USGS

Sound Waves

Coastal Science and Research News from Across the USGS

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Fieldwork

Multipronged Scientific Assault on North Carolina's Outer Banks

By John Bratton and Jeff List

U.S. Geological Survey (USGS) scientists from Woods Hole, MA, and their collaborators landed on the beaches of North Carolina in April to implement two more pieces of ongoing efforts to understand the evolution and modern dynamics of the State's extensive barrier-island system, including its hydrogeology. Stormy conditions provided the perfect weather for shoreline-erosion studies conduced by **Jeff List**, **Peter Ruggiero**, and collaborator **Bill Birkemeier** of the U.S. Army Corps of Engineers' Field Research Facility at Duck, NC. **John Bratton** and other scientists working with a contract drilling crew were less enthusiastic about the storm, which slowed (and even stopped for 1 day) their subsurface sampling efforts on the islands.

The rotosonic-drilling team recovered almost 900 ft of sediment cores from six sites, including one mainland site, and measured the salinity of 130 pore-water samples. **Beth Wrege** and other USGS scientists from offices in North Carolina and Reston, VA, conducted gamma logging of each hole and installed monitoring wells at several sites. Other participants in the drilling program included **Bill Hoffman** and **Bob Brooks** (North Carolina Geological Survey); **Reide Corbett**, **Lance Tully**, and **Irene Abbene** (East Carolina University); and an excellent drilling crew from Boart Longyear. Additional chemical analyses are being performed on pore-water samples at East Carolina University. **Rob Thieler** (USGS, Woods Hole) is organizing a workshop scheduled for June to study and sample the split sediment cores, which are stored at the North Carolina Geological Survey's Coastal Plain Office in Raleigh.

The shoreline-erosion team was fortunate to have a week of perfectly calm weather immediately before the big storm. Prestorm studies focused on a 27-km-long section of coast from Southern Shores to Nags Head. The scientists measured shoreline position with the USGS' SWASH (Surveying Wide-Area Shorelines) system and measured 121 cross-shore profiles with a combination of the U.S. Army Corps' amphibious LARC (Lighter Amphibious Resupply Cargo) Survey System (described at URL **http://www.frf.usace.army.mil/larc/larcsystem.stm**) and the USGS' bathymetric-surveying system employing personal watercraft.

Rotosonic-drilling rig set up adjacent to dunes south of Avon, NC.

Core sections recovered from the Rodanthe, NC, drillsite awaiting transport back to the North Carolina Geological Survey repository in Raleigh.

*USGS bathymetric-surveying systems used by **Peter Ruggiero** and crew to measure cross-shore profiles during coastal-erosion research in North Carolina.*

The 4-day storm commenced the day after the profiles were finished, ending with 40- to 50-knot winds and 4.5-m waves. Storm surveys with the SWASH system revealed typical patterns of hotspots and coldspots of erosion. Along with wave data from temporary gauges deployed by the U.S. Army Corps of Engineers, these data will be used to examine the association between prestorm nearshore morphology and the response of the subaerial beach to storms.

Sound Waves

Editor
Helen Gibbons
Menlo Park, California
Telephone: (650) 329-5042
E-mail: hgibbons@usgs.gov
Fax: (650) 329-5198

Print Layout Editors
Susan Mayfield, Sara Boore
Menlo Park, California
Telephone: (650) 329-5066
E-mail: smayfiel@usgs.gov; sboore@usgs.gov
Fax: (650) 329-5051

Web Layout Editor
Trent Faust
St. Petersburg, Florida
Telephone: (727) 803-8747 Ext. 3043
E-mail: tfaust@usgs.gov
Fax: (727) 803-2030

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Deadline: The deadline for news items and publication lists for the August issue of *Sound Waves* is Wednesday, July 16.
Publications: When new publications or products are released, please notify the editor with a full reference and a bulleted summary or description.
Images: Please submit all images at publication size (column, 2-column, or page width). Resolution of 200 to 300 dpi (dots per inch) is best. Adobe Illustrator© files or EPS files work well with vector files (such as graphs or diagrams). TIFF and JPEG files work well with raster files (photographs or rasterized vector files).

