

**ASSESSING AND SUPPORTING COMMUNITY NEEDS FOR TERRESTRIAL ANALOG STUDIES.** L. A. Edgar<sup>1</sup>, M. E. Rumpf<sup>1</sup>, J. A. Skinner, Jr.<sup>1</sup>, A. L. Gullikson<sup>1</sup>, L. Keszthelyi<sup>1</sup>, M. A. Hunter<sup>1</sup>, and T. Gaither<sup>1</sup>, <sup>1</sup>USGS Astrogeology Science Center, Flagstaff AZ 86001 ([ledgar@usgs.gov](mailto:ledgar@usgs.gov)).

**Introduction:** In 2019, the United States Geological Survey (USGS) developed and released a survey to assess the needs of the planetary science community as they relate to terrestrial analogs. The goal was to assess the current state of terrestrial analog studies and to determine community needs related to the use of field sites for training and research, data dissemination and archiving, and sample collections. Here we report on the survey findings and recommendations, as well as resources that are being developed to support terrestrial analog studies.

**Survey Findings and Recommendations:** The survey received a total of 248 responses. We identified 21 notable findings which are matched with one or more recommendations to be addressed by the planetary science community [1]. In general, the findings highlight the importance of terrestrial analog studies to the planetary science community. The findings address how and why the community uses terrestrial analogs, areas in which further support can lead to a greater return on investment, and how the community can better manage data and samples from these studies.

The results from the survey identify a need for additional training opportunities and analog-focused workshops. There is a gap in formal education for a significant fraction of researchers who conduct fieldwork. There is also a subset of the community who are interested in conducting field-based studies but are unaware of relevant sites and methods. Workshops would provide an opportunity for scientists at all career stages to share their results and discuss common challenges such as logistics, field safety, funding, and data and sample archiving. Trainings, workshops, and better communication may also lead to increased field analog work at locations in closer proximity to home institutions, which has the added benefit of reducing costs associated with large field expeditions and may ultimately lead to more available funding for more localized field studies.

The survey also points to data archiving as a major challenge for terrestrial analog studies, and existing practices are not compliant with NASA data management policies. There is a strong need for a central data portal to facilitate easier access to existing analog data and archive new field data. The ability to archive a diverse array of field data is a significant challenge identified by this survey.

The community would benefit from additional physical sample archiving, consolidated into several key

institutions to promote easier access, such as NASA centers and the USGS. Though certain studies would still need to acquire their own samples in the field, many studies would benefit from an archive of existing samples and associated data for widely used analog sites, which would reduce redundant sampling.

Survey results suggest that a coordinated effort to improve and standardize training, data archiving, sample curation, and communication regarding terrestrial analog studies will best serve the planetary science community in our exploration goals.

**Community Resources:** In response to some of these community needs, the USGS Astrogeology Science Center (ASC) recently established the Terrestrial Analogs for Research and Geologic Exploration Training (TARGET) program. This service-oriented program is built around the recognition that the Earth is a fundamental training ground for human and robotic planetary exploration, and that ASC is in a unique position in northern Arizona with access to a range of geologic analogs for planetary science and technology research. The ASC has a long history of responding to community needs and is currently working to provide the community with datasets, sample collections, logistical support, field guides, and other resources that support terrestrial analog fieldwork, testing, and data dissemination (see [2-5] for more details).

ASC is in a unique position to facilitate external scientists in their development and completion of fieldwork in northern Arizona, as well as to support the long-term preservation of both digital and physical data. The TARGET program seeks to leverage the history, location, service-orientated project model, and cross-disciplinary nature of ASC to enhance the scientific and educational return from terrestrial analog studies. This program aims to provide information and tools to the broader community so the quality of analog studies can be improved by all scientists funded by NASA and other agencies.

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**References:** [1] Edgar L. A. et al. (in review), *USGS OFR*. [2] Gaither T. et al. (2021) *this meeting*. [3] Gullikson A. L. et al. (2021) *this meeting*. [4] Hunter M. A. et al. (2021) *this meeting*. [5] Rumpf M. E. et al. (2021) *this meeting*.