

2005 Federal Holidays

New Year's Day...

◊ Friday, December 31

Martin Luther King's Birthday...

◊ Monday, January 17

Washington's Birthday...

◊ Monday, February 21

Memorial Day...

◊ Monday, May 30

Independence Day...

◊ Monday, July 4

Labor Day...

◊ Monday, September 5

Columbus Day...

◊ Monday, October 10

Veterans Day...

◊ Friday, November 11

Thanksgiving Day...

◊ Thursday, November 24

Christmas Day...

◊ Monday, December 26

New Year's Day (2006)...

◊ Monday, January 2

AOML's Voluntary Fleet Expands to Include "Semester at Sea" Ship *Explorer*

AOML has reached an agreement with the administrators of the "Semester at Sea" program to deploy Argo floats and surface drifters from aboard the ship *Explorer* during its upcoming voyages around the world. The *Explorer* joins the fleet of volunteer observing ships that assist AOML in gathering oceanographic observations.

"Semester at Sea" is an academic program jointly sponsored by the Institute for Shipboard Education, the Seawise Foundation, and the University of Pittsburgh. Every semester the *Explorer* embarks upon a 65-100 day voyage that circumnavigates the globe, acting as a state-of-the-art floating campus for hundreds of adventurous undergraduate students. Since 1976, students from more than 1200 national and international institutions have participated in the program.

AOML will now provide scientists aboard selected *Explorer* cruise transects. These scientists will deploy profiling floats and drifters, as well as provide informal lectures about basic oceanography concepts and the rationale and research goals of NOAA's Global Ocean Observing System. The first instruments will be launched in April 2005 during the *Explorer's* spring semester cruise along a transit from Cape Town, South Africa to Salvador, Brazil. The western side of this transect is a sparsely sampled region where data are rarely collected by ships of opportunity. Data collected during the voyages of the *Explorer* will provide much needed coverage in this region and will supplement existing data in other oceanic areas.

AOML has a long history of working in partnership with voluntary observing ships (VOS). Its VOS fleet, which currently includes cargo vessels and luxury cruise liners like the *Explorer of the Seas*, gathers oceanographic observations from instruments installed aboard ship or deploys sensors from aboard ship with the aid of trained ship's crew or ship riders provided by AOML. With their assistance, NOAA is better able to attain the global coverage needed to meet its mission requirements for weather and climate prediction without the prohibitive costs of using research vessels.

The international Argo program has a goal of deploying 3,000 free drifting profiling floats over the global oceans by 2006. The VOS fleet is an important component of this undertaking. Data collected by Argo floats provide continuous monitoring of circulation and climate patterns in the oceans on a global scale. NOAA is one of the chief participants in implementing the ocean-sensing Argo array. The Argo array is part of NOAA's Global Climate Observing System/Global Ocean Observing System housed at AOML within its Physical Oceanography Division.



The ship *Explorer* is now part of the fleet of volunteer observing ships that assist AOML in deploying Argo floats and surface drifters throughout the world's oceans.

Recent AOML Publications*

CARSEY, T.P., and H.E. Willoughby, 2005: Ozone measurements from eyewall transects of two Atlantic tropical cyclones. *Monthly Weather Review*, 133(1):166-174.

GOODWIN, K.D., S.A. COTTON, G. Scorzetti, and J.W. Fell, 2005: A DNA hybridization assay to identify toxic dinoflagellates in coastal waters: Detection of *Karenia Brevis* in the Rookery Bay National Estuarine Research Reserve. *Harmful Algae*, 4(2):411-422.

Key, R.M., A. Kozyr, C.L. Sabine, K. Lee, R. WANNINKHOF, J.L. Bullister, R.A. Feely, F.J. Millero, C. Mordy, and T.-H. PENG, 2004: A global ocean carbon climatology: Results from Global Data Analysis Project (GLODAP). *Global Biogeochemical Cycles*, 18(4):GB40301, doi:10.1029/2004GB002247.

Nuissier, O., R.F. ROGERS, and F. Roux, 2005: A numerical simulation of Hurricane Bret on 22-23 August 1999 initialized with airborne Doppler radar and dropsonde data. *Quarterly Journal of the Royal Meteorological Society*, 131(605):155-194.

SHAJI, C., C. WANG, G.R. Halliwell, and A. Wallcraft, 2005: Simulation of tropical Pacific and Atlantic Oceans using a Hybrid Coordinate Ocean Model (HYCOM). *Ocean Modelling*, 9(3):253-282.

