



## Use of an Arctic expedition in Earth science education

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An Arctic Expedition and Summer School for pre-college teachers aboard the *Kapitan Drantizyn* icebreaker, was conducted for 26 days concurrently with the fifth scientific cruise to the Arctic ocean of the Nansen Amundsen Basins Observation System (NABOS) program. The Arctic expedition for NABOS and the K-12 teachers was organized by the International Arctic Research Center, University of Alaska Fairbanks, United States, DAMOCLES (Developing Arctic Modelling and Observing Capabilities for Long-term Environmental Studies) in Europe, the Alfred Wegener Institute for Polar and Marine Research in Germany, the Arctic and Antarctic Research Institute in St. Petersburg, Russia, and the Obukhov Institute of Atmospheric Physics in Moscow, Russia. Participating pre-college teachers came from Canada, France, Germany, Russia, Sweden, United Kingdom and United States. The Summer School's main focus was "Climate Change in the Arctic Ocean" and consisted of lectures on physical, biological and chemical aspects of oceanography, meteorology, Arctic paleoenvironment and the International Polar Year (IPY), presentations on recent findings and planned work of NABOS scientists, hands-on presentations on the Global Learning and Observations to Benefit the Environment (GLOBE) program measurement protocols, paleoenvironmental indicator identification, and best teaching practices as well as field and laboratory experiences in Arctic research. The teachers organized a panel discussion on climate change based on questions they posed. Post-expedition survey results indicated that the teachers' goals that were met included: to experience and learn about the Arctic and its role in the Earth system, to participate in field research working directly with scientists, to learn about authentic science and scientific process and to experience different cultures. The teachers have begun to share their unique Arctic expedition experiences in various ways with students in their classrooms, colleagues and the general public, and as part of IPY education and outreach activities.