

INCREASING SCIENTIFIC LITERACY AT MINORITY SERVING INSTITUTIONS NATIONWIDE

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1 AMS UNDERGRADUATE COURSES

It is vital to increase the scientific literacy of all students, including those at minority serving institutions (MSIs). With support from NSF, NASA, and NOAA, the Education Program of the American Meteorological Society (AMS) has developed scientifically authentic, introductory, undergraduate courses that engage students in the geosciences through the use of real-world environmental data. *AMS Climate*, *Weather*, and *Ocean Studies* have already been adopted by more than 732 institutions across the U.S.

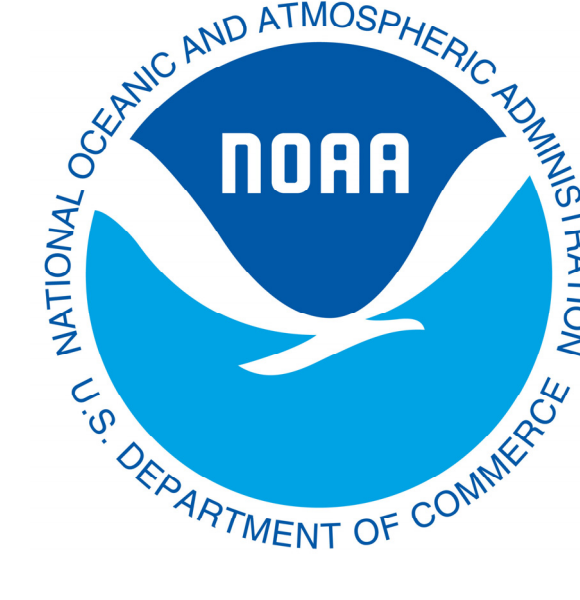
AMS WEATHER STUDIES

- Covers the foundations of atmospheric science.
- Brand new 5th edition textbook covers record low ozone levels in the Arctic stratosphere, atmospheric rivers, record-breaking 211 tornado season, and much more.
- Also includes QR codes enabling access to animations.
- Students learn about weather as it happens in near real-time using customized weather products from NOAA.
- Licensed by more than 477 institutions since implementation in Fall 1999.



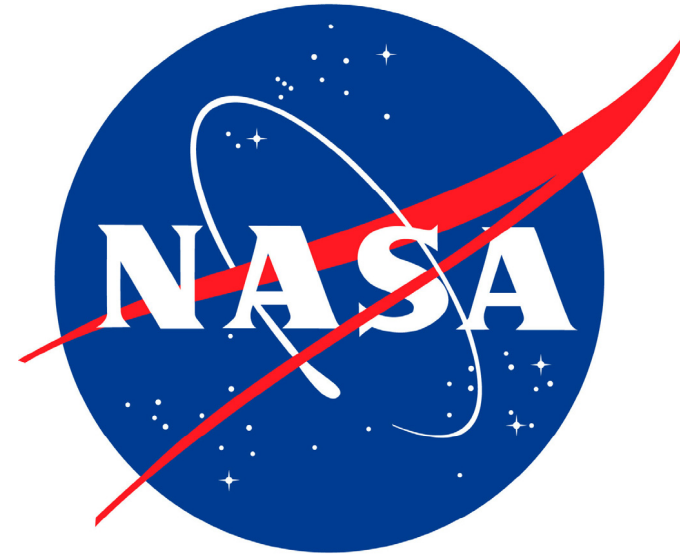
AMS OCEAN STUDIES

- Emphasizes the role of the ocean in Earth's climate system.
- Newly revised textbook features up-to-date coverage of 2011 Japan tsunami, 2010 Gulf of Mexico oil spill, ocean acidification, and harmful algal blooms.
- Expanded coverage of overfishing, lost wetlands, restoration of the Chesapeake Bay, and threats to coral reef.
- Includes latest technology for monitoring ocean properties: satellites, floats, gliders, and cabled ocean observatories.
- Licensed by more than 175 institutions since implementation in Fall 2005.