Suvorov, A.M., V.N. Eremeev, V.N. Belokopytov, A.H. Khaliulin, E.A. Godin, A.V. Ingerov, D.R. PALMER, and S. Levitus, 2004: Digital atlas: Physical oceanography of the Black Sea, In *Environmental Control Systems*, V.N. Eremeev (ed.). National Academy of Science of Ukraine, Sevastopol, 125-129.

WANG, C., 2005: Subthermocline tropical cells and equatorial subsurface counter-currents. *Deep-Sea Research, Part 1*, 52(1):123-135.

Willoughby, H.E., and M.E. RAHN, 2004: Parametric representation of the primary hurricane vortex, Part I: Observations and evaluation of the Holland (1980) model. *Monthly Weather Review*, 132(12):3033-3048.

Wu, C.-C., P.-H. Lin, and S.D. ABERSON, 2005: Typhoon surveillance in northwestern Pacific. *Vaisala News*, 167:24-25.

*Names of AOML authors appear in capital letters.

New Instruments Improve Coral Reef Monitoring

Scientists with AOML's Ocean Chemistry Division and the Caribbean Marine Research Center installed four pulse amplitude modulated (PAM) fluorometer heads at North Norman's Patch Reef near Lee Stocking Island, Bahamas this past January. The PAM fluorometers measure photosynthetic efficiency and will provide the first hourly (near real-time) direct measurements of coral fluorescence yield. Corals and symbiotic zooxanthellae show a reduction in fluorescence efficiency during periods of excessive sunlight, high sea surface temperatures, and/or increased carbon dioxide levels.

The new instruments will aid scientists by alerting them to environmental conditions that stress coral reefs and cause coral bleaching events weeks in advance of their actual occurrence. They become part of the suite of meteorological and oceanographic sensors that comprise the Coral Reef Early Warning System (CREWS) test-bed station at Lee Stocking Island. Two new conductivity-temperature-depth (CTD) units and a biospherical light sensor have also been added to the automated monitoring station.

While long-term data and corresponding field observations are needed to make more accurate predictions of bleaching events, preliminary results from the instruments "look very promising," according to AOML principal investigator Jim Hendee. Researchers plan on deploying similar instrument packages during 2005 at the CREWS stations located at Heron Island, Great Barrier Reef (along the northeast coast of Australia), and La Parguera, Puerto Rico.

Installation of the instruments is part of NOAA's Coral Health and Monitoring Program (CHAMP). The CHAMP effort is mandated to install CREWS stations at all major U.S. coral reef sites and at other foreign reef areas under cooperative agreements by 2010.

Erik Stabenau of AOML precisely positions a PAM fluorometer head to a coral colony of *Siderastrea sideraea*.

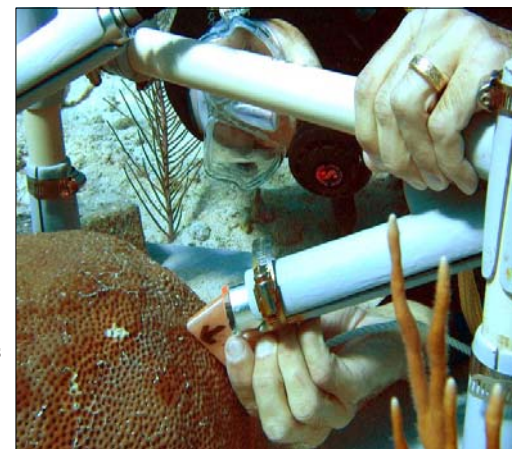
Photos by Erich Mueller, Caribbean Marine Research Center



Erik Stabenau of AOML and Mark Warner of the University of Delaware position a pulse amplitude modulated (PAM) fluorometer stand before placing the heads onto the coral species *Agaricia*.



Jim Hendee of AOML untangles Kevlar-covered PAM fluorometer cables before weighting the power canister to the ocean bottom.



NOAA's FY-2005 Security Awareness Training Course must be completed by all federal, joint institute, and contract employees by March 4th. Visitors on site for more than 30 days are also required to complete the course, which can be accessed online at: <http://noaa.learnsecuritywith.us/>

Panel Releases Brevard County Nutrients Report

An expert panel comprised of scientists with AOML's Ocean Chemistry Division, the Environmental Protection Agency, and the University of Miami's Rosenstiel School released its findings about the nutrient levels in the Brevard County, Florida, surf zone this past January. The panel's full report can be found on the AOML web site at www.aoml.noaa.gov/spotlight/REPORT_21jan05-1.pdf.

