

Teacher spends a month at the bottom of the world

April 5, 2017

Kate Miller just returned from an experience of a lifetime — she spent one month as a teacher-researcher at the South Pole.

Growing up in Beverly Hills, Miller attended religious school at Temple Emanu-El. She went on to earn a bachelor's of science degree in physics from the University of Michigan and later a master's degree in physics and mathematics education at the University of Pennsylvania. Miller now teaches physics at Washington-Lee High School in Arlington, Va.



Miller was one of 14 teachers in 2016 selected through a nationwide search to participate in PolarTREC, an educational experience in which teachers participate in polar research. Projects can range from flying in an airplane laboratory that surveys the changing Arctic ice sheets to diving under the Antarctic ice to study unusually large sea animals. In each expedition, teachers work closely with scientists, united by a common goal of improving science education.

In January 2017, Miller traveled to the South Pole to participate as a research team member working on the IceCube Neutrino Observatory, a project looking for sub-atomic particles coming from some of the most violent and least understood events in our universe (<https://icecube.wisc.edu/>).

While on her expedition, Miller engaged K-12 students, educators and communities across the United States through the use of various digital tools including daily journals, message boards, photo albums, social media ([facebook.com/MillerSouthPole](https://www.facebook.com/MillerSouthPole)) and a live webcast presentation. This way, students could experience the expedition with her as a real-life extension of their classroom!.

Through PolarTREC, Miller saw an opportunity to bring authentic science practices into her high school classroom. “As teachers, we do our best to prepare our students for what’s to come. I wanted to experience firsthand the skills scientists use



when conducting field research so I could better emulate those for my students,” she said.

By visiting Miller’s blog, you can learn what a neutrino is and why the South Pole is an ideal location for detecting them. Miller also reported on the daily life of a field researcher in an extreme, remote location, recording a 20-minute video tour of the Amundsen-Scott South Pole Station and describing the effects of high altitude and 24 hours of sunlight on the human body.

Miller continues to share her experience both in her classroom and through community outreach events. Her expedition was recently featured on Arlington’s WJLA-TV and the Radio Hotline with Dennis Price.

Miller hopes that by sharing her experience she can model what it looks like to be a lifelong learner, reigniting an innate curiosity in all of us to better understand how our own universe works.

PolarTREC is managed by the Arctic Research Consortium of the U.S. (ARCUS) and funded by the National Science Foundation and additional partnerships. For more information and to participate, see the PolarTREC website at www.polartrec.com or contact the ARCUS Project Managers, Janet Warburton and Judy Fahnestock, at info@polartrec.com or call (907) 474-1600.

Explore Miller’s journals at www.polartrec.com/expeditions/ice-cube-neutrino-observatory-2016.

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