

JOURNEY FOR SCIENCE

Local teacher selected for Antarctica research internship

JONELLE BOBAK Staff Writer Feb 7, 2018



Divers jump off the boat platform on a previous expedition in 2017 to Antarctica.
submitted photo

A local science teacher in Burke County Public Schools soon will be embarking on a cool scientific journey to Antarctica that he plans to use as a learning tool for his students.

Keith Smith, who works at Freedom High School teaching students about the field of science, will be delving into the subject himself on a whole other continent in May during a research internship.

Smith will be traveling to Anvers Island, Antarctica, with Dr. Charles D. Amsler, a biology professor at the University of Alabama at Birmingham and Polar TREC, a program that recruits teachers to participate in “hands-on field research experiences in the polar regions.” He will be assisting scientific research that is being sponsored by the National Science Foundation.

The research will include conducting bioassays on a snail species found in Antarctica, seaweed and the amphipods (tiny shrimp-like crustaceans) that are found on them.

"Bioassay is where you see if they (snails or other amphipods) like to eat the compound that they extracted from the seaweed," Smith said. "You extract it and you put it into a jelly that you know that the snail or amphipod already likes to eat."

They are looking for patterns in their research and if those patterns are affected by the environment, Amsler said.

"Is there a mutual relationship between the snail species and the seaweed species?" Smith said. "That would be the boiled down hypothesis."

The research is being conducted in Antarctica because of what is already known about the organisms they are working with.

"In this case, it is what we know about these organisms," Amsler said. "This is an important question of what drives these organisms to invest in these different kinds of chemical compounds that is applicable all over the world and not just in marine environments."

"If we want to understand the Antarctic communities, we need to understand this," Amsler said.

They hope to answer questions and test multiple hypothesis about the scientific reactions from the bioassays.

"Our data will answer the questions, they will support or refute the hypothesis and we will report those in scientific literature and peer-reviewed publications," Amsler said. "It all gets written up and we submit it to scholarly journals."

Smith will be helping to "dive tend" during his internship, where he helps divers put on their scuba diving gear and equipment before they submerge themselves 130 feet or less below the water to collect research.

Each year, about 10 teachers are chosen, Amsler said.

Smith was the only one chosen for the trip to Antarctica in May. He will be on the expedition for approximately a month.

"I like to travel and I have always wanted to go to Antarctica," Smith said.

He is looking forward to being a part of a research team and getting hands-on experience.

"Just to get my hands back and dirty into the real process of science is what I am looking forward to," Smith said.

With the understanding that getting school groups to Antarctica is far reaching, Polar TREC chooses teachers who can take that experience back into the classroom.

The program wants to be able to convey the kinds of discoveries and experiences that researchers have to the community through teachers throughout the country, Amsler said.

Smith will have the ability to do audio conferencing with his students during his internship to share with them all the research he is completing. He also will be writing a blog.



Pictured are Keith Smith (left), a science teacher at Freedom High School, who will be traveling with Dr. Charles Amsler, a biology professor at the University of Alabama at Birmingham, to Antarctica in May for a research internship.

Jonelle Bobak/ The News Herald



Smith will be staying at the Palmer Station on Anvers Island.
submitted photo

"Science is not just a bunch of facts in a text book that you would even learn at an introductory course at a university," Amsler said. "Science is a process and a way of discovering those things and learning about the world."

In classrooms, students learn about the product of science, but are not able to see the process unless they go out in the field or to a laboratory, he said.

"Getting the teachers involved in the process of science is a way to vicariously involve their students in the process," Amsler said.

Once Smith is back from his trip, he will show his students how a bioassay is conducted and the data he collected.

"They don't really have an idea of what it looks like in the field," Smith said. "It will be a great opportunity for me to bring back pictures and data."

The island where Smith and the Polar TREC team will be has a maximum population of 44 people, Amsler said.

"You are living in a dorm and sharing a room (with) a bathroom down the hall," Amsler said. "We have wonderful chefs preparing your meals because food is important for morale."

Temperature wise, they will be north of the Antarctic Circle on a peninsula, so the climate is heavily determined by the ocean, Amsler said.

"By the time Keith gets there ... it will be below freezing pretty much all the time, but won't be below zero Fahrenheit," he said. "It will be low 20s maybe single digits on a cold day."

Days will be short with approximately four hours of direct sun, Amsler said.

For more information about Polar TREC, visit www.polartrec.com.

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