

SCIENCE

Flag educators off to find out how microorganisms in Antarctic soil got there



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Egbert Schwartz and Justin Kendhammer flew out of Flagstaff Pulliam Airport on Thursday headed for an alien world. The pair is more than halfway to Antarctica by now.

By next week, they'll be stationed at the remote outpost of McMurdo Station on the world's most southerly continent. For the next month, Schwartz, a Northern Arizona University biology professor, and Kendhammer, a middle school teacher at

FUSD's Alpine Leadership Academy, will be venturing out in search of life in a land void of vegetation.

The pair is there to test a hypothesis.

Since the 1960s, scientists have been studying microorganisms living in the rare patches of soil between huge sheets of ancient ice. But there's a significant debate between those who believe the microorganisms are native to — and replicating in — the Antarctic soil, and those who think microorganisms simply blow into the continent from elsewhere.

"There are massive storms that blow all around Antarctica," Schwartz said.

Schwartz has developed a technique to label the DNA of the microorganisms and says the tiny creatures can only be labeled if they are in fact replicating.

The answer will solve a fundamental scientific riddle about our planet. It also has implications for life well beyond Earth — Antarctica is similar in many ways to Mars.

HEAT WAVE AT 18 DEGREES

His research is part of a larger project being done at the University of New Mexico. Schwartz received a grant from the National Science Foundation for the \$300,000 project after developing a technique in Flagstaff to label DNA.

Kendhammer is along in support of the professor's efforts thanks to a grant from the PolarTREK teacher program. He's been teaching a polar science curriculum at the magnet school inside Mount Elden Middle School since last semester and will be keeping up with his classes through a blog and eventually a live video feed.

"It's a chance to experience a place that very few people go to and bring it back to the

classroom to get kids engaged in polar science,” he said.

The pair will be flown from McMurdo via helicopter to an area where soil is exposed in a series of dry valleys. The helicopter will leave them there with a survival kit in case it can't immediately return. Currently, Antarctica is headed into its warmer spring months, with a heat wave expected that will bring temperatures as high as about 18 degrees Fahrenheit.

The sun will not set as long as they are there.

Because the entire continent is governed by a Leave No Trace ethic, everything they bring with them must be packed out. That means all the experiments will be done in-situ in tubes and then the materials will be shipped out.

The model is very similar to what might happen once polar scientists finally reach the Red Planet. If life exists on Mars, it is likely in the form of simple microorganisms living in soil colonies.

“Antarctica is one of the best models for what life would be like on Mars,” Schwartz said.

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