The Brevard County Nearshore Ocean Nitrification Analysis project was prompted by public concern regarding the possibility of elevated nutrient levels in the Brevard County coastal zone and their impacts upon nearshore ecology and public health. Brevard County officials contacted Dr. John Proni, Director of AOML's Acoustics Research Group, to assemble an expert panel to critically assess the issue.

The seven-member panel was tasked with reviewing scientific data and literature to answer a series of questions aimed at determining the existence of elevated nutrient levels along Brevard County beaches, as well as evaluating methods for detecting nutrient sources and the impact of cruise and casino vessels. Additionally, the panel was asked to make recommendations for future monitoring and research efforts.

Although the panel found that high-quality scientific data for the Brevard County coastal regions were quite limited, it concluded, after extensive analysis, that nutrient levels were not elevated and that nutrient concentrations did not pose a direct threat to public health. The panel also found no evidence of elevated bacterial (sewage-indicating) levels in numerous samples taken within the Brevard County surf zone. Furthermore, red tide blooms, caused by the organism *Karenia brevis*, were found to be unrelated to nearshore coastal nutrients along Brevard County beaches.



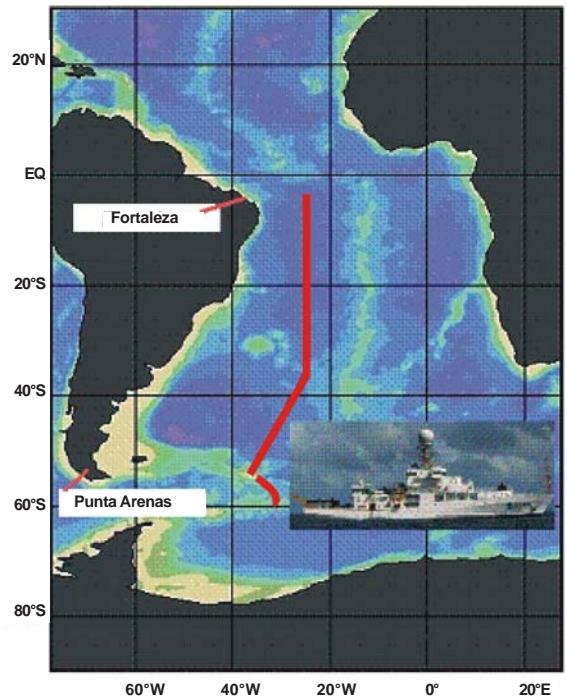
Recycle dry cell household batteries, lithium batteries, and small wet cell batteries at AOML by placing them in the plastic barrels located in the basement. Please do NOT drop off old car batteries. *AOML Safety Committee*

Repeat Hydrography Cruise Assesses Decadal CO₂ and Tracer Levels in South Atlantic

AOML investigators were members of a large group of scientists and technicians that sailed aboard the NOAA Ship *Ronald H. Brown* this past January to participate in an interdisciplinary research cruise of the Repeat Hydrography Program. During the 45-day cruise from Punta Arenas, Chile to Fortaleza, Brazil, the group conducted an aggressive program of atmospheric and water column sampling in the South Atlantic along hydrographic transects from 60°S to 4°S. Rik Wanninkhof, an oceanographer with AOML's Ocean Chemistry Division, and Scott Doney of the Woods Hole Oceanographic Institution served as co-chief scientists.

The South Atlantic cruise was undertaken as part of a series of repeat hydrography sections to monitor decadal inventories of carbon dioxide (CO₂), heat, and freshwater and their transports in the ocean. Observations obtained during the 1990s by the World Ocean Circulation Experiment/Joint Global Ocean Flux Study provided the primary baseline measurements for these parameters. A research cruise conducted by NOAA in July-August 1991 also gathered a full suite of inorganic carbon and hydrographic measurements in roughly the same geographic area of the South Atlantic. Data from the current cruise should thus provide the first comprehensive view of changes in anthropogenic CO₂ inventories and hydrographic parameters in the region over the last decade.

