



Exemplary Programs Supporting Teacher Professional Development in the U.S.A.

Michael J Passow

Dwight Morrow H.S. Englewood NJ USA (michael@earth2class.org)

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Dwight Morrow High School, Englewood, NJ 07631, USA

michael@earth2class.org

By Law, there is no national curriculum in the U.S.A., so each State sets its own regulations for teacher certification and professional development. The Next Generation Science Standards (NGSS, <http://www.nextgenscience.org/next-generation-science-standards>) provide guidelines for teacher training and curriculum development in Earth Science, Life Science, and the physical sciences (chemistry and biology). Presented here are examples of effective programs designed to support in-service Earth Science teachers, especially at the middle school and high school level (grades 6 – 12, ages 12 – 18). The Earth2Class Workshops for Teachers at the Lamont-Doherty Earth Observatory of Columbia University (E2C) provides monthly gatherings of research scientists and teachers to learn about cutting-edge investigations in a wide variety of fields, and develop lesson plans to share these discoveries. The E2C website, www.earth2class.org/site, also provides a wide variety of educational resources used by teachers and students to learn about the planet. The National Earth Science Teachers Association (www.nestanet.org) is the largest professional society focused on pre-college Earth Science education. Together with its partner, Windows to the Universe (www.windows2universe.org), NESTA offers workshops and other programs at national and regional teacher conferences, a quarterly journal designed for classroom use, monthly E-Newsletters, and one of the largest collection of web resources in education. For more than twenty years, the American Meteorological Society has trained teachers across the country through its online courses: DataStreme Weather, DataStreme Ocean, and DataStreme Earth's Climate System (www.ametsoc.org/amsedu). Informal science education institutions also provide strong in-person and web-based professional development programs. Among these are the American Museum of Natural History's "Seminars on Science" (<http://www.amnh.org/learn/>) and many programs for educators that utilize the AMNH collections in New York City. Each year at the American Geophysical Union Meeting, teachers find out about "Hot Topics in Science" through the GIFT Workshops (<http://education.agu.org/education-activities-at-agu-meetings/gift/>). Field experiences aboard the scientific ocean drilling vessel, "JOIDES Resolution," have enhanced the knowledge and skills of teachers from the USA and Europe (<http://joidesresolution.org/node/3002>). Many teachers also connect with each other through the ESPRIT list-serv and others (<http://external.oneonta.edu/mentor/listserv.html>). These are just a sample of the many programs offered to provide life-long professional development for Earth Science educators and promote 'Science in Tomorrow's Classroom.'