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Want to e-mail your question to the USGS? Send it to this address: **ask@usgs.gov**

Delivery of Sediment-Associated Contaminants to the Gulf of Mexico

By Peter Swarzenski

The Mississippi River, which traverses one of the most industrialized corridors of the world, exhibits surprisingly low concentrations of many dissolved contaminants. This is one of the results from U.S. Geological Survey (USGS) scientist **Bob Meade's** comprehensive work on the hydrogeochemistry of the Mississippi River published in 1995 (Meade, R.H., ed., 1995, Contaminants in the Mississippi River, 1987-1992: U.S. Geological Survey Circular 1133, 140 p.). Other studies have also observed similar trends for dissolved Mississippi River constituents, and such observations generally hold true for other turbid rivers of the world. An accurate assessment of the overall health of such a river is thus incomplete if we study only dissolved riverine constituents; we must also study the sedimentary constituents, which is just what an ongoing USGS project is doing. The Atchafalaya and Mississippi River Deltas Study is evaluating the delivery of sediment-associated contaminants to the Gulf of Mexico by the Mississippi River system and its important distributary, the Atchafalaya River.

Our hypothesis is twofold:

1. Basic biogeochemical processes in the lower Atchafalaya River, which empties into a broad, shallow receiving basin, differ fundamentally from those in the lower Mississippi River, which discharges into the Gulf of Mexico close to the edge of the continental shelf.
2. The role of fine particles and colloids in sequestering or scavenging dissolved constituents from the river system might play an important role in the total flux of materials into the gulf.

The Mississippi River system, which drains almost half of the conterminous United States, ranks seventh among rivers

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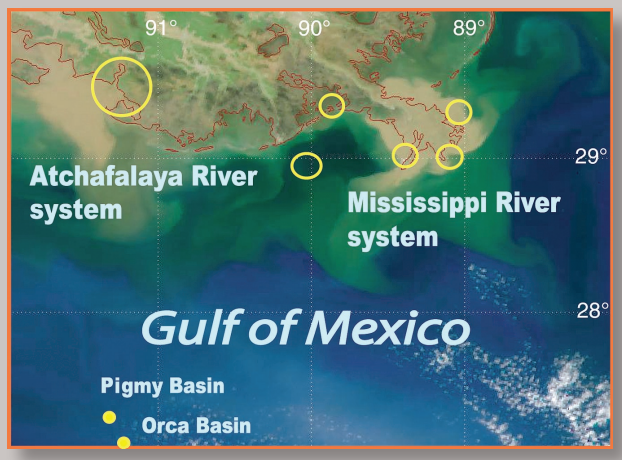

SeaWiFS (Sea-viewing Wide Field-of-view Sensor) satellite image (courtesy of the University of South Florida) shows the Mississippi and Atchafalaya River deltas. Circles are sites of shallow core collection for present geochemical analyses; dots are deeper sampling sites in Pigmy and Orca Basins.

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worldwide for water discharge (580 km^3/yr) and sixth for suspended-sediment discharge (200 million metric tons per year). Together, the Mississippi and Atchafalaya Rivers provide almost all of the freshwater influx to the Gulf of Mexico.

Unlike most other large rivers of the world, the Mississippi River is highly controlled or regulated. About a third of the total flow to the Mississippi River is diverted at the Old River Control Structure to form the Atchafalaya River. The construction of dams and reservoirs all along the Mississippi River has resulted in substantial decreases in total suspended-matter concentrations. The recent Missouri River flood of 1993 may also have effectively decreased total suspended-matter concentrations in the lower river in subsequent years, and such large flood events probably serve to periodically scour and flush out recently deposited riverbed sediment.

Riverborne contaminants discharged into the Gulf of Mexico originate from a wide range of natural, industrial, municipal, and agricultural sources. For example, in the above-cited Circular, **Meade** reports that the combined discharge from industrial and municipal point sources amounts to as much as about 2 percent of the total discharge of the Mississippi River. This delivery of riverine constituents affects coastal ecosystem health and productivity and plays an important role in the formation and intensity of seasonal hypoxic events in the Mississippi Bight, during which the water has anomalously low concentrations of dissolved oxygen. To address the issue of present and historic hypoxia, we are comparing sediment from sites where the water column is chronically hypoxic, or oxygen poor, with sediment from sites that are chronically oxic, or oxygen rich.

