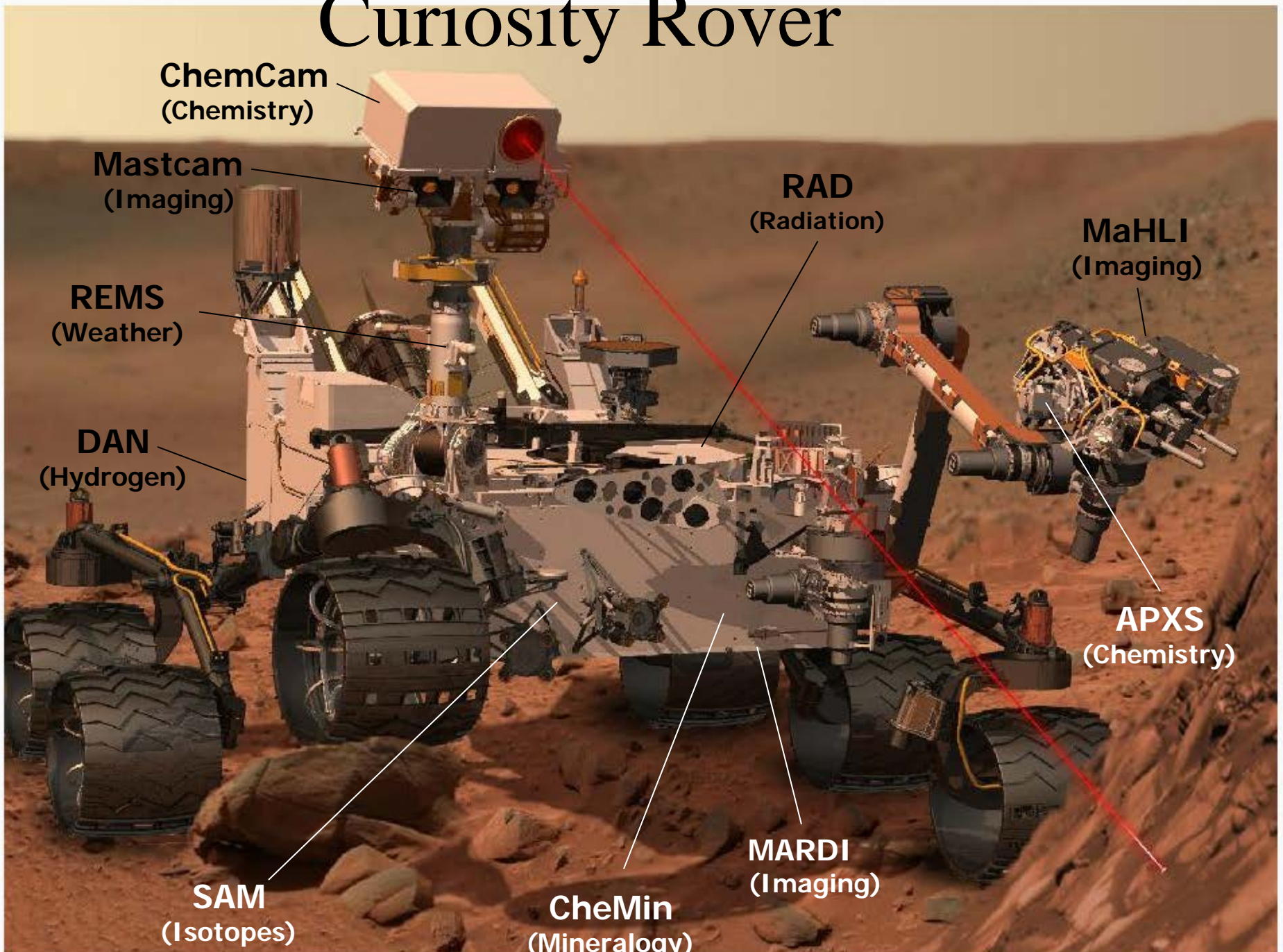
MaHLI
(Imaging)

APXS
(Chemistry)

