

Teaching Analog Field Geology to Undergraduates

Kirby D. Runyon (Kirby.Runyon@jhuapl.edu), Johns Hopkins APL, Laurel, MD, USA, Emmy F. Smith (efsmith@jhu.edu), Johns Hopkins University, Department of Earth and Planetary Sciences, Baltimore, MD, USA.

Introduction

- Johns Hopkins University undergraduate geology students took part in a 1-day **simulated lunar traverse** at **Cima Volcanic Field** near Baker, CA
- This was part of their broader 3-week terrestrial field geology mapping course
- The simulated lunar traverse combined lessons-learned from Apollo and Desert RATS.

Learning Objectives

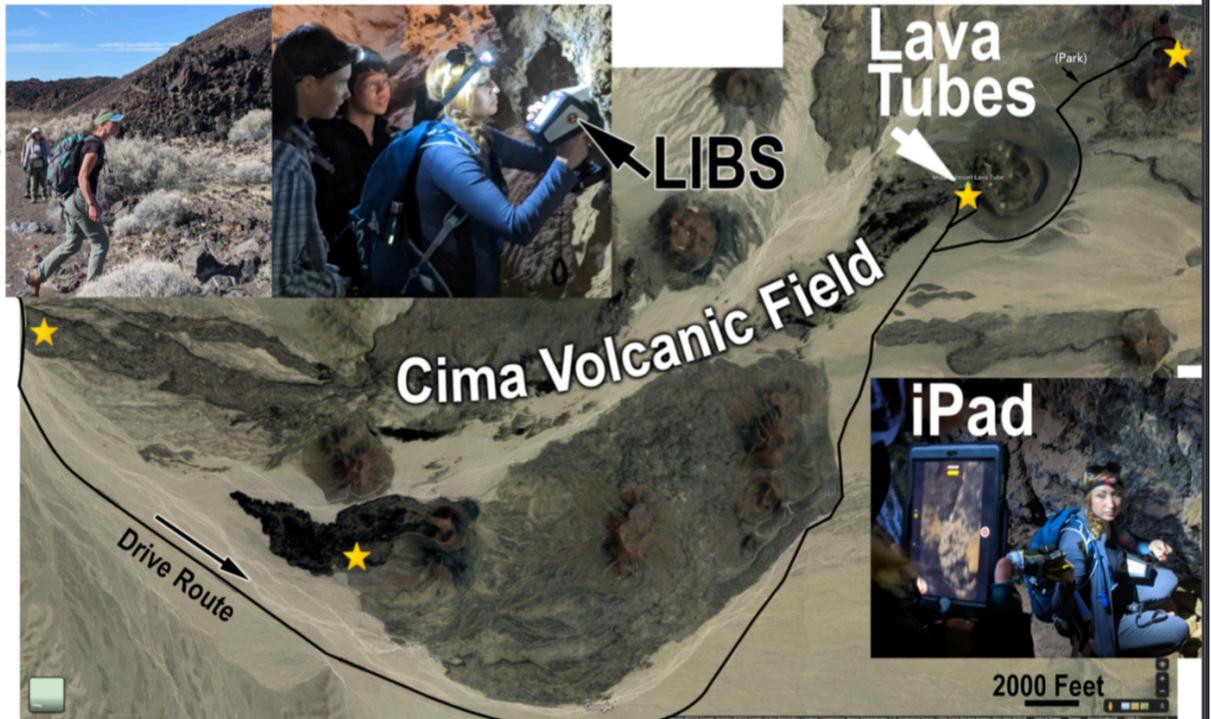
- Understand limitations from a highly **compressed timeline**.
- Accurately **describe geologic features** and understand lunar and analog lunar terrain

Execution

- Pre-selected “flexicuted” **traverse and science stops** to practice representative sample collection.
- Student astronauts record all data **as photos and narrated video on iPads**
- In-situ Laser-Induced Breakdown Spectroscopy (**LIBS**) was available for the students to make real-time elemental abundance analyses and select the best potential samples.

Conclusion

- No assessment of student mastery; in the future that could take the form of a geologic map.
- Students provided informal feedback highlighting the stark differences between lunar field geology and traditional terrestrial field geology.
- In the future, we would have the students design the traverses.



Acknowledgements: This was largely made possible via the APL Parsons Teaching Fellowship awarded to KDR.

Bibliography

Bleacher, J. E., et al. [2013]. Acta Astronautica, doi:10.1016/j.actaastro.2011.10.018.
Eppler, D., et al. unsubmitted, Geologic Knowledge Capture and Extended Planetary Surface Mission Operations Assessment.
Hurtado Jr, J. M., et al. [2013]. Acta Astronautica, doi: 10.1016/j.actaastro.2011.10.015.
Young, K., et al. [2013]. Acta Astronautica, doi:10.1016/j.actaastro.2011.10.016.