AMS CLIMATE STUDIES

- Focuses on the science while still addressing societal impacts that draw the attention of today's students.
- Covers the foundations of Earth's climate system, societal and ecosystem vulnerability and response to climate variability and change, political and economic aspects of climate change, and much more.
- Great primer for students entering technical 'green' programs.
- Licensed by more than 80 institutions since implementation in Fall 2010.



2 AMS CLIMATE STUDIES DIVERSITY PROJECT

With additional support from NSF and NASA, and a partnership with Second Nature, the organizing entity behind the American College and University President's Climate Commitment (ACUPCC), the first *AMS Climate Studies* Diversity Project was held in May 2012 in Washington, D.C. This project focuses on introducing and enhancing geoscience coursework at MSIs nationwide, especially those that are signatories to the ACUPCC and/or members of the Louis Stokes Alliances for Minority Participation (LSAMP).

Thirty faculty members from 16 different states, Puerto Rico, and Washington, D.C. attended the expense-paid week-long workshop. They were immersed in the *AMS Climate Studies* course materials, received presentations from NASA, NOAA, and other DC area educational and research scientists, and were trained as change agents for their local institution.



EVALUATION RESULTS

Overall, participants rated the workshop as outstanding, that their perception of NOAA and NASA improved, and they would recommend the course to other *AMS Climate Studies* instructors. According to the external evaluator's observations, this was an excellent workshop that left the participants wanting more.

Most effective components of workshop:

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| Networking with other faculty; especially those that teach other AMS curricula |
| Critical knowledge from presentations, including Admiral Titley, Kristen St. John, Richard Alley, and Edward Maibach |
| Meeting AMS staff |
| Field trips/site visits, including NASA and the Howard University Atmospheric Research Group |
| Alternating schedule and logistics |

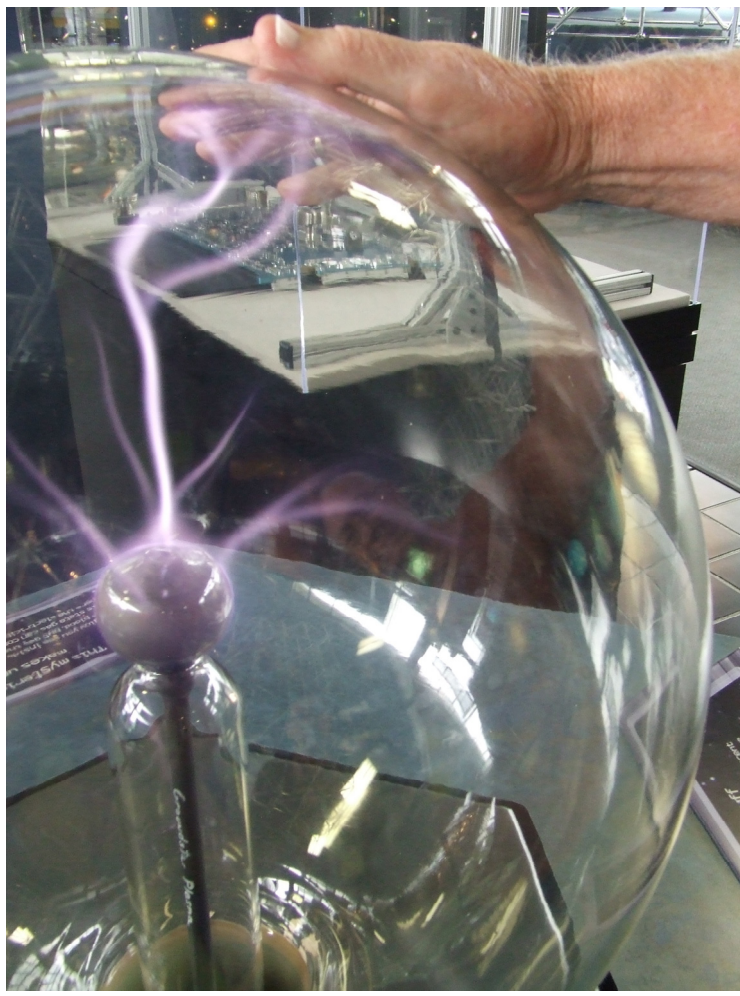
Suggested Changes:

