

ECHOES

“When it comes to the weather, folks in Washington don't seem to be able to handle things.”

—President BARACK OBAMA, on his children's school in Washington, D.C., being canceled because of icy conditions in January. Natives of Chicago, where schools rarely close even in the harshest weather, the Obamas were not yet familiar with “snow days.” (SOURCE: The Associated Press)

services need to be assured by good management and stable government. Those conditions are missing or weak in much of the urban world today. Providing them in time to meet the soaring need is a major challenge.

The urbanizing world is one where weather forecasting and sound climate-related policies are needed by the economy and by a population living far from the rhythms of the rural world. Moreover, urban energy use modifies local climatic patterns. This is a world where meteorology as science and as practice plays an important role.—KAI N. LEE (DAVID & LUCILE PACKARD FOUNDATION). *“An Urbanizing World,” presented at the Ninth AMS Presidential Forum: Urban Weather and Climate-Now and the Future, Phoenix, Arizona, 11–15 January 2009.*

IS SCIENCE REALLY A VERB?— EDUCATING THROUGH SCIENTIFIC THINKING

Science is not a series of facts but an exciting process. Science is not

“clouds”; science happens when we collect data about clouds in order

to draw conclusions, generate theories, and make predictions. It is essential that we

teach students this process of generating and evaluating new information. However, the

proportion of the U.S. population with adequate training in these math

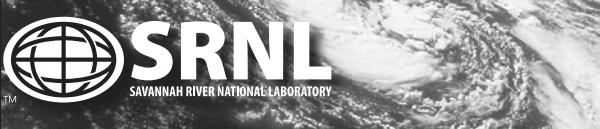
and science skills is dangerously low. Natural resource management, agricultural

or urban planning, emergency preparedness—these all depend on the abilities of all people to evaluate information and to make good decisions based on that information.

Few available educational resources teach the process of science. “The Truth About Science” program was developed collaboratively by a scientist and an educator to meet this need. It is a curriculum that teaches students to ask testable research questions, design unbiased methods, conduct statistics, and communicate their results. The curriculum is unlike a textbook in that there is no science content; rather, it focuses on concepts such as making quantitative observations, designing data tables, making graphs, t-tests, and the sections of a scientific report. These concepts are teachable and the curriculum has been used successfully in diverse classrooms, in multiple teacher-training programs, and in more than a dozen countries.

In 2006, we piloted a one-quarter, three-credit professional development course for local teachers, funded through a NOAA education mini-grant. It focused on science inquiry skills and involved 10 NOAA guest scientists. This relatively inexpensive outreach project received the highest possible course evaluation and has already impacted more than 1,000 students. Teacher feedback cites the participation of practicing scientists as one of the highlights of the course.

National education standards dictate an increased emphasis on scientific inquiry skills, but educators alone cannot fill the gap between science as it is currently taught and the skills students need to become effective citizens. Scientists need to expand their



Savannah River National Laboratory
Meteorologist / Atmospheric Scientist Position

The Savannah River National Laboratory is seeking highly qualified candidates for a full-time Research Meteorologist position in SRNL's Atmospheric Technologies Group. The successful candidate will be expected to apply their knowledge of atmospheric boundary layer processes, meteorological instrumentation, and data acquisition and analysis tools to support/lead the development and implementation of applied field studies for a growing portfolio of projects related to local-to-regional scale transport of airborne contaminants (including CO₂), climate change, and ground-truth evaluations for novel applications in remote sensing. Applicants should possess excellent oral and written communications skills and have the flexibility and versatility to work effectively as a member of multidisciplinary teams developing solutions to unique and challenging geophysical problems. The incumbent will also be expected to develop proposals for development of new business and publish work in refereed journals, as appropriate.

The SRNL is located on the U.S. Department of Energy's Savannah River Site in South Carolina near Augusta, GA, and is operated for DOE by Savannah River Nuclear Solutions, LLC. The Atmospheric Technologies Group conducts applied atmospheric research and development for homeland security, emergency management, nuclear nonproliferation, and energy security, and conducts a comprehensive meteorological program in support of Savannah River Site operations.

Qualifications: A Ph.D. in Meteorology, Atmospheric Sciences, or other closely related field and 0-5 years of relevant experience is required. Hands-on experience with meteorological instrumentation (in-situ and/or remote) and field data collection and processing is highly desirable. Familiarity with atmospheric models, particularly mesoscale models, is desirable as well.

