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Combining virtual and real field environments using Google Earth to engage both teachers and students in polar science

Laura Lukes (1,2)

(1) National Science Foundation, Office of Polar Programs, Einstein Fellow, Arlington, VA, USA, (2) Saguaro High School, Scottsdale, Arizona

The Joint Science Education Project (JSEP) has evolved over the years since its inception in 2007 as part of International Polar Year. Historically, it has been an international collaborative effort to engage students (primarily high school) and teachers from Greenland, Denmark, and the United States in polar science by taking students and teachers out to field stations on the ice sheet in Greenland. They observe both the features and natural phenomena unique to the Arctic while experiencing scientific polar research in real time. After their field experience, participants are expected to share their experience with their respective local and national communities. Past participants have published news articles, blogs, posters at professional meetings, and given public talks.
Google Earth can be used as a tool in a variety of ways to enhance a real field experience like JSEP. It can be used to: (1) engage the affective domain by orienting participants to key field sites, features, and logistics prior to the field tour, (2) develop map reading and GPS skills prior to and during field experience, (3) create a virtual experience alternative for those studying online or those physically unable to attend the real field experience, (4) create an interactive content reference and review source, and (5) assess student learning and communication skills through student creation of an interactive field portfolio. These instruction models can be used in K-college courses and provide dynamic learning opportunities for different learning types.