The Repeat Hydrography Program focuses on the need to assess the ocean's biogeochemical cycle in response to natural and/or anthropogenic activities and to study physical and hydrographic changes occurring in the ocean on a decadal time scale. Data obtained from monitoring the changing patterns of CO₂ support the development of models that will improve forecasting skill of the oceans and global climate system. Additionally, the data also provide a means of tracking the decadal invasion of anthropogenic CO₂, chlorofluorocarbons, and other tracers into intermediate and deep water and assist in determining the variability of the inorganic carbon system and its relationship to biological and physical processes. The program is jointly funded by NOAA's Office of Global Programs and the National Science Foundation in support of the U.S. CLIVAR and U.S. Carbon Cycle programs.



Track of the January-February 2005 South Atlantic Repeat Hydrography Program cruise from Punta Arenas, Chile to Fortaleza, Brazil.

LifeWorks—Federal Employee Assistance Program

1-877-234-5151 (English); 1-888-732-9020 (Spanish); 1-800-999-3004 (TTY/TDD)

LifeWorks is an employee assistance program offered to federal employees through the Department of Commerce. It provides confidential, short-term counseling and referral services to assist federal employees in achieving a balance between their professional and personal responsibilities and/or challenges. LifeWorks offers free, 24-hour service, seven days a week. Visit the LifeWorks web site at www.lifeworks.com to access a wealth of information and online resources about financial and legal issues, marital and family concerns, emotional and physical well being, alcohol-substance abuse, and more. Enter "NOAA" as the organization name or user ID and "5018" as the password.

Department of Commerce service certificates were presented to the following individuals at the December 10, 2004 AOML Awards Ceremony in honor of their years of continuous, full-time federal employment:

- 10 years *Molly Baringer*
Joseph Bishop
Christopher Landsea
Tsung-Hung Peng
- 15 years *Steven Feuer*
Janet Roseli
- 20 years *Sim Aberson*
James Farrington
John Gamache
M. Edward Rahn
Sandra Taylor
- 25 years *Thomas Carsey*
Peter Dodge
Neal Dorst
Michael Farmer
Judith Gray
Frank Marks
Mayra Pazos
- 30 years *Jules Craynock*
Shailer Cummings
Evan Forde
Gloria Lockett
Carlisle Thacker
- 35 years *Peter Black*

First Aid/CPR-AED* Training Class



March 1, 2005

9:00 a.m. – 4:00 p.m.

First-Floor Conference Room

Contact Scott Stolz to register
or for more information

305-361-4544

Scott.S.Stolz@noaa.gov

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Awards Ceremony Honors Achievements of Staff

AOML celebrated the achievements of its staff members at an awards ceremony held in conjunction with the annual Holiday Party on December 10th. Congratulations to the following individuals who were recognized:

Sim Aberson – In recognition of receiving a 2003 Presidential Early Career Award for Scientists and Engineers.

Gregory Banes, Judith Gray, and Joseph Pica – In recognition of receiving a 2003 Federal Energy and Water Management Award.

Michael Black (with James Franklin [NHC]) – In recognition of receiving a U.S. Department of Commerce Gold Medal.

Michael Black (with Krystal Valde and James Franklin [NHC]) – In recognition of receiving the 2004 Banner I. Miller Award from the American Meteorological Society.

Hector Casanova – In recognition of receiving a Unit Citation award from NOAA's Office of Marine and Aviation Operations.

Hector Casanova – In recognition of his promotion in the NOAA Corps to the rank of Lieutenant Junior Grade.

Yeun-Ho Daneshzadeh, Reyna Sabina, and Claudia Schmid – In recognition of receiving a 2004 NOAA Administrator's Award.

Neal Dorst – In recognition of being named the November 2004 Employee of the Month by NOAA's Office of Oceanic and Atmospheric Research.

Elizabeth Forteza and Xiangdong Xia – In recognition of their contributions to the AOML team that won a 2004 NOAA Administrator's Award (CIMAS component of team).

Elizabeth Forteza – In recognition of being named the June 2003 Research Team Member of the Month by NOAA's Office of Oceanic and Atmospheric Research.

Howard Friedman – In recognition of receiving a U.S. Department of Commerce Bronze Medal (member of a group award for meeting facilitators).

Silvia Garzoli – In recognition of receiving a 2004 Research Employee of the Year Award by NOAA's Office of Oceanic and Atmospheric Research.

Jeffrey Judas – In recognition of his promotion in the NOAA Corps to the rank of Lieutenant.

Christopher Landsea – In recognition of being named the August 2003 Employee of the Month by NOAA's Office of Oceanic and Atmospheric Research.

