AOML Keynotes
Miami, Florida
November 1998 | Atlantic Oceanographic and Meteorological Laboratory | Volume 2, Number 10

ERL Increases Educational Outreach Efforts

While not all of the data has been collected, it is apparent that the Environmental Research Laboratories' (ERL) participation in documented K-12 educational outreach activities increased during FY-1998. Estimates based on preliminary reports from the 12 individual laboratories which comprise ERL indicate that more than 10,000 educational tours, talks, presentations, and site visits were conducted by ERL scientists and staff who reached approximately 150,000 school-aged children and educators. These contacts included activities that were as individual as one-on-one tutoring/mentoring sessions and as broadly based as presentations to filled auditoriums. ERL staff gave tours of NOAA aircraft, ships, and laboratories, were members of school boards, helped write curricula for school districts, judged science fairs, provided equipment and materials for classroom lessons, served as mentors and supervisors for student employees, conducted virtual tours, lectured, taught, staffed booths at career fairs, and otherwise participated in a myriad of K-12 education-related activities during the past year. In addition to the official time allocated for K-12 educational outreach by supervisors and ERL Laboratory Directors, a large percentage of the time spent in these efforts was volunteered by community-minded staff members.

HRD's Youngest Scientist Takes Her First Flight

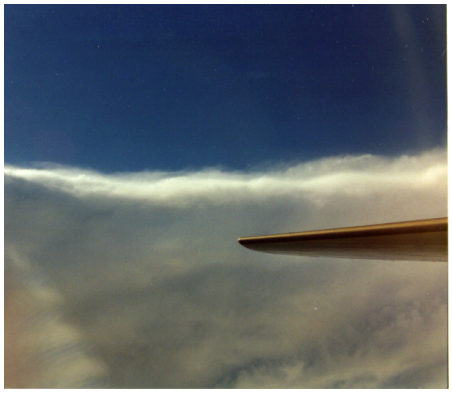
Shirley Murillo

On September 19, 1998 I boarded a NOAA WP-3D aircraft for my first hurricane surveillance flight. We took off from the beautiful island of Barbados to investigate one of the most intriguing weather phenomena, the hurricane, in particular, Hurricane Georges.

Shirley Murillo aboard the NOAA WP-3D aircraft known as the N43RF.

While most of my family and friends think flying into a hurricane is a bit risky, I think of it as a personal achievement. What better way to learn about a hurricane than to go right into one. I must admit I was a little nervous, but I think I was more excited than anything else.

The flight was a 10-hour synoptic surveillance mission, flying in conjunction with the other NOAA WP-3D turboprop aircraft and Gulfstream-IV jet. Our plane was to fly to the northeast of Georges after performing a figure-four pattern through the center of the hurricane. We were scheduled to make three penetrations into the eye and to make an orbit in the eye during our last pass to obtain some spectacular video from the onboard cameras. I watched the monitor in front of me which displayed the winds the aircraft was experiencing. The winds kept increasing, as well as the bumpiness of the flight. Maximum flight level winds reached160 knots. Then all of a sudden, the turbulence stopped. The winds drew near to a calm. Over the headphones, I heard lead project scientist Michael Black say "Wow, you guys have to see this. It's so spectacular!" Indeed it was. We were in the eye of Hurricane Georges. It was the most incredible sight I've ever seen. All around the plane was an outward sloping white wall of clouds. The sky above us was a deep blue and below the ocean waves were enormous. HRD's Peter Dodge was onboard and said that he had never seen such a spectacular eye before. My flight into Hurricane Georges was an amazing experience and something I'll never forget.



Inside the eyewall of Hurricane Georges. The wingtip of the N43RF is visible.

Shirley Murillo, a 1993 MAST Academy High School student intern at AOML, is now a meteorologist with the Hurricane Research Division. She earned her bachelor's degree in meteorology from Florida State University in 1997. Shirley is the third person who has worked at AOML in the Hurricane Research Division as a high school student who later became a permanent AOML employee.

Delegation Helps Design Cruise Line Floating Labs

Shailer Cummings, AOML oceanographer, was a member of a scientific delegation from the Rosenstiel School of Marine and Atmospheric Science that traveled to Turku, Finland this past September to assist with the design of two research laboratories being constructed aboard one of three new Royal Caribbean Cruise Lines "Eagle" class ships. The delegation met with construction personnel at the Kvaerner Massa Ship Yards to review plans for both an oceanographic and an atmospheric laboratory.

