



Knowles Science Teaching Foundation

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KSTF TEACHING FELLOW TRAVELS TO SOUTH POLE High School Physics Teacher's Antarctic Expedition Brings Polar Science Directly into the Classroom

Moorestown, NJ, November 11, 2009 — Casey O'Hara, KSTF Teaching Fellow alumnus and physics teacher at Carlmont High School in Belmont, California will travel to the South Pole on November 16 to take part in history-making scientific research project. After a year of preparations, Mr. O'Hara will join the ranks of world class scientists and technicians to work on [IceCube](#), the world's largest neutrino telescope and the biggest research project ever attempted in Antarctica.

During his month-long stay at the South Pole, Mr. O'Hara will be bringing polar science directly to students through webchats, blogging and Facebook. Mr. O'Hara also has plans to conduct a "Live from International Polar Year" event during which he will use two-way live audio, texting and live images to communicate in real time with anyone with an internet connection.

"One of the things I am looking most forward to on my trip is communicating with students," said Mr. O'Hara. "To encourage this, I have been soliciting ideas for experiments to try while I am in Antarctica."

Mr. O'Hara's [blog](#) contains details about the proposed experiments which include comparing his beard growth at the South Pole with that at home; using data on heart rate, temperature and blood pressure to determine how long it takes his body to adjust to extreme conditions; experiments on Casey's cognitive processing at the Pole and at home; and experiments on making ice cream in -30° F temperatures.

To prepare for IceCube, Mr. O'Hara and five other KSTF Fellows participated in training sessions in Alaska and the University of Wisconsin where they received an extensive introduction to astrophysics and polar science. Over the past year, the KSTF

team has created [downloadable curriculum](#) for teachers with hands-on activities like “[seeing the invisible](#),” in which students use digital cameras to capture infrared light to understand how IceCube searches for particles not visible to the human eye. In “[IceCube...or IceIcosahedron?](#)” students use gelatin and Tupperware to design and understand the layout of a neutrino telescope.

A primary goal of the National Science Foundation-supported IceCube project is to engage and motivate the next generation of scientists and engineers. “We work with every participant to help them maximize this once-in-a-lifetime opportunity and get their students excited about polar research,” said Dr. James Madsen, physics professor at the University of Wisconsin at River Falls.

“Through KSTF’s network of Fellows and alumni, hundreds of teachers and students nationwide will be able to tune in to the IceCube experience,” said Dr. Angelo Collins, KSTF’s Executive Director. “Our teachers will have the unique opportunity to engage their students, colleagues and the larger education community with real-time scientific research happening at one of the most remarkable places on Earth.”

IceCube involves collaboration between thirty-four leading institutions in the US, Sweden, Germany, Belgium, the Netherlands, Japan, Switzerland, New Zealand, and Britain. “IceCube gives us a new window into the universe,” said Dr. Madsen. “This fundamental research can lead to improved understanding of nature and have enormous potential to open up new areas of science.” When IceCube is completed in 2010-2011, it will occupy a cubic kilometer of Antarctic ice. Significant scientific investigations are already under way with the data collected during the construction phase.

[Mr. O’Hara’s](#) KSTF support team includes:

- [Katey Shirey](#), physics teachers at Washington-Lee High School in Arlington, Virginia (chosen as the first alternate to go to the South Pole with IceCube in the 2009-2010 winter and selected to make the trip in the 2010-2011 winter)
- [Liz Ratliff](#), mathematics teacher at Lexington High School in Lexington, SC
- [Kristen Fancher](#), chemistry teacher at Romulus High School in Romulus, MI
- [James Lane](#), biology teacher at Academy of Science and Agriculture in Solana, MN
- [Scott Murphy](#), physics teacher at Mastery Charter School in Philadelphia, PA

About KSTF

The Knowles Science Teaching Foundation (KSTF) was established by Janet H. and C. Harry Knowles in 1999 to strengthen the quality of science and mathematics teaching in United States high schools. The Foundation’s signature program, the KSTF Teaching Fellowships, awards exceptional young men and women with a five-year fellowship valued at up to \$150,000 as they embark on careers teaching high school science and mathematics. The KSTF Fellows are impacting nearly 14,000 students in the 2009-2010 academic year alone. KSTF’s other programs includes Research Fellowships for doctoral level researchers. For more information visit www.kstf.org