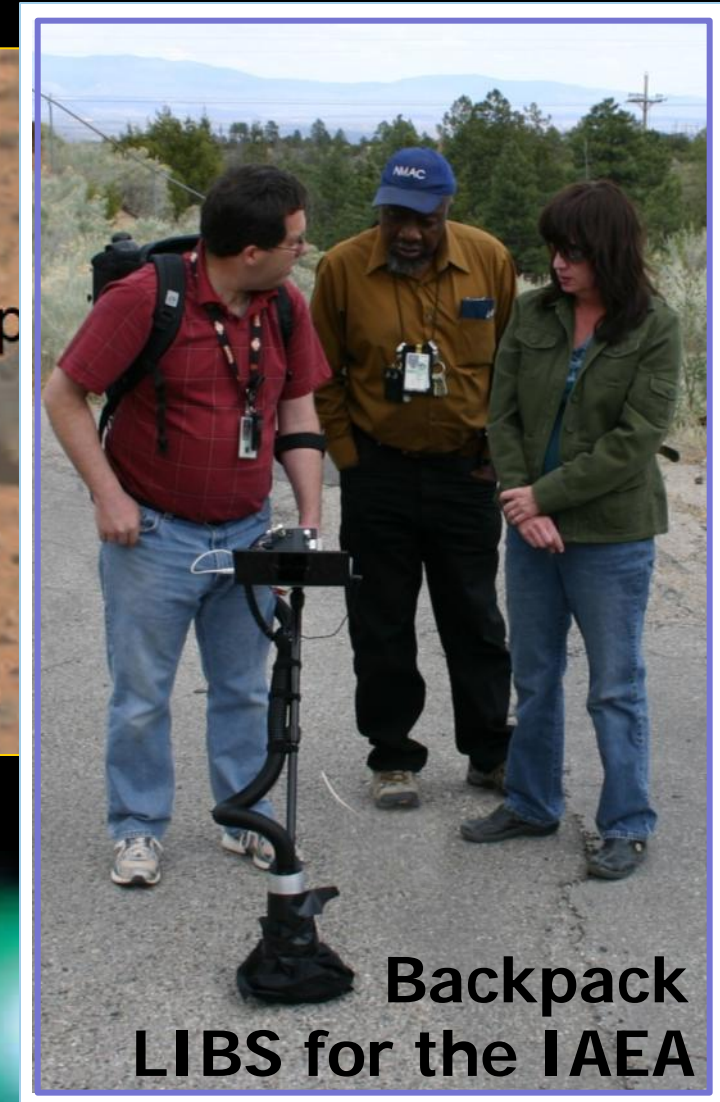
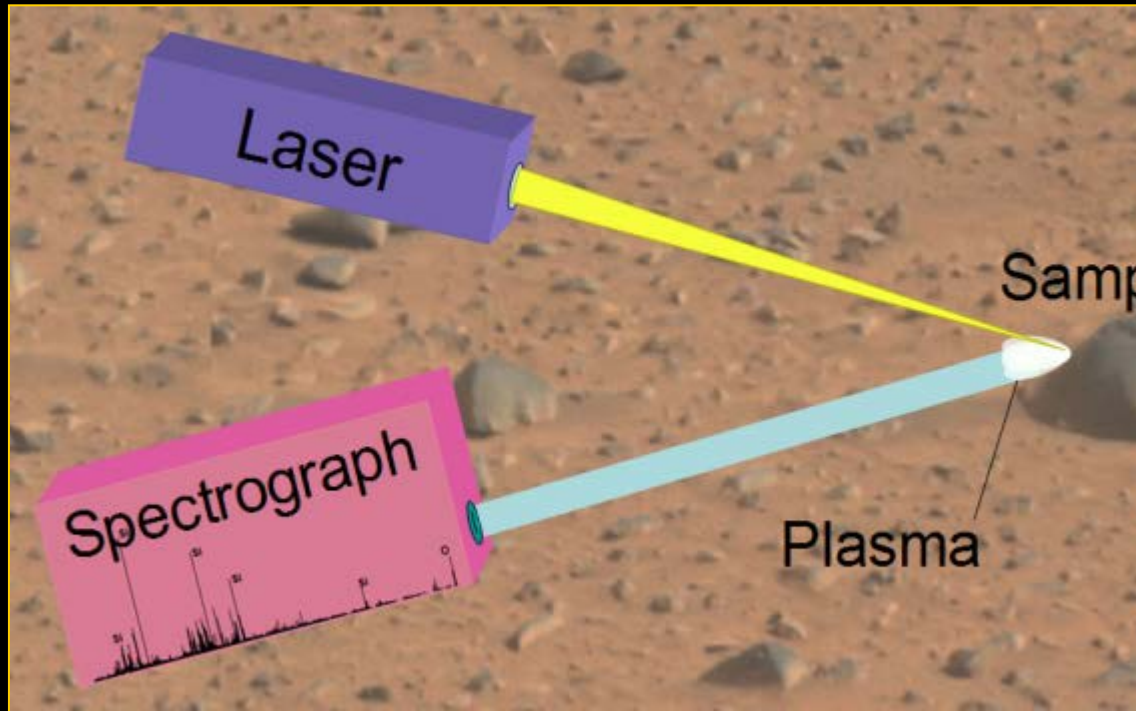
SAM
(Isotopes)