Nirva Morisseau-Leroy – In recognition of receiving the Women of Achievement Award from the Career Communications Group.

Shirley Murillo – In recognition of receiving the Young Scientist-Rising Star Award by the Career Communications Group.

Shirley Murillo – In recognition of receiving a runner up certificate for the William A. Jump Memorial Foundation Award.

Joseph Pica – In recognition of receiving the 2003 NOAA Corps Junior Officer of the Year Award.

Rik Wanninkhof – In recognition of receiving a FY-2003 Outstanding Scientific Paper Award from NOAA's Office of Oceanic and Atmospheric Research [Feely, R.A., C.L. Sabine, T. Takahashi, and R. Wanninkhof, 2001: Uptake and storage of carbon dioxide in the oceans: The global CO₂ survey. *Oceanography*, 14(4):18-32].



Michael Black receives an AOML certificate of merit to commemorate his having been the recipient of a U.S. Department of Commerce Gold Medal and the American Meteorological Society's 2004 Banner I. Miller Award.

February is National African-American History Month

Farewell

Konstantin Korotenko, a National Research Council Senior Research Associate, departed AOML in January after having worked the past year with Dr. Carlisle Thacker of the Physical Oceanography Division on developing new approaches for estimating salinity profiles in the upper ocean. Konstantin has accepted a faculty position with Dartmouth College in Hanover, New Hampshire.

Anjali Sardeshmukh, a technician working with Dr. Kelly Goodwin in the Ocean Chemistry Division's Environmental Microbiology Laboratory, departed AOML in January. Anjali has returned to Florida International University to attend classes and begin an internship program focused on public health.

Welcome Aboard

Randy Bossarte joined the staff of the NOAA Miami Regional Library located at AOML in January as an assistant librarian. Randy will work with Librarian Linda Pikula and is available for assistance with inter-library loans, reference searches, and web-related services. Randy holds a Masters degree in library and information sciences from Florida State University.

Humberto Guarin joined the staff of the Physical Oceanography Division in January as an electrical engineer working through CIMAS. He will assist David Bitterman with all aspects of the engineering efforts within the Division. He will also work with Division investigators to design and develop new oceanographic instruments and systems, as well as maintain and improve the instruments currently in use. Humberto holds a doctoral degree in engineering from the University of Miami's Rosenstiel School.

Xiaolan Huang joined the staff of the Ocean Chemistry Division in January as a CIMAS post-doctoral fellow. Xiaolan received his doctoral degree in soil nutrient chemistry at the Hebrew University of Jerusalem in Israel. He will be working with Dr. Jia-Zhong Zhang in support of a project on sedimentary phosphorus cycling in Florida Bay.

Visiting Scientist Collaborates on Climate Research

Dr. Dongxiao Wang, a leading scientist with the Key Laboratory for Tropical Marine Environmental Dynamics, South China Sea Institute of Oceanology, Chinese Academy of Sciences, began a five-month visit to AOML in November 2004. Dr. Wang is collaborating with Dr. Chunzai Wang and other scientists with AOML's Physical Oceanography Division on research related to ocean-atmosphere interaction and climate variability in the South China Sea and western Pacific Ocean. An additional research topic of mutual interest includes the impacts of the North Atlantic Oscillation/Arctic Oscillation on northern hemisphere surface air temperatures. The collaboration is the result of a delegation of Physical Oceanography Division scientists that visited China in June 2004 under the leadership of Dr. Silvia Garzoli.



Dr. Dongxiao Wang

Congratulations

Sim Aberson, a research meteorologist with AOML's Hurricane Research Division, is the recipient of the 2005 GLBT (Gay-Lesbian-Bisexual-Transgender) Scientist Award from the National Organization of Gay and Lesbian Scientists and Technical Professionals (NOGLSTP). The annual GLBT award honors a scientist or educator that has made valuable contributions in his or her field and recognizes sustained contributions in design, production, management, education, or research. Sim was recognized for his outstanding technical achievements that include research which has led to significant improvements in tropical cyclone forecasts, as well as for leadership and service within the GLBT community. In addition to having served as a member of NOAA's Diversity Committee and the American Meteorological Society's Board on Women and Minorities, Sim currently chairs the Atmospheric Sciences Caucus of the NOGLSTP.