We are also comparing results obtained from cores collected from the Mississippi and Atchafalaya River deltas during various river-discharge stages. Ongoing work by USGS scientists in Menlo Park, CA **(Bob Rosenbauer**, **Keith Kvenvolden**, **Tom Lorenson)**, Reston, VA **(Bill Orem**, **Dick Poore)**, and St. Petersburg, FL **(Jack Kindinger**, **Pamela Campbell**, **Peter Swarzenski)**, is examining changes in the organic and inorganic composition of sediment samples collected across river-ocean salinity gradients, as well as recent deltaic sediments and their pore waters. In 2002, USGS scientists **Tom Lorenson** and **Jim Flocks** participated in a cruise aboard the research vessel *Marion Dufresne* to Orca and Pigmy Basins in the Gulf of Mexico to assess offcontinent riverine fluxes during Holocene time (approximately the past 10,000 years). Such data are allowing us to reconstruct historical contaminant inventories from which we hope to develop historical perspectives on hypoxia and nutrient loading (delivery of excess nutrients, such as nitrogen, to the gulf). Ultimately, we intend to use such information to better understand how these sediment-hosted contaminants move either directly or indirectly through biota and affect ecosystem health.

Nutrient Enrichment in Florida Springs

By Brian Katz

A team of U.S. Geological Survey (USGS) research scientists is studying the effects of nutrient enrichment on water quality and biota in Florida's spring systems. The Florida Springs Interdisciplinary Science Study is an integrated effort that builds on the knowledge of Federal, State, and local partners who have noted a steady increase in nitrate concentrations in spring waters during the past 40 years. High nitrate concentrations concern scientists and partners because the Upper Floridan aquifer supplies water for human consumption and supports critical ecological habitats for various species.

Manatee Springs has been selected for the pilot study. This first-magnitude spring discharges about 140 cubic feet per second of water from the Upper Floridan aquifer into a 1,200-foot spring run and flows southward into the Suwannee River, currently designated an Outstanding Florida Waterbody. The estuary of this river system is also an Outstanding Florida Waterbody and a State Aquatic Preserve and National Wildlife Refuge. What's more, the Suwannee River contains the greatest diversity of subterranean decapod crustaceans anywhere in the world.

*The pallid cave crayfish (*Procambarus pallidus*), a blind cave-dwelling crustacean found in ground water of the Floridan aquifer in the Suwannee River Basin.*

USGS researchers **Dale Griffin**, **Peter Swarzenski**, **Stephen Walsh**, **Howard Jelks**, and **Brian Katz** concur that understanding how human activities on the surface affect the aquifer system will aid the development of more effective strategies to protect spring waters from further degradation and to help remediate springs that are already contaminated. The team is using innovative techniques incorporating the fields of hydrology, geochemistry, microbiology, ecology, and geography to study sources of nutrient enrichment of spring water discharging to the Suwannee River and associated ecological impacts. To identify the major source(s) of nutrient enrichment that threaten the aesthetic, cultural, and recreational value of Manatee Springs, the scientists have designated five research objectives:

1. Determine the major source(s) of nutrient enrichment, using geochemical and microbiological tracer techniques
2. Develop baseline surveys of organisms that may be suitable for examin-

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ing the ecological effects of nutrient enrichment in spring waters
3. Determine the occurrence of other contaminants of concern that could be associated with nutrient enrichment in spring waters, such as pharmaceuticals, pesticides, and their degradates
4. Delineate effective recharge areas for Manatee Springs, highlighting areas most vulnerable to contamination on the basis of geologic conditions and current land-use practices
5. Assess how changing land-use practices have affected concentrations of nutrients and other contaminants in the spring.