CheMin
(Mineralogy)

MARDI
(Imaging)



Laser-Induced Breakdown Spectroscopy (LIBS)



Aluminum



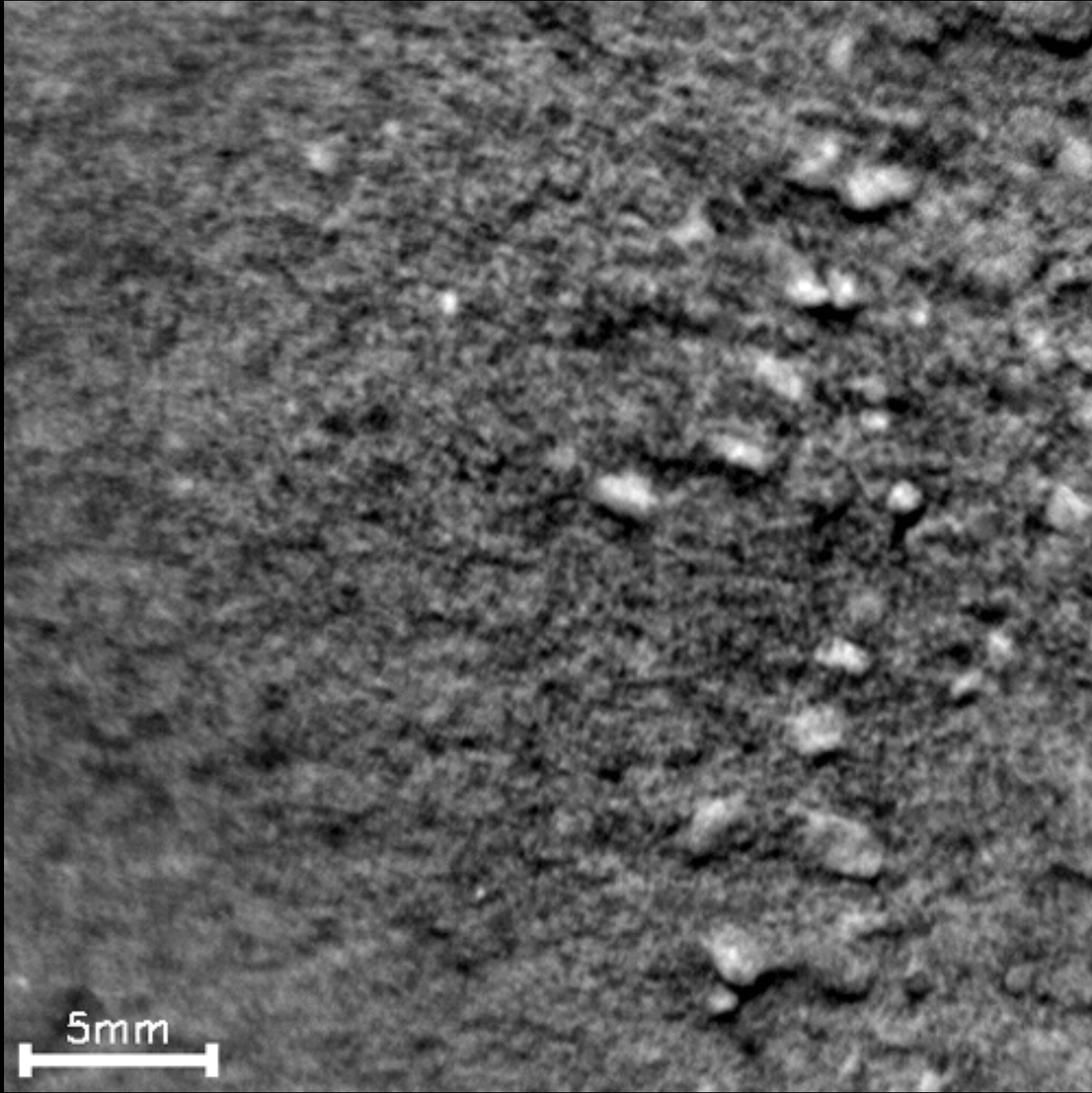
Copper



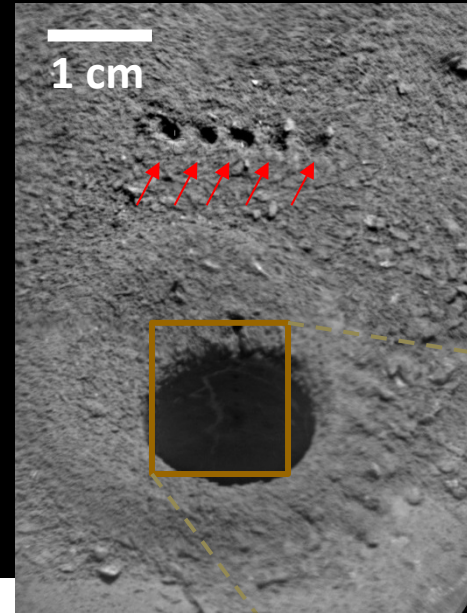
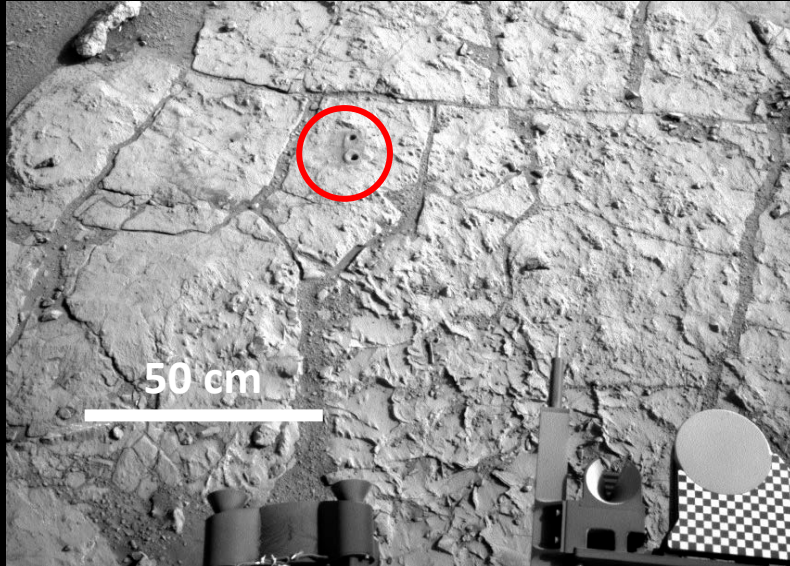
Basalt

Soil Shots

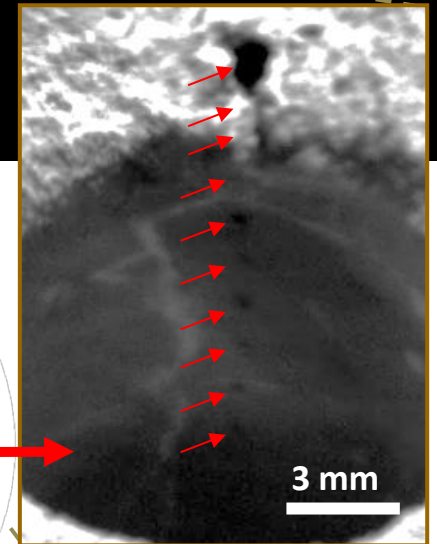
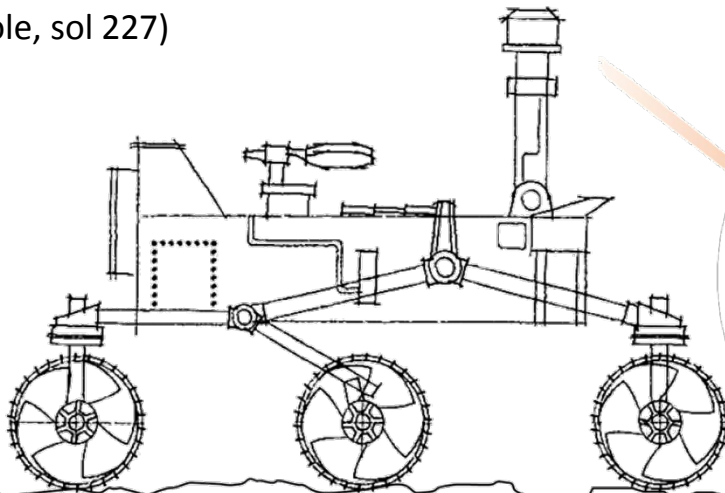
Discovered Water in Mars' Soil



ChemCam Fine Pointing



(Drill hole, sol 227)



