



MathScience Innovation Center

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MSIC LEADS ACADEMIC JOURNAL ISSUE ON AWARD-WINNING EARTH SCIENCE PROGRAM

From 2005-2008, the MathScience Innovation Center led a collaborative of seven institutes of higher education and two non-profit organizations to develop and implement five earth science courses that enabled secondary teachers to acquire an add-on earth science endorsement: *Geology I: Physical Geology*, *Geology II: Geology of Virginia*, *Oceanography*, *Astronomy: Space Science for Teachers*, and *Meteorology*. These courses were collaboratively developed and included rigorous academic content, research-based instructional strategies, and intense field experiences. The thirty-three sections offered statewide served 499 participants.

In addition, three courses were offered to strengthen the skills of earth science teachers: *Teaching Earth Science Topics to Special Education Students*, *Integrating New Technologies in the Earth Sciences*, and *GeoVirginia: Creating Virtual Field Trips* (non-college credit). In these six sections, seventy-four people participated.

Outcomes included an increased pool of endorsed earth science teachers and teachers with coursework in the earth sciences, a website with virtual field trips, and a statewide earth science network. Because of the grant's effectiveness, the Virginia Mathematics & Science Coalition presented a *2008 Programs That Work* award to the Virginia Earth Science Collaborative "in recognition of the significant work invested in the design and implementation of the teacher education program and its impact on science education."

Dr. Julia H. Cothron, the Center's Executive Director and the Principal Investigator for the grant, coordinated a special issue of *The Journal of Mathematics and Science: Collaborative Explorations* focused on the grant's impact. In addition to writing the lead article for the journal, she coordinated development of seven articles by leading members of the Collaborative including Kristen St. John and Eric Pyle of James Madison University; Vicki Clark, C. Hopper-Brill and C. Petrone of the College of William and Mary's Institute of Marine Science; JoAnn Mulvaney, Retired Henrico Teacher; Michael Bentley of the University of Tennessee, Knoxville; Ed Murphy of the University of Virginia; Howard Geller, Wendy Frazier and Donna Sterling of George Mason University; and Jon Tso of Radford University. Copies of the journal are available from the MathScience Innovation Center.

Partners for the Virginia Earth Science Collaborative included the College of William and Mary and its Virginia Institute of Marine Science, George Mason University, James Madison University, Longwood University, the MathScience Innovation Center, Radford University, Science Museum of Virginia, University of Virginia and its School of Continuing Education, Virginia Commonwealth University, and eighty-three school divisions.

The MathScience Innovation Center is a 42-year-old organization dedicated to futuristic math and science education for K-12 teachers and students. Its vision for 2015 focuses on implementing new programs in fractal geometry, engineering, nanotechnology, environmental modeling, and distance learning. The MathScience Innovation Center is an educational consortium comprised of eight school divisions: Chesterfield, Colonial Heights, Hanover, Henrico, King William, Petersburg, Powhatan, and Richmond. Other divisions also participate through abbreviated memberships: Charles City, Hopewell, Prince George, and the Steward School.