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Rye teacher can share antarctic research and diving adventure

RYE — While many teachers can share with their students pictures, artifacts and books to get them excited about the subject matter, Rye Junior High School's eighth-grade science teacher can offer something better — a first-person account.

Robin Ellwood just last week began her journey to Antarctica to participate with a team of scientists in their studies, research and experiments. She will stay there until the end of November and will be back telling her students all about it by the beginning of December.

This trip will be Ellwood's fourth time to the chilly continent. She explained she began these trips in 2003 when she was connected with Teachers Experiencing Antarctica and the Arctic, or the TEA program. The program set teachers up with research teams in an effort to get teachers participating in ongoing scientific research.

During her first trip she was set up with Dr. Peter Doran's research team out of the University of Illinois in Chicago. Doran and his team were impressed with Ellwood's work and the collaboration was so successful that Doran made Ellwood a part of his team, traveling to Antarctica every other year as the dive master for the dive team.

Ellwood has been scuba diving for quite some time and said diving in Antarctica is like nothing else she has ever done. "The diving is truly something to see," she said. "I have seen varying structural patterns in algal mats at the bottom of Antarctic lakes, swam alongside Weddell seals in McMurdo Sound all through a dive hole that had been drilled through 20 feet of ice."

The research Doran and his team focus on is determining the energy and nutrient flow through the extreme Antarctic environment, researching survival strategies of the microscopic organisms living in the Antarctic lakes, signals of climate change, and working with NASA to determine likely areas to search for signs of water on Mars.

According to Ellwood the surface of areas in Antarctica where there had once been water is similar to that of the topography on Mars and, with the research from Doran and his team, NASA will know what to look for.

The team will also be testing and using several robots. If they work correctly, a replica of the robots could be made by NASA and used to explore the moons of Jupiter.

"This is really an amazing thing I am doing," Ellwood said. "My students are very excited for

me and eager to see pictures and email with me during my stay there."

While she is in Antarctica, Ellwood said she is responsible for setting up and running the surface supply air system for the divers, monitoring the dive plans for the team and participating as a diver herself. She will be posting pictures of her adventure, send daily journal entries and even participate in live video feeds.

In order to better understand where she is and what she will be encountering, Ellwood's students will learn about polar regions in class while she is gone. They will learn why the regions are important, not only as a wealth of information about past conditions on the planet, but also as signals of current and possible future conditions.
Students will also learn how the polar regions enhance the overall understanding of physics, astrobiology, biology and geology.

To add to the students interacting with Ellwood while she is gone, her students built an underwater robot that she brought along to Antarctica with her and will be testing it out while she is there.

"Because the researchers down there are using robots we thought it would be great fun to have our students create a robot and test their success in extreme conditions," Ellwood said.

Luckily for Ellwood, this time of year is Spring in Antarctica and the sun will shine 24 hours of the day. She said the temperatures can be anywhere between 0 degrees and 28 degrees Fahrenheit. "It sure is cold but it's not like the wet cold we have in our winters," she said. "The weather is much dryer and it isn't windy."

When Ellwood participates in her dives, she will plunge herself into 32 degrees waters in an arctic lake found in the Dry Valley.

Upon arriving, she and the research team will spend some time in McMurdo, a camp of sorts near the coast, gathering supplies before heading out, by helicopter, to the Dry Valleys. She said the first few days out in the field are spent drilling the dive holes in the ice that can sometimes be over 15 feet thick. "It can take several days to drill down far enough," she said. "but once we're done, that's when the experiments start.

"It is a pretty unique experience and I'm lucky to have a school that supports me and encourages this," Ellwood said. "The collaboration is great and the students get excited about science and being able to see that I am doing something first-hand."

Those interested in Ellwood's journey can visit her website at http://www.ryejrhigh.org /ellwood.