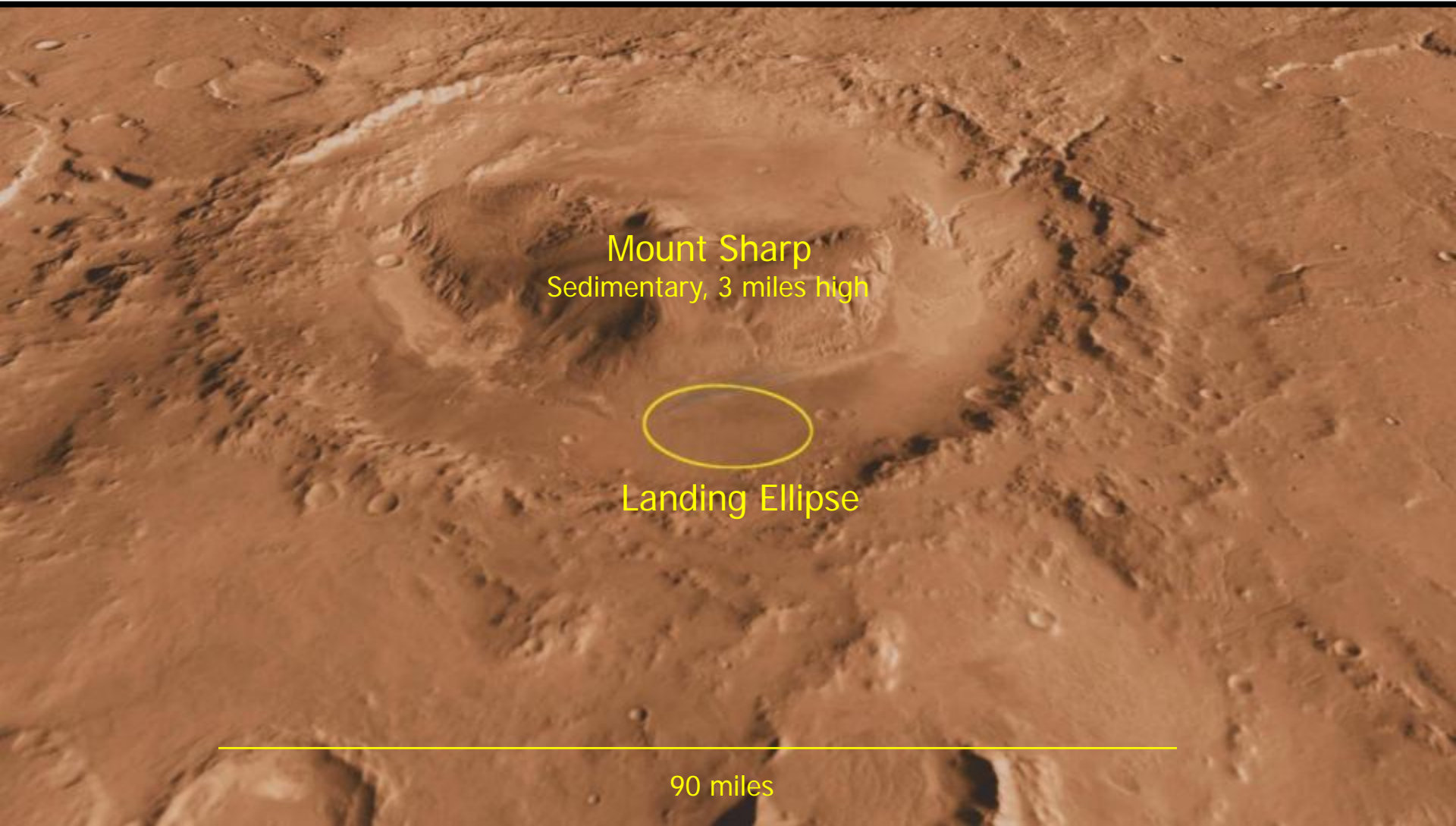
To Scale

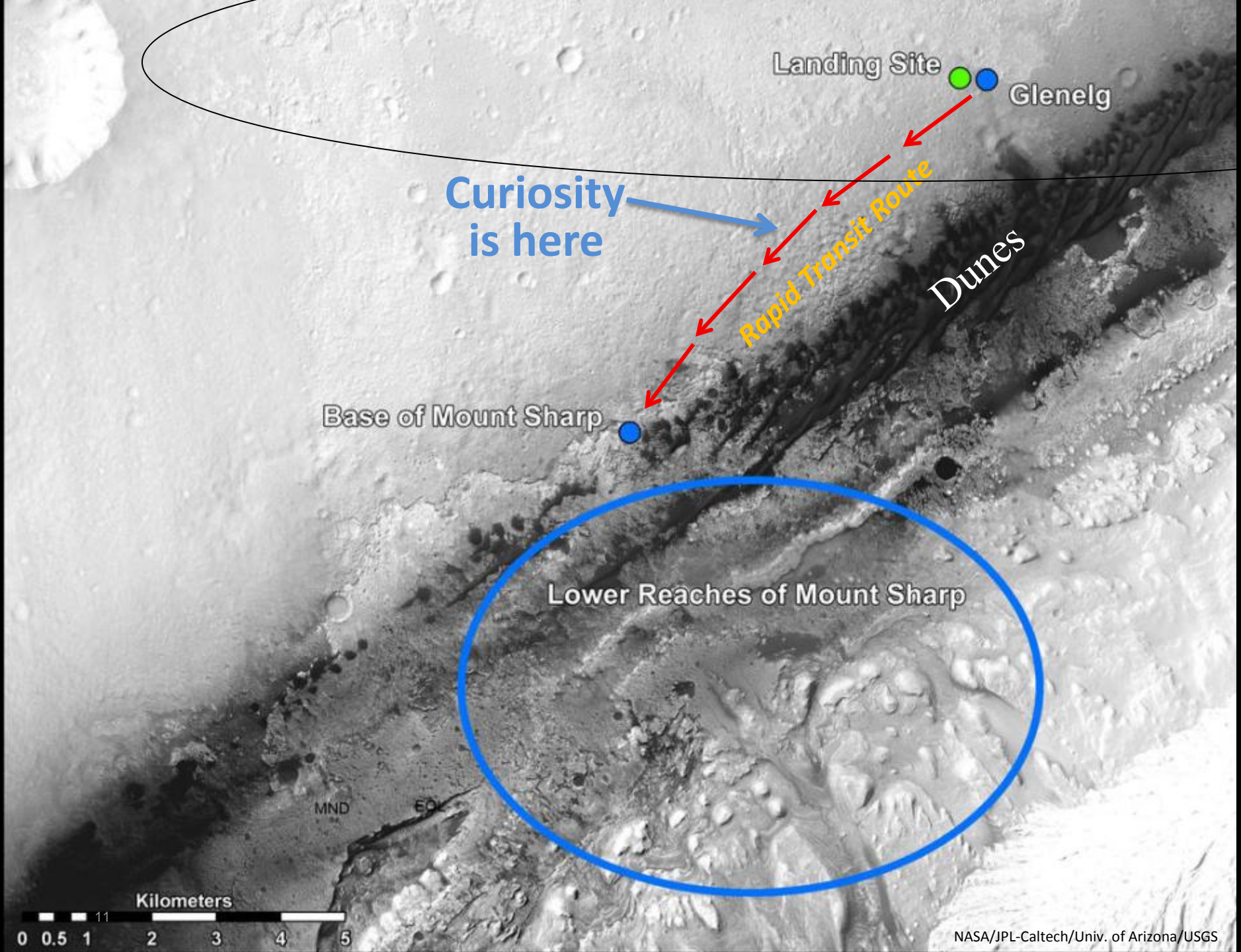
Curiosity/ChemCam Operations at Los Alamos