Jason Dunion, a CIMAS research scientist working with AOML's Hurricane Research Division, is the recipient of NOAA's 2005 David Johnson Award. The award honors young professionals who have developed innovative uses of Earth observation satellite data that can be used operationally to assess and predict atmospheric, oceanic, or terrestrial conditions. Jason was recognized for his role in the development of several new satellite products derived from the GOES satellites, including new multi-spectral satellite imagery for tracking the Saharan Air Layer and its interactions with Atlantic tropical cyclones, shortwave IR cloud-drift winds for improved detection of low-level winds at night, and several satellite-derived analysis tools for use in forecasting tropical cyclones. These various new types of satellite imagery and analysis tools are available in real-time and provide valuable information to forecasters at NOAA and other forecast centers around the world.

Shirley Murillo, a meteorologist with AOML's Hurricane Research Division, has been appointed to chair the American Meteorological Society's (AMS) Board on Women and Minorities. Shirley assumed her new duties following the Board's annual meeting (January 2005) in San Diego, California. She will serve a three-year term and succeeds outgoing Board chairman Howard Friedman, Deputy Director of the Hurricane Research Division. The Board on Women and Minorities examines workplace issues, including educational and professional opportunities, that affect those employed in the atmospheric and related sciences for all segments of the Society, with special emphasis on women, minorities, and the disabled.



As of December 31, 2004, NOAA's standard electronic file interchange format for administrative business processes is **.doc** for word processing documents, **.xls** for spreadsheets, and **.ppt** for general presentation graphics. Finished documents may also be interchanged in the **.pdf** format.

Travel

Douglas Anderson, George Berberian, Robert Castle, Charles Fischer, Benjamin Kates, Christopher Landgon, Esa Peltola, and Rik Wanninkhof participated in a research cruise aboard the NOAA Ship *Ronald H. Brown* from Punta Arenas, Chile to Fortaleza, Brazil on January 11-February 24, 2005.

Judith Gray attended a planning meeting for the Gulf of Mexico Coastal Ocean Observing System (GCOOS) Regional Association in New Orleans, Louisiana on January 24-26, 2005. She also attended a kickoff meeting for the Coastal Storms Program-Southern California Pilot Experiment in San Diego and Long Beach, California on February 15-17, 2005.

Kelly Goodwin and Michael LaGier attended an Alliance for Coastal Technologies workshop entitled "Genetic Sensors for Environmental Water Quality" in St. Petersburg, Florida on January 5-7, 2005.

Howard Friedman, Judith Gray, Christopher Landsea, Shirley Murillo, and Krystal Valde attended the American Meteorological Society's 85th Annual Meeting in San Diego, California on January 9-13, 2005.

James Hendee, Erik Stabenau, Jeffrey Absten, and Michael Jankulak attended the first session of the Third Think Tank program for coral reef researchers in Lee Stocking Island, Bahamas on January 17-21, 2005. James Hendee, Erik Stabenau, John Proni, Tsung-Hung Peng, and Louis Florit attended the second session on January 31-February 4, 2005.

Derrick Snowden attended a SEAS (Shipboard Environmental Acquisition System) meeting at the Scripps Institution of Oceanography in La Jolla, California on January 18-20, 2005.

Robert Molinari attended a Steering Committee meeting of the international African Monsoon Multidisciplinary Analyses (AMMA) Program in Paris, France on January 24-26, 2005.

Jules Craynock participated in the annual NOAA Diving Safety Board meeting in Key West, Florida on January 31-February 4, 2005.

Happy Holidays 2004



photos courtesy of Michael Black

Holiday Giving Program Aids Hurricane Victims

AOML's annual Holiday Giving Program benefited 22 families living in an area of Freeport, Bahamas, known as Pinder's Point. During the summer of 2004, Pinder's Point was severely impacted by the passage of Hurricanes Frances and Jeanne. Recovery efforts in the economically devastated town are ongoing as residents struggle to rebuild their lives and community. With the assistance of program coordinator Evan Forde, holiday contributions were used to purchase bulk quantities of food which were shipped to Freeport, repackaged, and distributed on New Year's Eve. Thankful recipients, surprised by the generosity of strangers from far away, expressed their gratitude.

Keynotes is published bi-monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions and/or comments are welcome and may be submitted via email (Gail.Derr@noaa.gov), fax (305) 361-4449, or mailing address: NOAA/AOML, *Keynotes*, 4301 Rickenbacker Causeway, Miami, FL 33149.

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