The multidisciplinary approach has added value to the spring study. The research team has determined that these state-of-the art techniques, which have been highly effective in many diverse hydrogeologic environments, can also be tested for applicability in the complex karst systems found in the Suwannee River basin. The Florida Springs Interdisciplinary Science Study is expected to conduct studies of other spring systems in the Suwannee River Basin during the next several years.

Main spring pool at Manatee Springs.

*USGS hydrologist **Jerry Casile** (Reston, VA) collects spring-water samples for age-dating analysis.*

Subsidence, Fault Activation, and Wetland Loss in the Gulf Region

During the week of April 7 to 11, U.S. Geological Survey (USGS) scientist **Bob Morton** (St. Petersburg, FL) presented a talk entitled "Probable Production-Induced Subsidence, Fault Reactivation, and Wetland Loss in the Gulf Coast Region" at the USGS' National Wetlands Research Center in Lafayette, LA, at the Louisiana Department of Natural Resources in Baton Rouge, and at the U.S. Army Corps of Engineers' New Orleans District office. The presentation summarized the results of a USGS study conducted recently in Louisiana and Texas that has implications for coastal-restoration issues. After his talk, **Bob** was contacted by reporters from the Baton Rouge *Advocate* and the New Orleans *Times-Picayune*, and he was asked to make another presentation in New Orleans on May 13 before a committee that advises the State of Louisiana on coastal-restoration issues. For more information about **Bob's** research, visit URL **http://coastal.er.usgs.gov/gc-subsidence/**.

Gaia's Breath—Methane and the Future of Natural Gas

By Keith A. Kvenvolden

On April 24, 2003, U.S. Geological Survey (USGS) emeritus scientist **Keith Kvenvolden** presented a public lecture at the USGS office in Menlo Park, CA, entitled "Gaia's Breath—Methane and the Future of Natural Gas," about the exhalations of methane from the Earth (Gaia is the Greek goddess of the Earth) and about the future of methane as an energy resource.

Methane is the most abundant organic compound in the Earth's atmosphere, where it acts as a greenhouse gas and thus has implications for global climate change. The total annual source of methane to the atmosphere was estimated in 1988 at about 540 Tg (range of 400-640 Tg [1 teragram = 10^{12} g]) of methane per year by **Ron Oremland** (USGS, Water Resources Discipline) and **Ralph Cicerone** (University of California, Irvine). The sources include (1) enteric fermentation (formed in the intestines of livestock); (2) natural wetlands; (3) rice paddies; (4) biomass burning; (5) termites; (6) landfills; (7) oceans; (8) freshwater; (9) hydrates; (10) coal mining; and (11) gas drilling, venting, and transmission. Sources 1 through 8 produce methane containing mainly modern carbon (with ^{14}C), whereas sources 9 through 11 produce methane containing mainly ancient carbon (without ^{14}C). No-

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***Keith Kvenvolden** observing a termite mound in Australia in 1984.*

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tably absent from these identified sources, except for hydrates, is the contribution of geologically sourced methane from naturally occurring gas seeps, which is now estimated to be about 20 Tg of methane per year, including about 5 Tg of methane per year from mud volcanoes. Sources of atmospheric methane are nearly balanced by a methane sink, whereby methane reacts with hydroxyl in the atmosphere to form carbon dioxide. Large additions of methane to the atmosphere— for example, from the decomposition of gas hydrate—could upset this balance and lead to global climate change.

*Colleague **Jordan Clark** (University of California, Santa Barbara) sampling a mud volcano near Baku, Azerbaijan, in 2002.*

Methane is purposely recovered from the Earth for the energy that it releases during combustion. Natural gas, which is composed mainly of methane, is currently a primary fossil-fuel commodity along with oil and coal. Because methane burns more cleanly to carbon dioxide than do oil and coal, methane is now a preferred energy resource. The total world endowment of conventional natural gas is about 16 quadrillion cubic feet, or about 320,000 Tg of methane, which is being used at a rate of almost 2,000 Tg of methane per year. This conventional endowment of methane may be supplemented in the future with methane from gas hydrate. The hydrogen content of methane (4 hydrogen atoms to 1 carbon atom) is the highest of any organic compound. Thus, methane is a potential source of hydrogen to provide energy for motive power, if cost-effective ways can ever be devised to remove hydrogen from carbon in the methane molecule. Prototype vehicles using hydrogen fuel cells are already being tested as a prelude to a possible future hydrogen economy.❁

"Ice that burns"—ignited methane hydrate.