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| More time with experienced faculty/AMS staff with regard to teaching the course, AMS Conceptual Energy Model, and NASA's EdGCM |
| Teambuilding ice breakers |
| Assign future mentors early in workshop so rapport can be established |
| Debriefing times |
| Presentation on grants, especially collaborative, diversity-based opportunities that build on relationships |



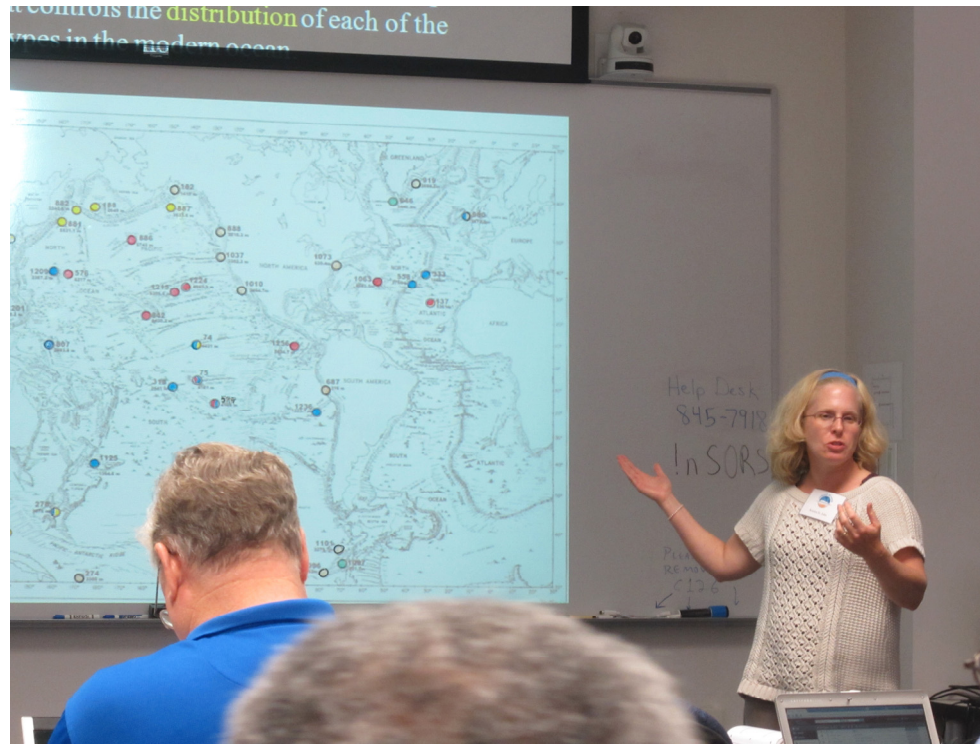
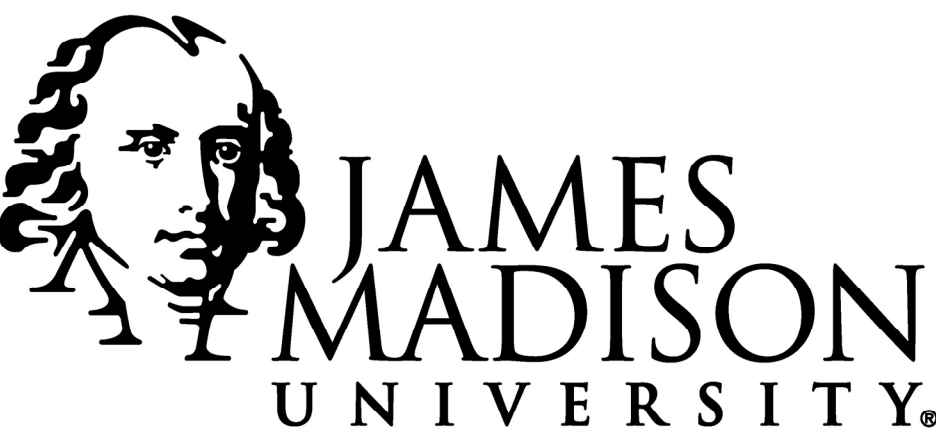
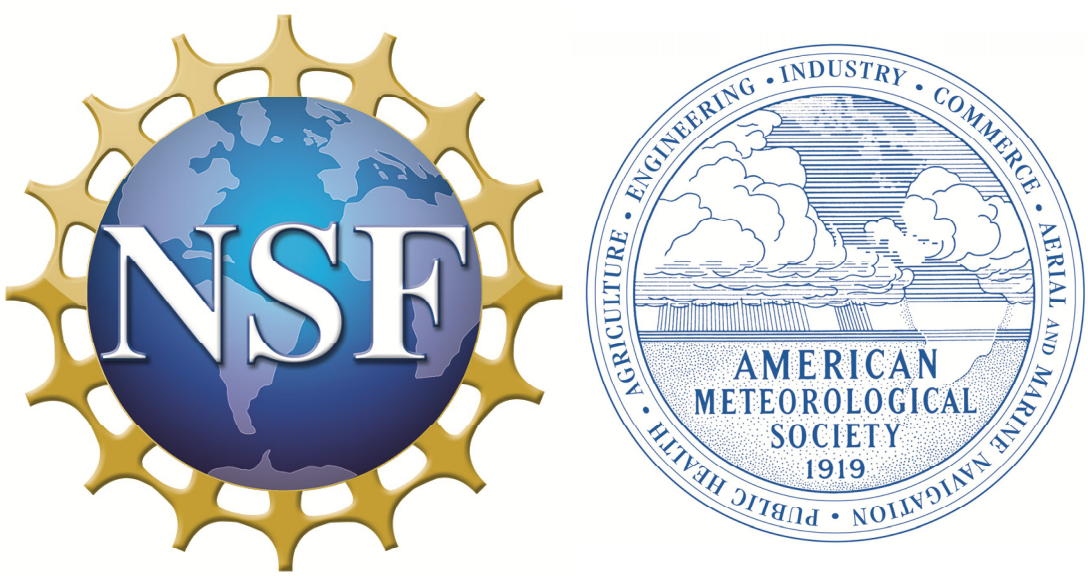
NEXT STEPS

Faculty will offer *AMS Climate Studies* in the year following workshop attendance. Colleges that successfully implement *AMS Climate Studies* will be encouraged to build a focused geoscience study area by also offering *AMS Weather Studies* and *AMS Ocean Studies*. AMS will conduct follow-up meetings with faculty at the AMS Annual Meeting as they work toward institutional change. The *AMS Climate Studies* Diversity Project followed the proven models of the *AMS Weather Studies* (2002-2007) and *AMS Ocean Studies* (2006-2008) Diversity Projects.



3 PALEOCLIMATE WORKSHOP

The AMS Education Program, James Madison University, and Los Angeles Valley College, are working in collaboration with the Consortium for Ocean Leadership/Integrated Ocean Drilling Program's Deep Earth Academy to integrate paleoclimate investigations of ocean core data into course curricula of MSIs. In June 2012, this team participated in a workshop to gain direct experience with ocean core investigations. The goal is to form a trained team to help guide the future, large-scale integration of scientific ocean drilling paleoclimate research into existing MSI geoscience courses, and the development of new course offerings.



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