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UNH Institute For Teachers To Transform Earth Science Education

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DURHAM, N.H. – Climate change, satellite imaging, geographic information system technology: the Earth is changing, along with the technology to study it. A new program at the University of New Hampshire seeks to ensure that middle and high school teachers are keeping up by participating in a two-week institute (July 23 – Aug. 3) at UNH. Funded by a $3 million grant from the National Science Foundation, Transforming Earth System Science Education (TESSE) brings together 40 current and future teachers with faculty expertise from UNH and partner universities Pennsylvania State University, Dillard University in New Orleans, and Elizabeth City State University in North Carolina.

“There are a lot of people teaching Earth science at the middle and high school levels who don’t have strong backgrounds in Earth science,” says Karen Graham, professor of mathematics at UNH and director of UNH’s Leitzel Center for Mathematics, Science, and Engineering Education, which received the grant. “This is an opportunity for them to update their content, to broaden their understanding of Earth science, and to become more of an Earth systems scientist.” Graham adds that the field of Earth science is changing from a “just rocks” perspective to one of the Earth as a system, and new science standards in schools are reflecting this change.

During the two-week institute, participants – who hail from the regions near the four partner universities – will explore climate change, weathering and erosion, volcanoes, plate tectonics, weather forecasting, and oceans. The UNH-based labs, lectures and discussions will be complemented with field trips to the Mt. Washington Observatory (July 27) and a science cruise on the Great Bay Estuary (Aug. 1).

In addition to the two-week summer institute, which will rotate among the partner universities in subsequent years, the NSF grant will create year-round scientist-in-residence programs for current and incoming teachers. Students from each of the partner institutions will serve as scientists-in-residence in the classrooms of summer institute participant-teachers. This component of the TESSE program builds on the successes of an existing Leitzel Center NSF-funded program, Partnership for Research Opportunities to Benefit Education (PROBE). The TESSE grant, which is over three years, draws on resources of the Leitzel Center and co-investigators from UNH’s Department of Earth Sciences, Department of Education and the Institute for the Study of Earth, Oceans and Space.
“We are really excited by the opportunity to strengthen links between universities and K-12 education through summer activities and the year-long classroom partnership between graduate students and teachers,” says Julie Bryce, assistant professor of geochemistry at UNH and co-director of the TESSE program. “I have been fortunate to work with Melissa Smith, a current PROBE graduate student fellow who will lead the first group of graduate fellows in the TESSE program. Melissa has been highly effective in gathering information on the expertise and strong research programs at UNH and taking activities based on these programs into high school classrooms.”

While the program is aimed at teachers, Graham notes that ultimately, students benefit. “The Earth is where we live. For students to be informed citizens, they need information to better understand things like global warming,” she says.

To learn more about TESSE, go to http://www.leitzelcenter.unh.edu/geo-teach/index.html.