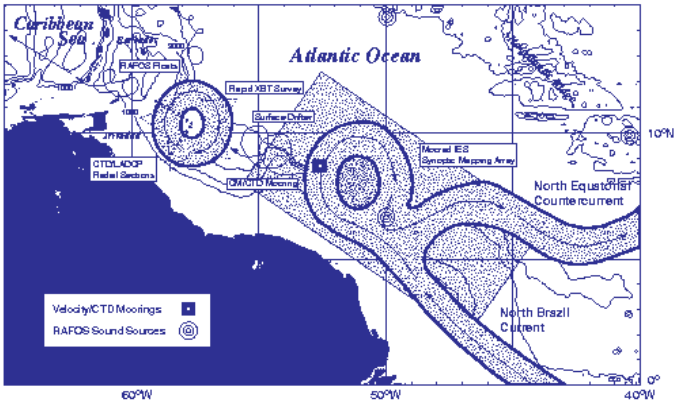
Both laboratories are being designed to include "nearly" autonomous instrumentation to collect baseline data for long-term studies and the infrastructure to support operator-intensive equipment for short-term studies. Although the laboratories will be located on different decks, both will provide flexible space for research equipment. Once the laboratories are operational, visiting scientists will be invited to work aboard ship on a space-available basis. The only foreseeable expense for ship time would be the cost for a state room. The laboratories make it possible to perform continuous data sampling over a consistent cruise track at a minimal cost. The ship's maiden voyage is scheduled for November 2000.

The RCCL's Eagle ships are destined to become the largest cruise ships in the world, each measuring more than a kilometer in length. The three ships will cruise the Caribbean year round and transport an estimated 3,800 passengers each. The ships are expected to be based at the Port of Miami.

Scientists to Study Ring Formation

Silvia L. Garzoli

Scientists from AOML's Physical Oceanography Division, the Rosenstiel School of Marine and Atmospheric Science, and the Woods Hole Oceanographic Institute will study the North Brazil Current retroflection and ring generation process during a research cruise aboard the R/V *Seward Johnson* in November-December 1998. The cruise is the first field experiment of the program entitled "Rings of the North Brazil Current: Their Generation and Role in the Atlantic Meridional Overturning Cell" and is jointly funded by the National Science Foundation and NOAA.



Schematic of NBC retroflection and ring generation showing the region of study and observational program elements. The light shaded area indicates the domain to be mapped with a moored inverted echo sounder array.

The precise mechanisms which contribute to the North Brazil Current's (NBC) ring formation and the structure and dynamics of the rings themselves are not well understood. The purpose of this program is to carry out a comprehensive observational study of the NBC retroflection and NBC ring generation process, and to study the structure and evolution of NBC rings as they propagate northwestward from the NBC retroflection. This research should improve our understanding of the Atlantic Ocean's role in global climate change.

The NBC is a major western boundary current in the tropical Atlantic that transports upper ocean waters northward across the equator. The NBC plays a dual role, first in closing the wind-driven equatorial gyre bounded on the south by the South Equatorial Current (SEC) and on the north by the North Equatorial Countercurrent (NECC), and secondly in providing a conduit for cross-equatorial transport of South Atlantic upper ocean waters as part of the Atlantic meridional overturning cell.

The mean and seasonally varying circulation in the western tropical Atlantic has been described by several authors. During March-June, it is believed that most of the NBC continues northwestward up the coast of South America, eventually entering the Caribbean Sea through the passages of the Lesser Antilles. During the remainder of the year, the NBC separates sharply from the coast at 6°-7°N and curves back on itself (retroflects) to feed the NECC. During this retroflection phase, the NBC occasionally curves back upon itself so far as to pinch off large anticyclonic current rings (see figure above). These features then move northwestward toward the Caribbean, roughly paralleling the South American coastline. NBC ring shedding is thought to account for as much as one-third of the net warm water transport across the equatorial-tropical gyre boundary into the North Atlantic in compensation for the southward export of North Atlantic Deep Water.

Leg 1 of the cruise will depart from Barbados on November 8, 1998. During leg 1 (Barbados to Belem), 16 inverted echo sounders, two sound sources, and two current meter moorings will be deployed. During leg 2 (Belem to Barbados), an intensive ring survey will be performed by launching XBTs to determine the ring center. Once the rings are identified, surface drifters and RAFOS floats will be launched in the interior of the rings. A radial of CTD/LADCP measurements will be performed to study the water mass characteristics inside the rings. Additional information about the program can be obtained from web page www.aoml.noaa.gov/phod/nbc/.

Keynotes can be viewed online in PDF format at the following Internet web site address:
http://www.aoml.noaa.gov/od/keynotes/keynotes.html

Welcome Aboard

Elizabeth Rowe joins the staff of the Ocean Chemistry Division as a data collection technician for the South Florida Ecosystem Restoration, Prediction, and Modeling program.