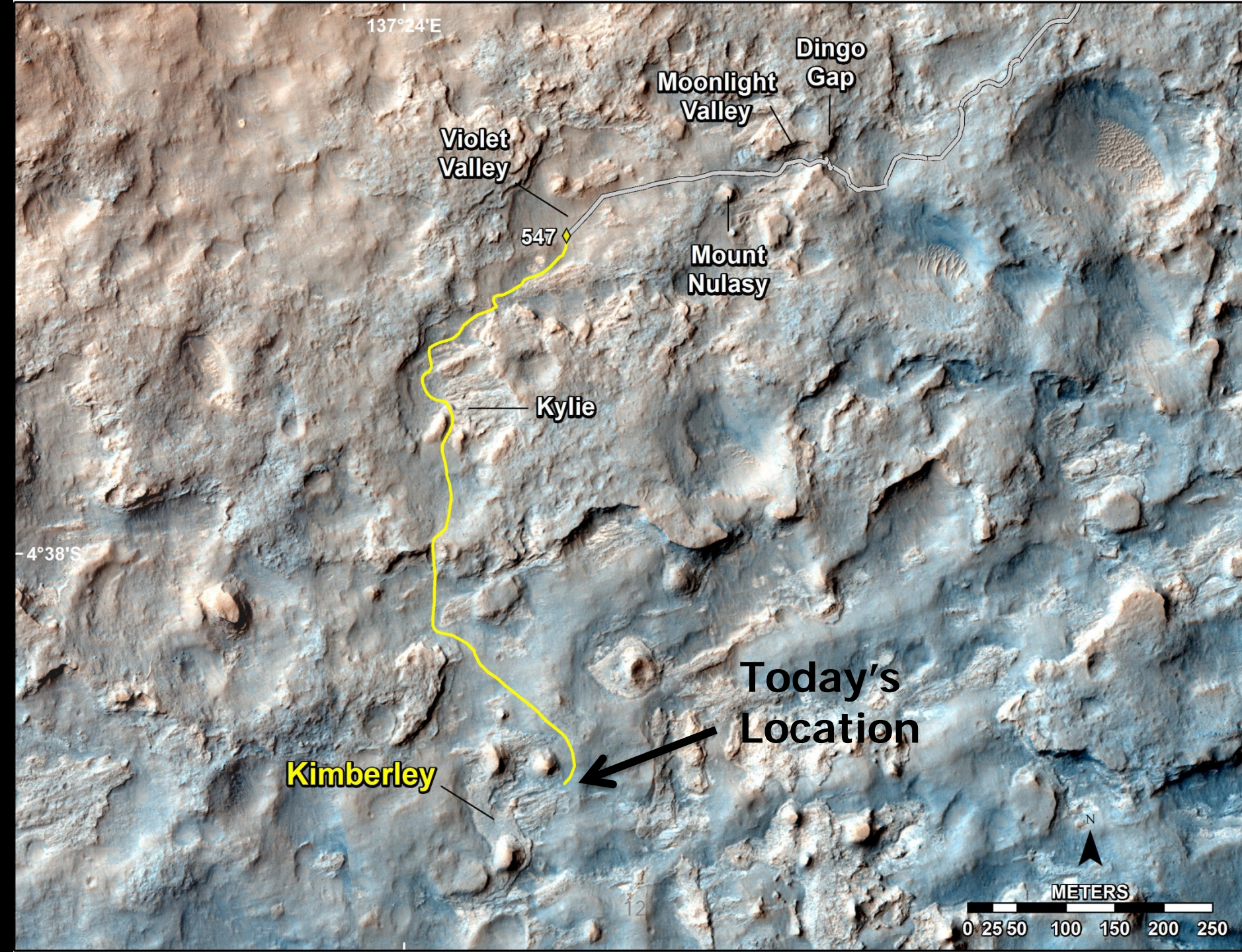


LADailyPost.com

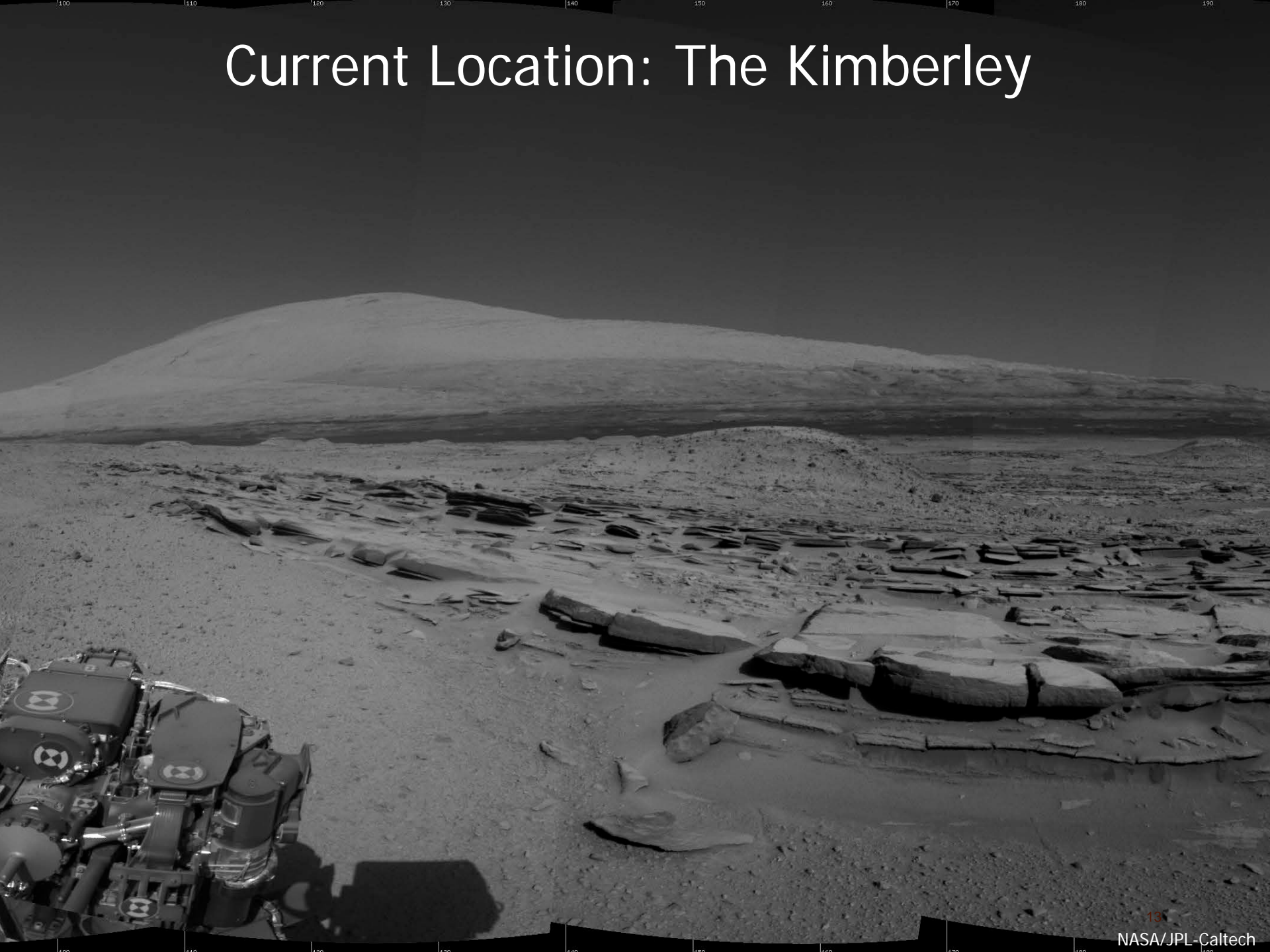
Gale Crater Landing Site







Current Location: The Kimberley



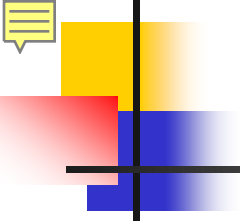


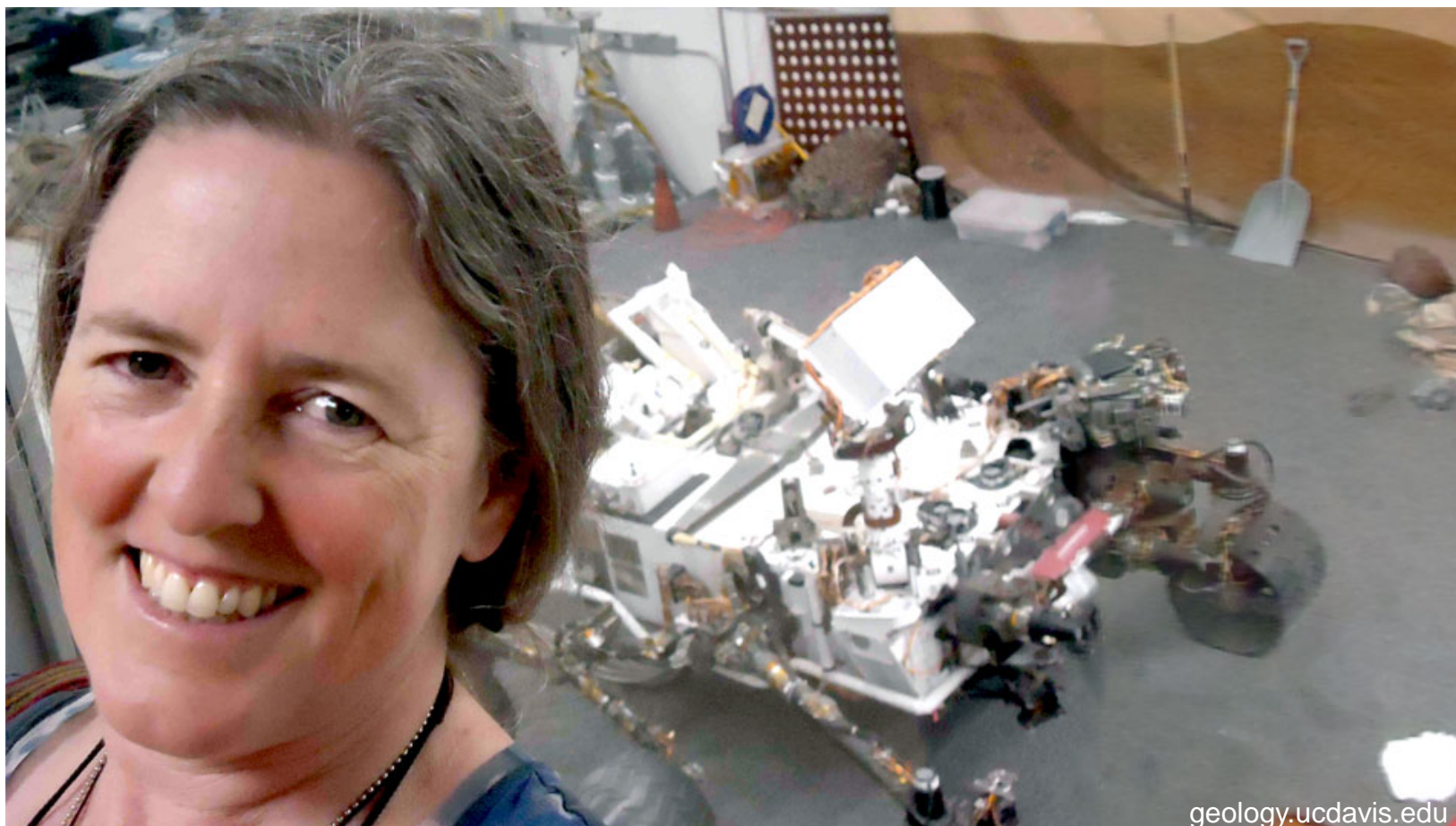
**This boulder is the
size of Curiosity**

