

Alfred University engineering students compete in Mars Ice Challenge

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Months of work by Alfred University engineering students and their advisor, Professor Seong-Jin Lee, came to an exciting climax this week as students from eight colleges and universities in the United States gathered in NASA's Langley Research Center in Hampton, Va., to present eight carefully designed and constructed machines for extracting water from subterranean ice on the planet Mars.

The student-designed machines included one excavator and seven drilling mechanisms using augurs that could drive through surface mud and into ice and —theoretically — melt the ice in order to draw water to the surface for potable usage. NASA had developed the student-based, experiential learning project as part of a long-range plan to develop long-term human habitats on Mars.

Functional ice/water extraction systems have been envisioned within NASA's larger theoretical framework of in situ resource utilization, a concept that calls for the development of on-site survival mechanisms as opposed to the transportation of critical survival resources via spacecraft. In anticipating future settlements on Mars, NASA has argued the development of on-site water resources is a critical early step.

"NASA's philosophy for quite some time in selecting destinations for human exploration is to 'follow the water'," says Robert Moses, Aerospace Engineer at NASA's Langley Research Center. "Results of our Mars mission campaign studies continue to illustrate how critically important the water is on Mars for making the fuels and crew consumables (including spare parts) needed on Mars and when returning to Earth. Any mission to Mars without the ability to access the water is simply unsustainable and too risky."

Alfred University's engineering students involved in the project are: Edward Kimble, project leader; Nicholas Fletcher, mechanical lead; Jon Cross, electrical/controls lead; Hayden Allis, Nathan Auernhamer, Bryan Boylston, Elizabeth Burnett, Eric Dreyfus, Nicholas Jensen, Kobe Joseph, Nolan Matthews, Kyle McCullen, Michael Nowak, Matthew Raymond, and Michael Wheeler.

The group competed against engineering teams from The Colorado School of Mines, North Carolina State University, The University of Pennsylvania, The University of Tennessee, Knoxville, and The University of Texas at Austin, West Virginia University. And at press time today, ENews has learned the West Virginia University team took top prize in the competition. Alfred University's Professor Lee congratulated the West Virginia effort, noted Alfred University students did a superlative job in designing and building their own double-augur system, and said the team is returning to Alfred Friday afternoon from the NASA facilities.

Lee noted video of the competition will be posted by NASA, and ENews will post that video as soon as it is available.