USGS Scientist Invited to Lecture on the Icelandic Language at Lawrence Middle School in Falmouth, MA

U.S. Geological Survey (USGS) scientist **Richie Williams** (Woods Hole, MA) gave an invited lecture to five 7th-grade English classes at Lawrence Middle School in Falmouth, MA, on May 7, 2003. The topic of his lecture was "Icelandic (Old Norse): One of the Parent Languages of English."

Richie has given similar lectures at elementary and high schools many times in the past; this was his first lecture at a middle school. It was such a hit that the teacher has already signed him up for next year.

Geologic studies conducted in Iceland since 1966 have given **Richie** a long exposure to Icelandic. In fact, he has found that his work requires a well-grounded knowledge of the language. While working for the USGS in Washington, DC, **Richie** studied Icelandic weekly with a member of the staff of the Embassy of Iceland and also took a two-semester course at George Washington University.

Currently, **Richie** is working on three books about Iceland's glaciers with his Icelandic colleague, **Oddur Sigurdsson**. The first book—an illustrated, annotated English translation of a glaciologic treatise written in 1795 by an Icelandic naturalist, **Sveinn Palsson**—will be published in late summer by the nonprofit Icelandic Literary Society (**http://www.hib.is/english/hib.html**).❁

Woods Hole Field Center Invited to Participate in Massachusetts Marine Educators' Weekend Events

By Chris Polloni

Geographic-information-system (GIS) software is an up-and-coming tool for public-school teachers. Many have heard of GIS but have not used it in the classroom. On May 3, as part of an activity for the Massachusetts Marine Educators' weekend special workshops, **Chris Polloni**, computer specialist at the U.S. Geological Survey (USGS)'s Woods Hole Field Center, and **Amy Holt Cline**, environmental-science teacher at Essex Agricultural and Technical High School, teamed up to present an afternoon activity titled "Data Integration in the Gulf of Maine: Using GIS as a Tool to Teach Marine Biology in the Classroom." Massachusetts is an ideal place to use GIS to study the marine environment because it

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is in the heart of the Gulf of Maine watershed. This workshop explained how GIS has been used in a public-school setting to study terrestrial and marine topics in the Gulf of Maine bioregion.

Environmental educators are responsible for keeping students up to date with the current technology being used in the marine and environmental fields. The Massachusetts Curriculum Framework (Massachusetts Department of Education guidelines for developing curricula) has recently included GIS as a skill to be taught. This workshop showed teachers how to get started using free GIS software, USGS data disks, and take-home hands-on activities already used in the classroom.

The USGS activity, held in the Woods Hole Oceanographic Institution's computer lab, provided an overview of mapping technology used to study and map the sea floor. Each participant worked with a copy of the CD-ROM "A Marine GIS Library for Massachusetts Bay" (USGS Open-File Report 99-439, URL **http://pubs.usgs.gov/of/of99-439/**) and a computer with the free ESRI (Environmental Systems Research Institute) GIS browser program called ArcExplorer. This activity provided the participants with hands-on GIS experience, as well as data (including three additional CD-ROMs) that can be used for making maps and performing data analysis in the classroom. All the participants were also provided with relevant World Wide Web links so that they can stay current with this evolving technology and view cutting-edge three-dimensional programs used to study the ocean and the sea floor.

USGS Scientist Invited to Speak at the University of New Hampshire

By Richie Williams

U.S. Geological Survey (USGS) scientist **Richie Williams** (Woods Hole Field Center) gave three invited lectures in the Department of Earth Sciences at the University of New Hampshire on April 16 and 17, 2003. He presented "Human Impact on the Planet: An Earth System Science Perspective and Ethical Considerations" to an environmental-geology class, "Iceland: Dynamic Land of Ice and Fire" to a glacial-geology class, and "The Earth's Cryosphere and Global Environmental Change" to the Environmental Sciences Seminar Series, cosponsored by the Department of Earth Sciences, the Department of Natural Resources, and the Institute for the Study of Earth, Oceans, and Space (EOS).