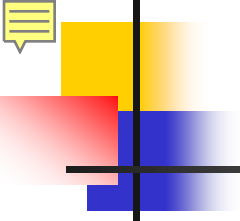
NASA/JPL-Caltech/MSSS



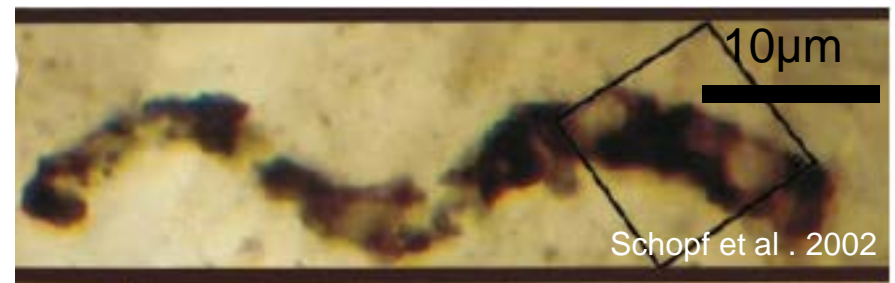
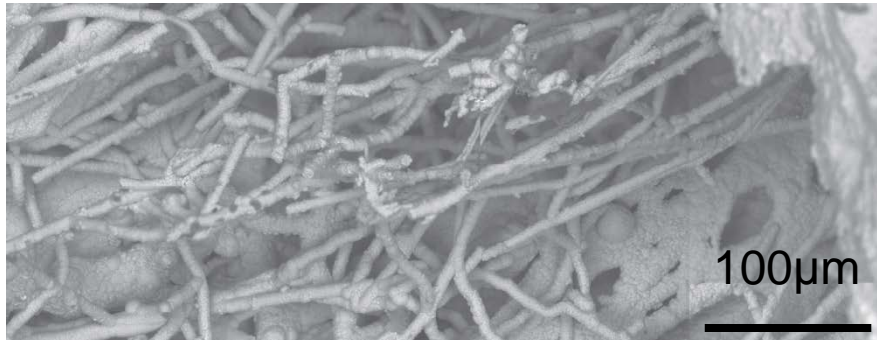
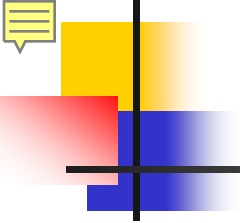
**Destination: The Canyons & Buttes of 3-mile-high
Mt. Sharp**