For specific information on the duties and responsibilities of this position, contact: Ms. Terri Sanders, 803-725-9831 or terri.sanders@srs.gov. Applications, including cover letter and a copy of your resume, should be submitted to SRNLResearchRecruiting@srl.doe.gov.

Please refer to job number SRNS-08-92. The Savannah River National Laboratory is an equal opportunity employer M/F/D/V. U.S. citizenship is required.

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vision of scientific responsibility to include education. Simple ways to contribute include (but are not limited to) funding a teacher to attend a science symposium, hosting teachers for short or extended lab visits, reviewing curricula, judging science fairs, and giving

guest lectures (K–16) that include how the question was developed, what steps were taken to avoid bias, etc. To ensure that there will be citizens, policy-makers, and managers able to utilize scientific knowledge in their decision-making, scientists themselves must

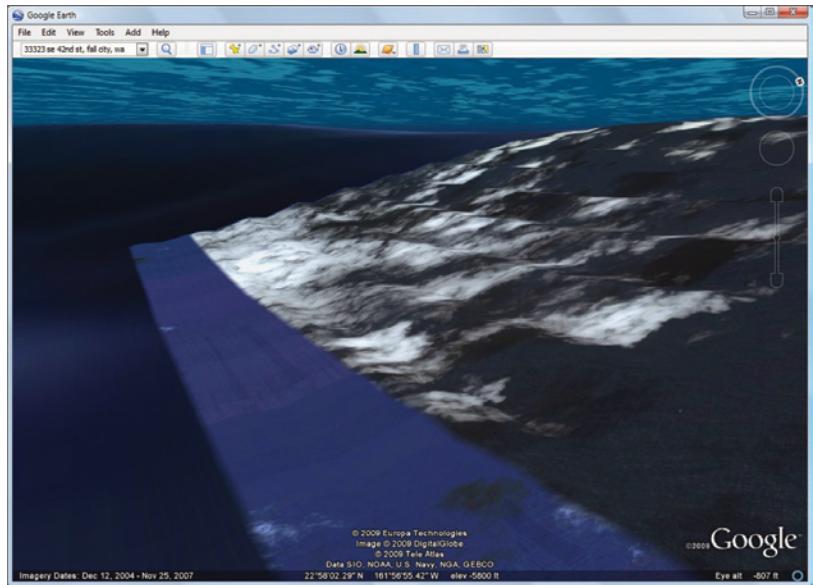
get involved.—E. ASHLEY STEEL (NOAA). “*Science Education and the Future Shortage of Scientific Thinkers: Local Solutions to a Problem That Affects Us All*,” presented at the 18th Symposium on Education, 11–15 January 2009, Phoenix, Arizona.

ON THE WEB

GOOGLE EARTH ADDS OCEAN MAPS

In January, the latest version of Google Earth was launched with the addition of a new ocean map, among other features. The detailed bathymetric map allows users to drop below the surface and explore the seafloor in three dimensions. There are thousands of data points to explore, including videos and images of ocean life, details on the best surf spots, and logs of real ocean expeditions.

Besides the ocean map, there are three other new features of Google Earth 5.0. The new version includes historical imagery, a feature that allows users to move back and forth in time, revealing imagery and changes through the years. The touring feature makes it easy to create a sharable, narrated, fly-through tour by clicking the record but-



A view below the surface of the Pacific Ocean, off the coast of Hawaii’s Big Island, as seen with the Google Earth software.

ton and navigating through tour destinations. In 3D Mars, users can access a three-dimensional map of the Red Planet featuring the latest high-resolution im-

agery and annotations showing landing sites.

The new version of Google Earth is available online at <http://earth.google.com>.

PRODUCTS

WIRELESS SENSORS FOR OUTDOOR MONITORING

Onset’s new HOBOnode sensors transmit high-accuracy temperature and soil moisture data without cables, enabling them to be used for agricultural research,

crop management, and ecology studies. Accompanying software displays real-time graphs of environmental conditions and can provide alarm notifications to a cell phone and e-mail when conditions exceed set thresholds.

The sensors have a transmission range up to 6 miles. Up to 50 HOBOnode sensors can be combined into a HOBOnode network when additional data points are needed. For more information see www.onsetcomp.com.