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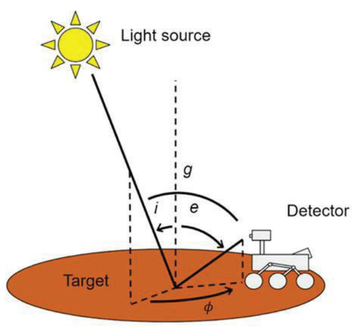
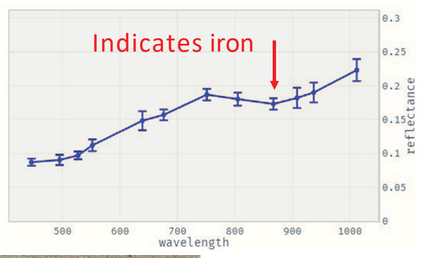
Using Spectroscopic Techniques at Different Scales to Characterize Planetary Surfaces

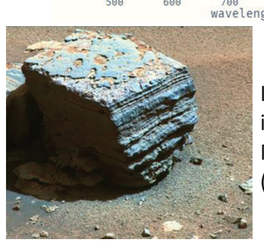
Spectroscopic techniques involve different measurements of how light interacts with a surface and are often utilized by planetary missions. I collect and analyze data from the lab, rovers, and orbiters to clarify our understanding of the geologic history of Mars.

Light reflects off of planetary surfaces, cluing into mineralogy



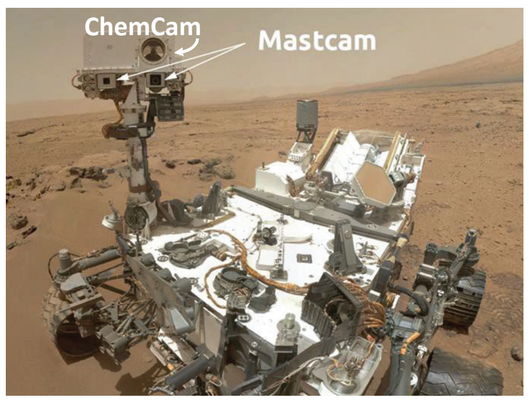
(Hoza, 2019)

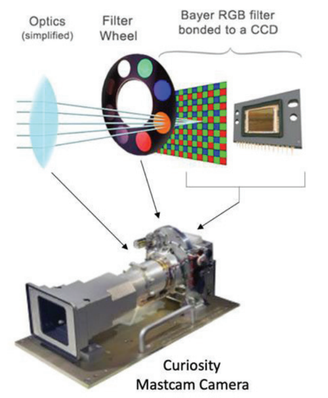




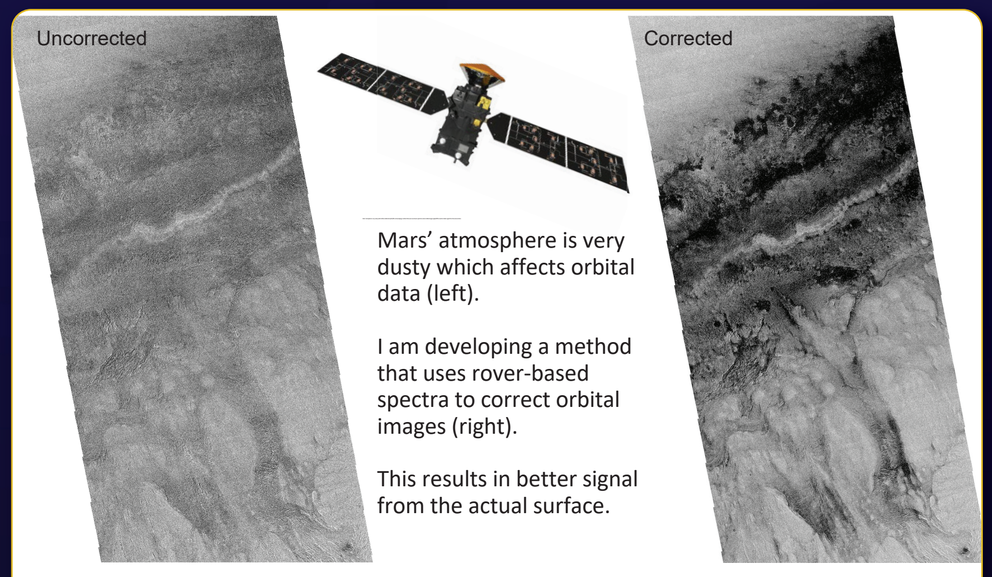
Left: Enhanced color image taken by Mastcam on sol 3558 (NASA/JPL/ASU/MSSS)