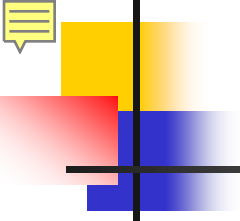




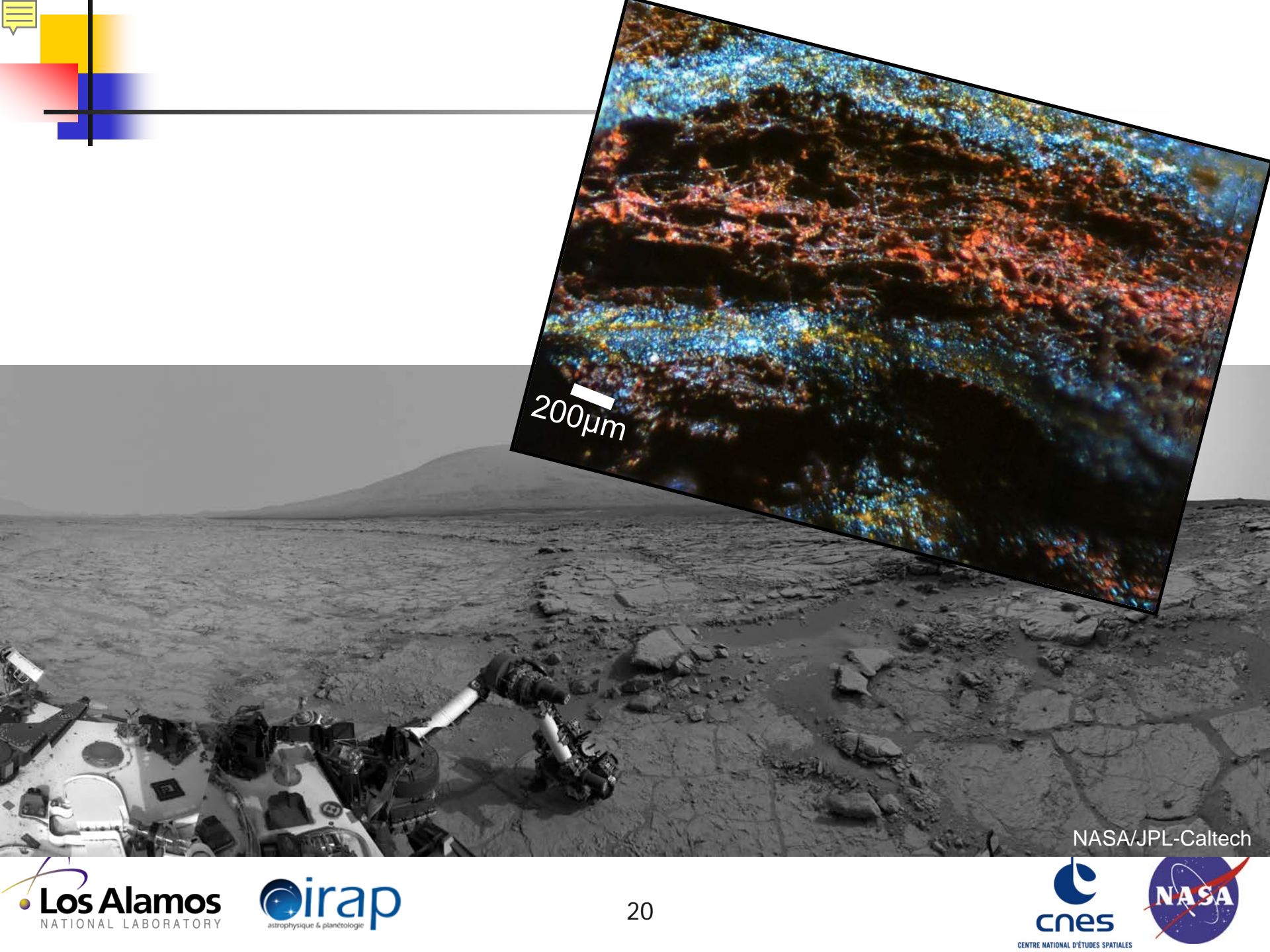


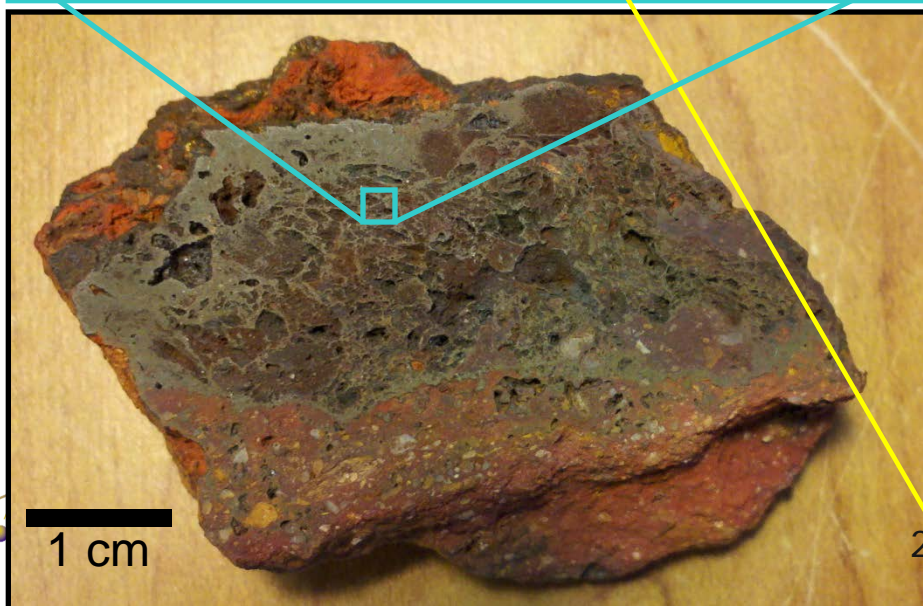
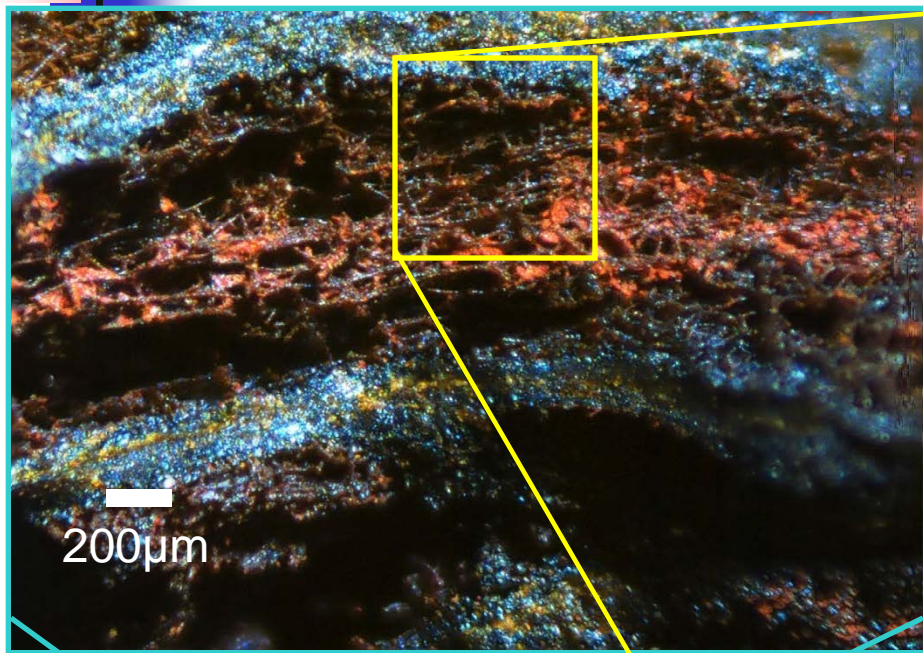
archosaurmusings.wordpress.com

