

ASSESSING COMMUNITY NEEDS AND DEVELOPING RESOURCES FOR TERRESTRIAL ANALOG STUDIES. L.A. Skinner¹, L.A. Edgar², T.A. Gaither², A.L. Gullikson², L.P. Kestay², M.E. Rumpf², J.A. Skinner². ¹Northern Arizona University, Flagstaff, AZ. ²USGS Astrogeology Science Center, Flagstaff, AZ 86001 (ledgar@usgs.gov).

Introduction: The Earth is a fundamental training ground for human and robotic planetary exploration. The USGS Astrogeology Science Center and Northern Arizona University (NAU) are in a unique geographic position with access to a range of field analogs for planetary research. As such, these institutions have an opportunity to re-commit to a historical pillar of expertise: providing the planetary science community with datasets, sample collections, and other resources for terrestrial analog fieldwork. In order to assess community requirements, USGS Astrogeology is conducting a web-based survey. Generalized, anonymous survey results will be presented at this meeting, and made available in a short abstract or white paper later this year. Here we describe the survey goals, design, and resources that are currently in development.

Objective and Driving Questions: The primary objective of the survey is to determine how the USGS can best meet the needs of the community in facilitating terrestrial analog work. The survey is aimed at assessing the following questions: 1) How are analogs being used? 2) Which field analog sites are used most often, and for what purpose? 3) What are the major limitations in conducting analog work and using others' analog work? 4) What are the key types of data and samples that should be archived? 5) What products and services can the USGS provide to enable analog work?

Survey Design: The survey was designed as a web-based questionnaire consisting of 33 questions displayed over 4 web pages. The survey leverages existing expertise in conducting the USGS-NASA Planetary Geologic Mapping survey in 2017, and will be executed and evaluated in a similar fashion. Page 1 establishes the user profile, in order to document the discipline, career stage, funding sources, and relevance of various processes and planetary bodies. Page 2 is aimed at assessing the frequency with which field analogs are used and for what purpose, and which field sites are seen as high priority for the community. Page 3 is focused on data access and archiving, in order to evaluate community needs for a terrestrial analog data portal. Page 4 consists of questions related to the use of geologic materials collection in order to evaluate how current collections are being used and to lay the foundation for the archival of other analog samples in the future. The survey was designed to take ~ 10 minutes and ends with an open question for general comments. The survey will be

advertised via planetary science listservs and social media, and will be open for approximately 6 weeks.

Developing Resources for Analog Studies: The USGS is currently taking steps towards establishing a Terrestrial Analog Program in Astrogeology. Three pilot projects are being conducted that address three parts of the survey and are aimed at developing community resources.

The first project involves the development of terrestrial analog sites as training grounds and resources for a broad range of the science community. This project, in collaboration with NAU, is focused on the creation of "multipurpose field guides" for two key analog sites: SP Crater and Verde Valley. These sites were selected as analogs for the Moon and Mars and have been the focus of numerous field studies (Fig. 1). Work is underway to develop a standardized, rubric-based field guide format that can be easily adapted for a variety of audiences including, but not limited to: undergraduate and graduate field trips, mission field trips, technology testing, traverse planning, manager training, and field simulations. The purpose of the guides is to consolidate a wide range of information for the analog sites – combining remote sensing and field data – in a standardized format for use in academia, research, and technology testing. Ultimately, we intend for these field guides to form the basis of a catalog of planetary analogs, developed in collaboration with other NASA centers and academic partners. The field guides will be online repositories that can be regularly updated with additional information as it becomes available. Results from the survey will inform the content for the field guides and help determine future sites for development.

The second project is focused on developing a prototype terrestrial analog data portal. This effort begins with determining functional requirements, and a systematic search of USGS and NASA data portals to identify existing infrastructure. A prototype web portal will be established and tested using data from the NASA Desert RATS deployment to the Black Point lava flow in Northern Arizona. Results from the community survey about data types and access will directly feed into the development of the data portal.

The third project involves the ongoing curation of geologic materials collections and determining paths forward for the archival of other terrestrial analog samples. The objective of this project is to make the

Meteor Crater, Flynn Creek crater, and Shoemaker collections available to the planetary science community. The current geologic materials collections include impact crater drill cores and cuttings, unique hand samples, and associated data and documentation from terrestrial analog sites around the world. This year will focus on ways to acquire and incorporate other analog samples into those curated by Astrogeology. Results from the survey will better inform the key types of samples and ways in which they are used, and how to expand the materials collections to incorporate samples from other analog sites.

parts of the survey. Preliminary results from the survey will be shared at this conference, and generalized, anonymous results will be presented in an abstract or white paper later this year.

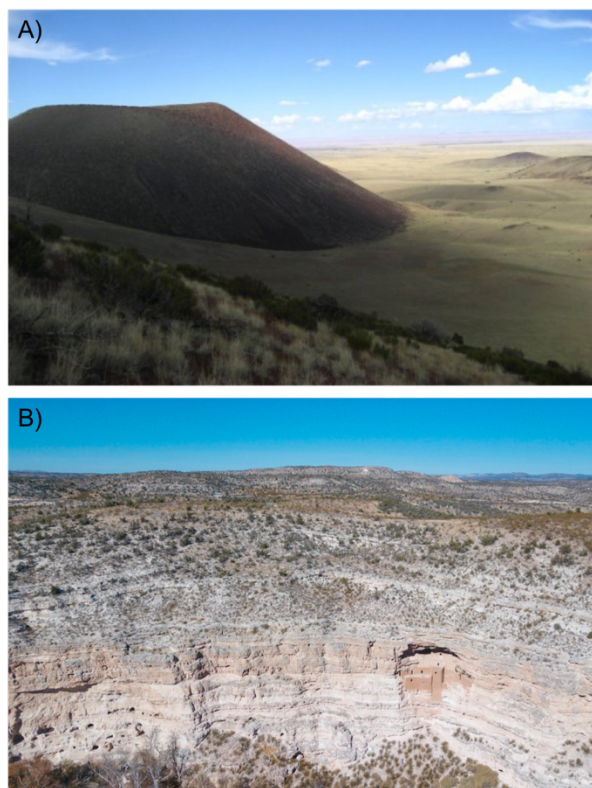


Figure 1. Analog sites in northern Arizona under development for multipurpose field guide creation and testing. A) SP Crater and surrounding lava flows provide an established training ground for lunar and martian studies, academic field trips, and operations testing. B) Lacustrine deposits of the Verde Formation, interbedded with nearby lava flows, represent analogs for multiple martian environments. Image modified from Mike Shubic.

Summary: The USGS Astrogeology Science Center is in the process of developing a Terrestrial Analog Program, and will be using the results from a web-based survey to determine the products and services that best meet the needs of the community. Several pilot projects are also underway to address three key