



Polarized Teaching: Bringing Natural Wonders to the Classroom through Technology

"Wimba Classroom helped bring several recent expeditions in the Arctic and Antarctic to life for K-12 students back in the United States."

-Katie Breen, ARCUS Education Programs Project Manager, Arctic Research Consortium of U.S.

Take the environmental wonders of the North and South Poles, add a mixture of teachers and research scientists, stir in a pinch of collaborative education software and what do you get? A recipe for science education that engages students like few have done before.

Through the efforts of the Arctic Research Consortium of the United States (ARCUS), its member institutions and representatives across the United States and around the world, and collaborative education software leader Wimba, teachers and researchers in the TREC and PolarTREC programs connect with students and communities back home to deliver an unparalleled educational experience, live from the Arctic and Antarctic.

ARCUS was formed in 1988 to identify and bring together the distributed human and facilities resources of the Arctic research community--to create a synergy for the Arctic in which each resource, when combined with others, can result in a strength that enables the community to rise to the many challenges facing the Arctic and the United States. ARCUS provides a mechanism for

the Arctic community to complement the advisory roles of other national organizations, such as the US Arctic Research Commission (USARC), the Polar Research Board (PRB), and Interagency Arctic Research Policy Committee (IARPC), that are concerned with the Arctic.

ARCUS is a non-profit corporation consisting of institutions organized and operated for educational, professional, or scientific purposes. An institution is considered eligible for membership in ARCUS if it has made a definitive, substantial, and continuing commitment to a coherent research program or course of studies leading to degrees in one or more disciplines associated with Arctic research or related fields. The representatives of member institutions constitute the Council of ARCUS and elect the Board of Directors.

Among the programs ARCUS supports is PolarTREC, an NSF-funded successor to the TREC program is PolarTREC, an NSF-funded successor to the TREC program.



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WIMBA PRODUCTS AND SERVICES

- Wimba Classroom

KEY BENEFITS

Wimba allows scientists in the most remote corners of the globe to deliver live instruction to K-12 students in the United States.

Amy Clapp

TREC teacher, ARCUS

Calling in to Wimba Classroom from a satellite phone in the Arctic.





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ABOUT ARCUS

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PolarTREC

Building on the past successes of the TREC program (Teachers and Researchers Exploring and Collaborating in the Arctic), PolarTREC (Teachers and Researchers Exploring and Collaborating in the Arctic and Antarctic) facilitates the participation of K-12 teachers in polar research with the goal of improving science education. PolarTREC teachers work alongside researchers in the Arctic and Antarctic for 2-6 weeks at a time on selected projects that represent leadership in scientific inquiry. While the program supports research and aids in the professional development of teachers, the true beneficiaries are the students, located in

classrooms throughout the United States, who learn from these teachers and begin to share their passion for science.

While in the field, PolarTREC teachers connect with their students, classrooms, and communities back home through the use of Internet tools including online journals, message boards, photo albums, podcasts, and other online learning resources. One of these resources, Wimba Classroom, helped bring several recent expeditions in the Arctic and Antarctic to life for students.

Bringing ARCUS and TREC/PolarTREC to the Classroom

Between May and December 2006, teachers from Alaska, Arizona, California, New Hampshire, Pennsylvania, Tennessee, Texas, Vermont, Virginia, and Washington participated in TREC and PolarTREC expeditions to the Arctic and Antarctic. During their time in the field, each one stayed connected to his/her classroom and home community through Wimba Classroom.

Wimba Classroom allowed these teachers and their students to enjoy the polar experience together by combining state-of-the-art interactive technologies with traditional best practices of instruction. Rather than relying solely on the asynchronous elements of online journals, message boards, photo albums, and podcasts, which certainly helped students share in their teacher's field experiences, Wimba Classroom allowed some of the interaction to be synchronous by adding elements including live voice, video, application sharing, polling, and whiteboarding. The best elements of face-to-face and online instruction delivered the experiences of TREC and PolarTREC participants directly to their schools and communities back home in a real-time, interactive manner.

"Wimba Classroom really enabled the students back home to be a part of their teachers' work in the field," said ARCUS Education Programs Project Manager Katie Breen. "We delivered interactive online education to students from a research site in Norway and from the decks of two separate ice-breakers at opposite ends of the globe."

Teacher Maggie Kane of Prescott, Ariz., worked in Svalbard, Norway, during July and August 2006. Kane participated in the TREC "Climate Change in a Glacial-River-Lake System" study along with researchers Al Werner from Mt. Holyoke College of Massachusetts and Mike Retelle from Bates College of Maine. The team studied the effects of climate change on glaciers, melt-water streams, and sedimentation in lakes and fjords.

In addition to Kane's online journal, the message boards she maintained with Werner and Retelle, and her online photo gallery, Kane also delivered three Wimba Classroom interactive webcasts to over 700 students and staff at Prescott High School in Arizona.



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Other teachers, some of whom contributed to research projects conducted from ocean-going icebreakers in all corners of the Arctic and Antarctic, shared with their students and home communities through asynchronous means as well as the live online elements of Wimba Classroom.

PolarTREC teachers Allan Miller of Alaska and Ute Kaden of Texas both used Wimba Classroom to communicate real-time with their communities from aboard the Swedish icebreaker Oden underway between Chile and the McMurdo Base in Antarctica. On this expedition, the teachers and scientists monitored wildlife, surveyed meteorological conditions and sea ice, mapped ocean properties, and measured the ocean's plankton and nutrients. Science education writer Patty Janes and teacher Samantha Dassler-Barlow participated in a similar expedition with TREC to study ecological change in the Bering Sea aboard the U.S. Coast Guard Cutter Healy.

Like Kane, teachers Miller, Kaden, Janes, and Dassler-Barlow maintained online journals and photo galleries and answered questions via message boards; but their live presentations via Wimba Classroom further brought their work to life for students and neighbors back home.

Breen said that all these educators did "a phenomenal job" using technology to communicate interactively and in real-time with classrooms and communities.

The success of TREC will continue under the auspices of PolarTREC and the work of ARCUS through the support of the NSF and other organizations. Wimba's efforts to enable educators to share their experiences with students, colleagues, and communities back home have multiplied the educational value of these expeditions, boldly demonstrated the value that technology can bring to education, and quite possibly ignited hundreds of young imaginations to the wonders of science.

About Wimba

Wimba develops web-based collaboration software designed for online education, language learning and live interactive communications. Our collaborative applications enable learning professionals to fully embrace the new wave of teaching and learning opportunities afforded by the Internet; regardless of geographic location, bandwidth or operating system. Our classroom collaboration solutions enable educators to conduct live, online classes, meetings, office hours and other collaborations, and our language learning tools add oral interaction directly into course content, webpages, study groups and assessments. With simplicity and power, Wimba adds new dimensions to online, accessible education, enhancing the learning experience for both students and instructors.