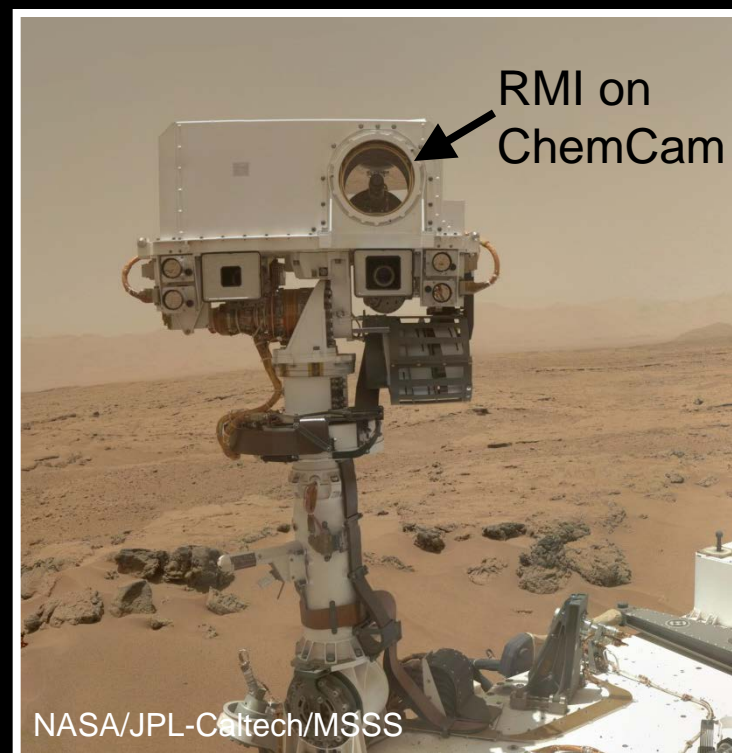
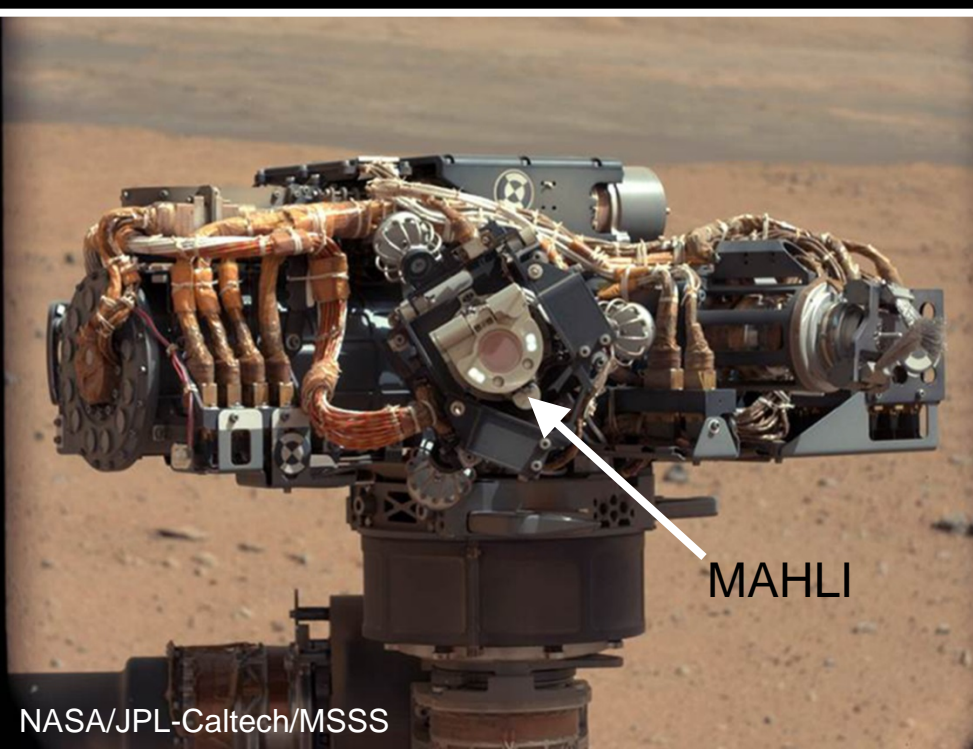
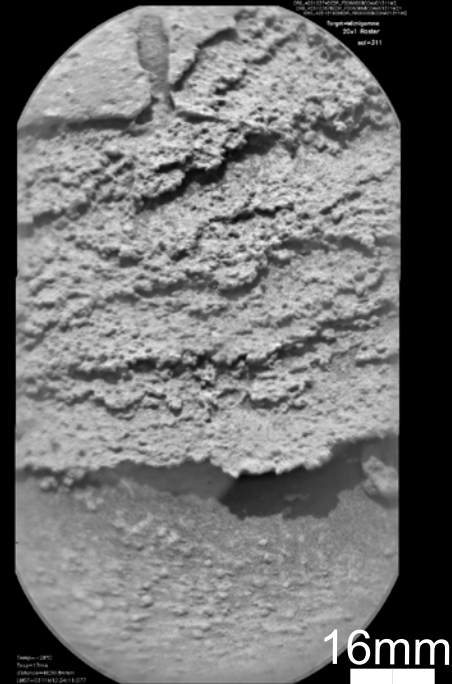
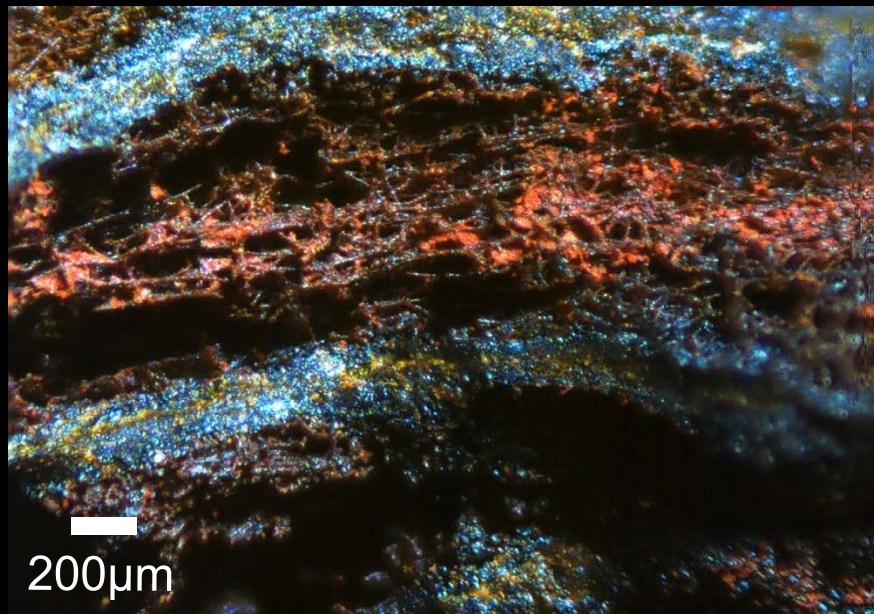


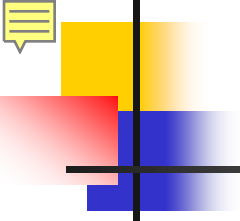


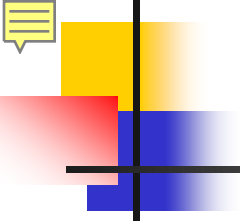
NASA/JPL-Caltech









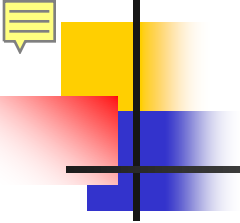




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Mars Through Time

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!