Travel

James Franklin and **Sim Aberson** attended the Naval Research Laboratory Worskshop in Monterey, California on November 3-6, 1998.

Warren Krug will conduct a SEAS training class for port meteorological officers in Bethesda, Maryland on November 5-6, 1998.

James Hendee will visit with coral researchers at the Australian Institute of Marine Science and the Great Barrier Reef Marine Park Authority in Townsville, Queensland, Australia from November 15-29, 1998. He will give a presentation on the Ocean Chemistry Division's near real-time marine environmental monitoring expert system and also attend the International Tropical Marine Ecosystems Management Symposium.

Gregg Thomas will attend the '98 Ocean Community Conference, sponsored by the Marine Technology Society, in Baltimore, Maryland on November 16-19, 1998.

Congratulations

Clarke Jeffris of the Ocean Chemistry Division will marry Wilma Llanes of Miami, Florida at the Scottish Rite Temple in Miami, Florida on November 8, 1998.

Dr. Palmer Visits Russian Oceanology Institute

Dr. David Palmer, AOML physicist, visited Moscow, Russia, this past October as the guest of Professor L.M. Brekhovskikh and his research group at the P.P. Shirshov Oceanology Institute of the Russian Academy of Sciences. In addition to preparing a draft proposal for a joint U.S./Russian/French research project to develop an acoustic technique for monitoring ocean currents in coastal areas, Dr. Palmer gave two technical presentations. Here are two photographs from his trip.

At a general meeting of the Shirshov Institute's Scientific Council, Dr. Palmer presents a plaque to Professor Lappo, Director of the Institute, in recognition of the common appreciation AOML and the Shirshov Institute share for the ocean.

Drs. David Palmer and Yura Chepurin in Red Square with St. Basil Cathedral in the background.

Farewell

Gerald Momplaisir, Director of the Automated Data Processing Group, resigned from AOML on Friday, October 16, 1998. Gerald, a 10-year veteran of AOML, accepted a project manager position with Ryder Corporation.

Gerald Momplaisir with AOML Deputy Director, Judith Gray.

Mark Bushnell, an oceanographer with the Physical Oceanography Division, resigned from AOML on Friday, October 23, 1998 to accept a position with the National Ocean Service. Mark, a 17-year veteran of AOML, will manage an instrumentation testing and evaluation facility for the Ports Project in Norfolk, Virginia. Best wishes and best of luck to Gerald and Mark for their continued success.

GUEST SPEAKER SEMINAR*

Date	Time	Speaker	Title of Report
November 9, 1998	10:00 a.m.	**Dr. Susan Soloman** NOAA/Aeronomy Laboratory	Visible spectroscopy in the Earth's Atmosphere: From Ozone Depletion to Clouds and Climate.

*Seminars are presented in the first-floor conference room; coffee and doughnuts will be served at 9:45 a.m.

CFC Update

FY-1999 CFC Coordinator Jannette Perez

It's not too late to do a good deed! The deadline for participating in the FY-1999 Combined Federal Campaign is November 15, 1999. Enrollment forms and CFC booklets listing thousands of eligible non-profit charitable organizations in need of financial support are available in the lobby. Contact Jannette Perez, AOML's FY-1999 CFC coordinator, for questions and additional information about the merits of the CFC program at (305) 361-4367 or perez@aoml.noaa.gov.

AEROBICS CLASS

Monday • Wednesday
11:30 a.m.-12:30 p.m.

Friday
11:00 a.m.-12:00 p.m.

1st Floor Conference Room

Contact Ginger Garte for more information

(305-361-4430 or garte@aoml.noaa.gov)

Ethnic Pot Luck Luncheon

to celebrate

HISPANIC HERITAGE

Friday, November 6, 1998

First Floor Lobby

12:00 noon

Participants are asked to please contribute a covered dish to share with others. Sign-up sheets are posted in the main elevator.

Sponsored by AOML's EEO and Morale, Welfare, and Recreation Committees

Happy Halloween!

A few strange and unsavory characters from AOML celebrate Halloween.

Keynotes is published monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions are welcome and should be submitted prior to the last week of each month to ensure inclusion in the following month's edition. Please address all correspondence to Ms. Gail Derr, Office of the Director, 4301 Rickenbacker Causeway, Miami, FL 33149. Contributions may also be submitted by fax at (305) 361-4442 or by email (derr@aoml.noaa.gov).

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Publishing Editor - Gail Derr

The deadline for submitting material for the December issue of *Keynotes* is Friday, November 20, 1998.