USGS Participates in Earth Day Celebration

By Dennis Krohn and George Kish

On April 19, the U.S. Geological Survey (USGS) participated in the Earth Day celebration held at Lowry Park in Tampa, FL. Exhibitors included the Sierra Club (event organizer), the Florida Department of Environmental Protection, the Hillsborough County Agricultural Extension Service, the Florida Native Plant Society, the Hillsborough County Environmental Protection Commission, the Florida Yards and Neighborhoods Program, radio station WMNF 88.5FM, the Greyhound Rescue League (who adopt dogs), and the Tampa Parks Department (who provided the location).

The USGS exhibit offered folders of puzzles and games for children, Earth Day 2003 pins, USGS pencils, and information packets on various projects at the USGS offices in St. Petersburg and Tampa. A steady stream of people attended the event, many of whom stopped to observe real-time water-quality data from monitors placed in the nearby Hillsborough River that record temperature, specific conductance, dissolved oxygen, and pH every 15 minutes. Although most of the USGS displays centered on the Hillsborough River, the Tampa Bay Study was also highlighted. In addition, a scale model demonstrated ground-water flow and contamination and saltwater intrusion of water-well systems. Overall, the day was a success, and the public had a firsthand look at some of the work being done by the USGS.

***Patricia Metz** (left) and **Lari Knochenmus** (USGS, Tampa, FL) speak with visitors.*

Florida Oceans Day 2003 at Florida's State Capitol

Dennis Krohn of the U.S. Geological Survey (USGS)'s Center for Coastal and Watershed Studies in St. Petersburg, FL, participated in Florida Oceans Day, held on April 3 at the State Capitol in Tallahassee. Also helping out was **Jane Eggleston** of the USGS' Water Resources District Office in Tallahassee. Florida Oceans Day, sponsored this year by the Florida Ocean Alliance (**http://www.floridaoceanalliance.org/**), is a day when numerous oceanography schools and trade groups set up display booths in the rotunda of the State Capitol. The USGS shared a space this year with **Dave Hastings** from Eckerd College (St. Petersburg, FL) on the 3rd-floor lobby near the Florida Senate. The event was coordinated with field trips for more than 400 8th-grade students from local Tallahassee magnet schools.

Museum of Science and Industry in Tampa, FL, Receives NSF Grant for Exhibit on Natural Disasters

By Dennis Krohn

The Museum of Science and Industry (MOSI) in Tampa, FL, announced on May 12 that it has received a National Science Foundation (NSF) grant for a public museum exhibit on disasters caused by Earth processes. **Melanie Lachs**, grants specialist from the museum, stated that MOSI would be the recipient of a $1.58 million grant over a 3-year period. The U.S. Geological Survey (USGS)'s Center for Coastal and Watershed Studies (CCWS) has been working closely with MOSI on its Disasterville exhibit, and scientific contributions from USGS water and geology specialists formed an integral part of the grant proposal. **Lisa Robbins**, center chief for CCWS, was named to the MOSI Board of Directors last year and will continue to advance the collaboration between the science museum and USGS scientists. Interest in natural hazards at MOSI gained focus last year when the Institute for Business and Home Safety (IBHS) co-located its headquarters on the museum grounds. The Disasterville proposal was a direct result of the IBHS-MOSI partnership. IBHS is an independent research group sponsored by the insurance industry to look at industrywide natural-hazard issues. IBHS members and USGS scientists have a long-standing collaboration on the study of earthquakes, and recent efforts have been put forth to involve IBHS in USGS studies of other types of natural hazard.

Meetings

Phytotechnologies Workshop Cohosted by the USGS and the University of South Florida

By George Kish

George Kish of the U.S. Geological Survey (USGS)'s office in Tampa, FL, cohosted a phytotechnologies workshop at the University of South Florida (USF) on April 11 along with **Bob Brinkmann**, chair of the Department of Environmental Science and Policy at USF. Phytotechnologies are broadly defined as the use of vegetation to contain, sequester, remove, or degrade organic and inorganic contaminants in soil, sediment, surface water, and ground water.