Two instruments on the *Curiosity* rover collect reflectance data (spectra)





NASA / JPL / ASU / Jim Bell / H. Kline

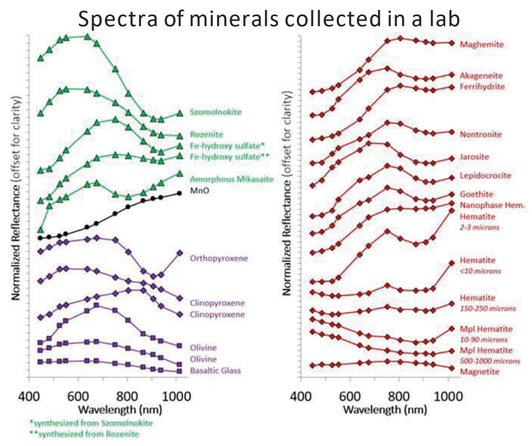


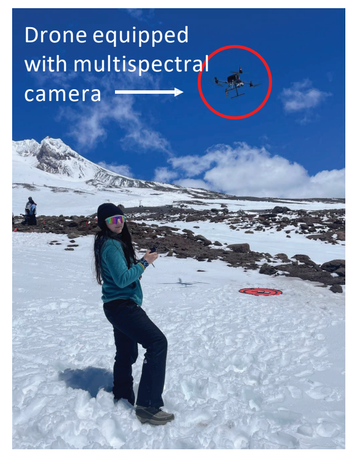
Mars' atmosphere is very dusty which affects orbital data (left).

I am developing a method that uses rover-based spectra to correct orbital images (right).

This results in better signal from the actual surface.

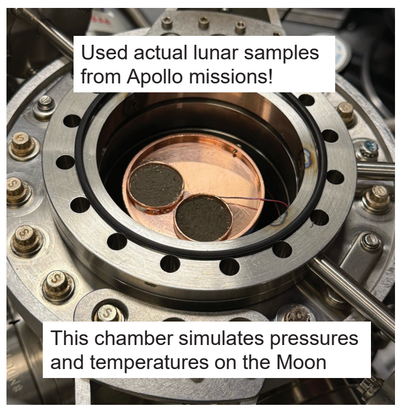
Simulating methodologies on Earth



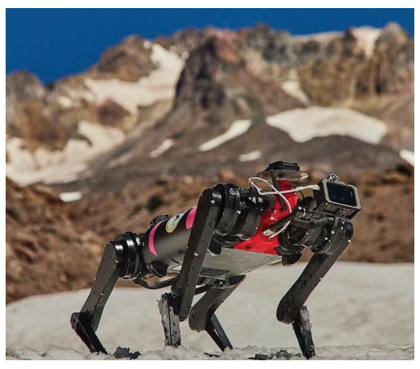


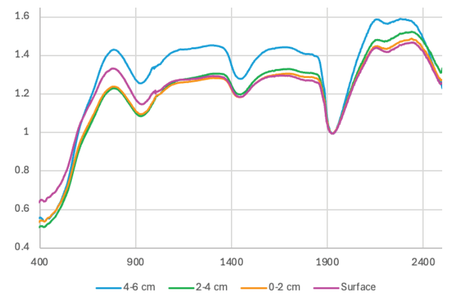
Studying ice-dust mixtures with engineering model of the spectrometer to fly on lunar rover, VIPER





Providing scientific insight to support the development of LASSIE





Collecting spectra to compare with robot force measurements

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