THE AMS EDUCATION PROGRAM
25 Years of Promoting Earth System Science Literacy

The AMS Education Program turns 25 this year! In this milestone year, the program highlights its work in fostering Earth science literacy nationwide through in-service K–12 teacher professional development and undergraduate college-level courses and training programs. The Education Program serves the entire AMS membership by bringing atmospheric, oceanic, climatic, and related sciences into places it may not be otherwise—for example, K–12 classrooms, community colleges, online programs, and minority-serving institutions (MSIs). AMS courses rely heavily on the use of current geoscience data. They are excellent vehicles for introducing precollege teachers (and their students) and young adults to the Earth system sciences and encouraging future study and careers in the disciplines the AMS represents. Courses and training programs include special initiatives to advance minority teacher, student, and institutional participation in science.

In 1989, the AMS Council, led by President Joanne Simpson, pledged $300,000 toward “Educational Initiatives.” At the time, the initiatives were undefined, but soon evolved through the work of Ira Geer (AMS education program director from 1991 to 2008 and currently senior education fellow) and Jim Brey, who has directed the program for the past seven years, following ten years of program involvement while a professor in the University of Wisconsin system. Geer emphasizes that “Education Program initiatives pioneered the use of real-time data in course learning investigations and are unique in that most programs started throughout the program’s history with initial support through the National Science Foundation (NSF) are still flourishing today, largely due to ongoing support from NOAA, NASA, and the U.S. Navy. Also unique is involvement of hundreds of minority-serving institutions in AMS programs.”

AMS courses provide hands-on investigations and incorporate the most current geoscience data, much of which is provided by NOAA’s National Centers for Environmental Prediction and National Centers for Environmental Information. Brey highlights the real-time nature of the courses: “Even though the AMS office was closed, Education Program staff working remotely released a ‘Current Weather Studies’ activity about Superstorm Sandy, which was immediately disseminated to DataStreme Atmosphere teacher participants and AMS Weather Studies faculty and students across the county. Following the Japan Tohoku earthquake, AMS had released a ‘Current Ocean Studies’ investigation on the topic before the initial wave of the tsunami had traversed the globe.”

The DataStreme Atmosphere, Water in the Earth System, Ocean, and Earth’s Climate System graduate-level semester-long courses have directly trained more than 19,200 teachers and impacted more than 100,000 additional teachers and millions of students. Several hundred teachers have attended Project Atmosphere [at the NOAA National Weather Service (NWS) Training Center] and Maury Project (at the U.S. Naval Academy) two-week summer leadership workshops, receiving presentations from top-level NWS scientists, including director Louis Uccellini. Toni DeVore, a long-time DataStreme Local Implementation Team (LIT) leader based in West Virginia, comments about the...
workshops: “What an opportunity for a classroom teacher! These were the scientists doing real research. A science teacher having access to these individuals was unheard of.” New Jersey-based LIT leader Michael Passow highlights the educational leadership aspect: “My service in the early 1990s as a member of the AMS Board on School and Popular Meteorological and Oceanographic Education gave me the confidence to take on the challenges of leadership in Earth science education at local, state, regional, and national levels. I trace the various presidencies I have held to the empowerment ‘to think beyond my classroom walls’ I received from the AMS Education Program.”

The introductory college-level Weather Studies, Ocean Studies, and Climate Studies courses feature 850 undergraduate licenses, with at least 400 of these being from MSIs. Many colleges have offered multiple courses. AMS Diversity Projects have trained MSI faculty through workshops at federal science facilities and the AMS Annual Meeting to locally offer the courses and encourage their students to consider geoscience careers. Thomas Gill of the University of Texas at El Paso (UTEP), who has offered AMS Weather Studies for more than 10 years and participated in the AMS Diversity Project, explains that “UTEP is a partner institution of the NOAA Center for Atmospheric Sciences led by Howard University, and through this relationship, a pipeline exists for UTEP students to consider entering graduate programs in atmospheric science and related fields at Howard, UTEP, or elsewhere, increasing the diversity of our nation’s professional meteorological workforce.”

While Education Program initiatives have directly impacted more than 20,000 precollege teachers, hundreds of college faculty, and more than 100,000 college students, their impact goes far beyond the direct participants. For example, a single DataStreme-trained teacher has, on average, impacted about 10 teacher colleagues and 350 students within 2 years of their training, and many AMS-trained teacher leaders have been instrumental in influencing state science standards and assessments. One MSI faculty member trained through an AMS Diversity Project can influence hundreds of students through local course implementation, leading some of these students to pursue science degree programs following course completion.

In recent years, AMS has fostered relationships with other nonprofit organizations to expand its core programs. For example, Second Nature, administrator of the American College and University Presidents’ Climate Commitment, has been a key partner in the AMS Climate Studies Diversity Project, and AMS has worked with the Consortium for Ocean Leadership and the U.S. Ice Drilling Program Office on advanced faculty professional development programs in paleoclimate.

To explore the exciting work being done by the Education Program, please visit https://www2.ametsoc.org/EducationProgram.

—James A. Brey (AMS Education Program), Elizabeth W. Mills (AMS Education Program), Ira W. Geer (AMS Education Program), Robert S. Weinbeck (State University of New York’s The College at Brockport), Kira A. Nugnes (AMS Education Program), Katie L. O’Neill (AMS Education Program), Bernard A. Blair (AMS Education Program), David R. Smith (AMS Education Program), and Edward J. Hopkins (University of Wisconsin—Madison)