

FINESSE EDUCATION AND PUBLIC OUTREACH YEAR 5 REPORT. A. J. P. Jones^{1,2}, J. L. Heldmann³, S. Johnson⁴, S. Hughes⁵, S. Kobs Nawotniak⁵, D. S. S. Lim³, and the NASA SSERVI FINESSE Team, ¹NASA's Goddard Space Flight Center, ²Planetary Science Institute, ³NASA's Ames Research Center, ⁴NASA Idaho Space Grant, ⁵Idaho State University (andrea.j.jones@nasa.gov).

Introduction: The Field Investigations to Enable Solar System Science and Exploration (FINESSE) team of NASA's Solar System Exploration Research Virtual Institute (SSERVI) conducts science and exploration field-based research to prepare for human and robotic exploration of the Moon, near-Earth asteroids, and the martian moons Phobos and Deimos. The FINESSE Education and Public Outreach program leverages the team's field investigations and educational partnerships to share the excitement and developments from this research with students, teachers, and the public.

Immersive, Authentic Field Experiences for Teachers and Students: Through FINESSE Spaceward Bound, a program we lead in partnership with the NASA Idaho Space Grant Consortium (ISGC), we bring students and teachers into the field to conduct science and exploration research in Craters of the Moon National Monument and Preserve with the FINESSE science team. They work side-by-side with NASA researchers, operating field instruments, collecting data, participating in science discussions, and contributing to scientific publications. FINESSE has supported Spaceward Bound since 2014.



Few NASA education programs engage teachers in similar experiences over multiple years, so we focused evaluation in 2017 on this long-term aspect. As compared to their first year participating in the program, teachers universally report greater confidence teaching science this year; sharing NASA resources with their students more often; talking with colleagues, administrators, and their communities about their experience in the program more often; feeling a deeper level of engagement in the program, and a stronger connection to the FINESSE team; and an increased likelihood of

participating in a similar program and other NASA educational programs in the future.

Scientists reported feeling more comfortable working with the teachers this year than the first year they joined the field team, higher confidence that the teachers could support them and their research, and a deeper level of engagement with the teachers now than at the start of the program. They keep in touch with the teachers more, and are more likely to participate in a similar educational program in the future. *“Working with the teachers encourages me to be a better science communicator and to think of new ways to relate my active research to my own teaching. By having the same teachers over multiple years, it also creates opportunities to build lasting connections and possible pipelines for students via mentoring relationships.”*

Also through ISGC, the FINESSE also worked with a team of 5 undergraduate students from the University of Idaho through TATERTOTS (‘Training in Advanced Technology and Exploration Research to Optimize Teamwork in Space’) [1]. After a year of Mars exploration research, the students joined the FINESSE team at Craters of the Moon, where they launched a high altitude balloon supporting lava tube research. They presented their work at the 2017 NASA Exploration Science Forum, as did a high school student who reported on her positive experience in the FINESSE Spaceward Bound program [2].

Team Outreach: We coordinate the SSERVI Seminar Series, through which we highlight FINESSE and SSERVI science and exploration highlights and related topics for the NASA Museum Alliance and Solar System Ambassadors, who share this content with their audiences around the country and the world. We supported a public solar eclipse event in Arco, ID in collaboration with Craters of the Moon staff and partners, and presented FINESSE research in schools, universities, museums, and observatories around the country, and at the National Association of Geoscience Teachers Pacific Northwest meeting. We support International Observe the Moon Night [3] and share updates through the FINESSE website and social media accounts [4].

References: [1] <http://bit.ly/2rzC8l>. [2] <https://go.nasa.gov/2F6ng8v>. [3] <https://moon.nasa.gov/observe>. [4] <https://spacescience.arc.nasa.gov/finesse/>.