The goals of the workshop were to identify recent or ongoing research within the USGS and USF using plants to remove or reduce contaminants from surface water or ground water and to identify areas for collaborative research.

***George Kish** (left), water-quality specialist at the USGS office in Tampa, FL, and **Robert Brinkmann**, chairman of the Department of Environmental Science and Policy at USF, Tampa.*

George Kish, **Jim Landmeyer** (USGS, Columbia, SC), **Bob Brinkmannn**, **Mark Stewart** (USF, Department of Geology), **Kathleen Carvalho-Knighton** (USF, Department of Environmental Science and Policy–Chemistry, St. Petersburg campus), **Gordon Fox** (USF, Department of Biology), and **Daniel Smith** (USF, Department Civil and Environmental Engineering) participated in the workshop.

The group, which has developed a research agenda and formed an ad hoc committee, plans to prepare several research proposals.

Monitoring Evapotranspiration in West-Central Florida

U.S. Geological Survey (USGS) hydrologists **Amy Swancar** and **John Trommer** (Tampa, FL) and **David Sumner** (Orlando, FL) met with **Michael Hancock** and **Granville Kinsman** of the Southwest Florida Water Management District and **Camilo Gaitan** of the Florida Department of Agriculture and Consumer Services on March 26 to discuss the locations of new evapotranspiration-monitoring sites in west-central Florida. Three sites are in the planning stages in addition to the 15 existing sites within the State. Florida's evapotranspiration-monitoring network, one of the densest in the Nation, provides high-resolution data (collected every 30 minutes) on an important parameter in the hydrologic cycle. **David** described the results of the latest research comparing actual evapotranspiration, reference evapotranspiration, and pan evaporation that he and coauthor **Jennifer Jacobs** of the University of Florida are submitting for journal publication. The meeting participants also discussed the application of a promising new technology using satellite remote sensing to regionalize evapotranspiration estimates in Florida.

Joint Conference on Restoration of the Greater Everglades and Florida Bay Ecosystem

By Heather Henkel

The Greater Everglades Ecosystem Restoration (GEER) Science Conference and the Florida Bay and Adjacent Marine Systems Science Conference were, for the first time ever, held together to provide a joint forum for the exchange of information among scientists. The Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem was conducted from April 13 to 18 at the Westin Innisbrook Resort in Palm Harbor, FL, just 25 miles from Tampa.

The purpose of the conference was to provide a forum for physical, biological, and social scientists to share their knowledge and research results concerning restoration of the greater Everglades and Florida Bay ecosystem. More than 650 people, including scientists from Federal and State agencies, universities, and other science organizations, attended the conference. Several scientists from U.S. Geological Survey (USGS) offices in St. Petersburg, Tampa, Gainesville, and Miami gave talks and poster presentations. In addition, staff from the USGS' South Florida Information Access (SOFIA) Web site (URL **http://sofia.usgs.gov/**) and the Science Applications International Corporation (SAIC) conducted a usability study on the SOFIA Web site and demonstrated SOFIA's new Internet Map Server (IMS) product. **Heather Henkel**, **Tracy Enright**, and **Kathy Pegram** (USGS, St. Petersburg), **Roy Sonenshein** (USGS, Miami), and **Tim Boozer** (USGS, Ocala) helped with the demonstrations.

Heather Henkel *(standing) demonstrates the new Internet Map Server product to* ***Heather Mounts****.*

The USGS produced an Open-File Report containing conference abstracts, as well as an extensive bibliography listing relevant documents produced from 1995 to 2003. The report can be downloaded from the SOFIA Web site at URL **http://sofia.usgs.gov/publications/ofr/03-54/**. A copy of this report was provided to each conference participant.

For more information about this conference, please visit URL **http://sofia.usgs.gov/geer/2003/**.

