

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Non-Traditional Space Education and Outreach (7)

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SPACE SCIENCE INSTRUCTION ABOVE THE ARCTIC CIRCLE. A MODEL FOR REMOTE
AREAS.

Abstract

Education in rural areas is often associated with limited access to resources, populations with above average poverty levels, lower graduation rates and lower college attendance. In addition, schools typically have fewer qualified teachers and experience high turnover. Space Center Houston has developed a model for teaching space science to not only rural populations, but extremely remote areas. The pilot program was tested in Venetie, Alaska, with an extended space science education program to the students and community.

Venetie, Alaska, located north of the Arctic Circle has a total area of approximately 20.8 square miles. The Gwich'in are a recognized tribe with the village being run by tribal government. The population of 166 is primarily Native American with almost half in poverty with the primary occupation being subsistence living with moose, caribou and salmon. The majority of the houses lack running water and it is not uncommon for the village to run out of both water and electricity. The school, with a population of 64, serves as a gathering point for the village. Test data show that the school is the lowest performing of the district with none graduating last year. Recruitment of qualified educators is extremely difficult with few teachers remaining more than one academic year.

The primary objectives of the program included providing an immersive experience to the community and students to increase interest and knowledge of space science, provide exposure to career options and establish resources and support enabling continuation of the program. Over one week, space science instruction was provided via hands on authentic learning experiences. The overlying theme was to build on the existing skills associated with surviving in remote areas and relate them to the challenges of space exploration. With the exception of varying gravitational fields, the residents of remote arctic villages experience, to varying degrees the primary risks of expedition class exploration.

Student and community hands on activities included living and working in space, rocketry, engineering design challenges and robotics and all included associated science concepts. Emphasis was given to the relation to STEM fields and careers to reinforce the need to graduate from school and explore career options. Data were collected to measure changes in interest and perception of STEM following the program. Training and other support was put in place to continue the efforts both locally as well as at Space Center Houston, including awarding scholarships to Venetie students for Space Center University.