

The NCAR Global Climate Change Research Experience for Teachers Institute: A potential model for COCONet broader impacts

Steven W. Anderson, Department of Earth Sciences and the MAST Institute, University of Northern Colorado, Greeley, CO 80639

Susan Q. Foster, University Corporation for Atmospheric Research (UCAR) Education and Outreach, Boulder, CO 80307

Disseminating results of a scientifically-complex project such as COCONet to non-scientists presents a number of challenges, especially when coupled with the politically-charged climate that accompanies discussions of topics such as global climate change. The University of Northern Colorado's Math and Science Teaching Institute (MAST), in partnership with the University Corporation for Atmospheric Research (UCAR), recently established a Global Climate Change Research Experiences for Teachers Institute (RETI) at the National Center for Atmospheric Research in Boulder, Colorado that may serve as a model for communicating scientific results to a broader audience. With funding through the NASA Global Climate Change Education program, the RETI project allows 2 cohorts of 12 practicing and preservice teachers to develop advanced levels of global climate change conceptual understanding and new curricular materials focused on global climate change. RETI provides a blend of secondary science teacher professional development opportunities to 1) sustain efforts to reform science, technology, engineering, and mathematics secondary (STEM) education, 2) enhance teachers' knowledge of climate and global change in ways that enrich standards-based teaching and assessment, 3) strengthen teachers' understanding of the scientific process through experience with research using NASA data; and 4) integrate global climate change content knowledge and research experiences into inquiry-based modules for use in secondary science classes. The goal of RETI is to enhance STEM knowledge and pedagogical skills of secondary level science teachers through coursework and a workshop, in addition to research experiences and planning of standards-based classroom activities that increase the use of NASA data as a focus of inquiry in the classroom. The RETI program consists of 4 main parts. RETI participants first complete three separate NCAR Online Climate Discovery Courses, and then participate in a research experience under the direction of an NCAR scientist. The participants will then develop individualized classroom modules and/or implementation plans and then bring these new materials to their students. We envision this as a simple model that can be applied to other topics that challenge the general public's understanding of the associated goals and outcomes of complex scientific initiatives.