Web-Site Demonstration for Florida Integrated Science Centers' Information Technology Committee

On March 31, **Trent Faust**, webmaster for the U.S. Geological Survey (USGS)'s Coastal and Marine Geology Program (CMGP), gave a demonstration to the Florida Integrated Science Centers (FISC)'s Information Technology (IT) Committee on the use and functionality of the CMGP Web-site data base. This data base, which has been in operation for 2 years, presents an easy-to-use interface that allows visitors to quickly search a large volume of CMGP's online content spread across four different field-center Web sites. The proposal on the table is to use a similar mechanism and structure for the public FISC Web site, from which member Web sites and top-level Web pages can be accessed. **Charles Boydstun** (Gainesville, FL), **Gail Kalen** (Miami, FL), and **Chi Murray** (St. Petersburg, FL) attended the presentation, and **Rob Wertz** and **Heather Henkel** (St. Petersburg, FL) assisted in the presentation.

USGS Office in St. Petersburg, FL, Tests Bloodmobile Donations

By Karen Morgan

The U.S. Geological Survey (USGS)'s Center for Coastal and Watershed Studies in St. Petersburg, FL, hosted the Florida Blood Services Bloodmobile on April 24. USGS employees have been donating at a location in combination with the University of South Florida (USF). **Karen Morgan** and **Heather Henkel** organized a test at the field center to see whether we could get enough participation to warrant our own stop on a regular basis. Nine pints were collected from 11 donors for this drive. Employees could schedule ahead to avoid waiting in line. Florida Blood Services did its part by offering coupons to donors for complimentary chicken sandwiches or coffee and a bagel. Florida Blood Services provides for the blood needs of patients at Tampa Bay-area medical facilities and the military through volunteer donations (URL **http://www.fbsblood.org/**).

Florida Blood Services Bloodmobile parked in front of the USGS Studebaker Building in St. Petersburg, FL.

USGS' Center for Coastal and Watershed Studies Presents USGS Director with Replica of Patent for SHARQ Instrumentation

By Dennis Krohn

Lisa Robbins, chief of the U.S. Geological Survey (USGS)'s Center for Coastal and Watershed Studies in St. Petersburg, FL, presented USGS Director **Chip Groat** with a plaque commemorating the granting of a patent to USGS scientists **Kimberley K. Yates** and **Robert B. Halley**, inventors of the SHARQ (Submersible Habitat for Assessing Reef Quality). **Kim** and **Bob** conceived and designed the SHARQ to measure the respiration parameters of submerged coral reefs. After its initial deployment, the pup-tent-like instrument has been used on various bottom types, including coral-reef settings in the Caribbean and Hawaii, seagrass beds in Tampa Bay, and shallow mudflats in Florida Bay.

Lisa Robbins *presents USGS Director* ***Chip Groat*** *with a plaque replicating a patent granted to* ***Kim Yates*** *and* ***Bob Halley*** *for the invention of the SHARQ. Photograph courtesy of* ***Hannah Hamilton****.*

U.S. Patent No. US 6,467,424 B1 was granted on October 22, 2002, but **Lisa** waited for the Director's trip to the joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem in Palm Harbor, FL, to present the replica in April 2003. The Director was pleased to accept the award and promised to display the plaque proudly in his Reston office. The original plaque resides at the Center for Coastal and Watershed Studies.

More information about the SHARQ can be found at these URLs: **http://sofia.usgs.gov/publications/ofr/00-166/** and **http://sofia.usgs.gov/publications/ofr/00-361/sharq.html**.

Frequently Downloaded *Marine Geology* Article on El Niño

Elsevier Science recently informed U.S. Geological Survey (USGS) scientist **Abby Sallenger** (St. Petersburg, FL) that a paper of his on erosion during the 1997-98 El Niño was the 16th-most-downloaded paper in the journal *Marine Geology* for the period April-December 2002. (Select Marine Geology under Earth Sciences at **http://earth.elsevier.com/**).

The reference is:

Sallenger, A.H., Krabill, W., Brock, J., Swift, R., Manizade, S., and Stockdon, H., 2002, Sea-cliff erosion as a function of beach changes and extreme wave run-up during the 1997-1998 El Niño: Marine Geology, v. 187, p. 279-297.

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