

Keynotes

November-December 2003

Atlantic Oceanographic and Meteorological Laboratory

Volume 7, Number 6

Safety Committee Formed

AOML has formed a new laboratory-wide Safety Committee to reinforce and build upon the basic philosophy of "Safety First" in the workplace. The following Committee members have been named; they will assist in distributing safety standards for their designated area of interest:

Safety Committee Chair

Judy Gray

Union

Peter Dodge

Facility

Greg Banes

CIMAS

Alberto Mestas-Nunez

Large Ships

To be announced

Small Boats

Ryan Smith

Contract/Volunteer Observing Ships

Bob Roddy

Diving

Jules Craynock

Aircraft

Sean White

Laboratories

Shari Yvon-Lewis

A draft version of AOML's *Safety Policy and Principles* document is currently in review by Committee members. Once in final form, the document will appear on AOML's intranet site for feedback from all employees.

An all-hands meeting regarding safety issues will be held in the near future.

Only two months have passed since I formally assumed the job of Acting Director. Taking over some of the reorganization-related responsibilities during the summer was a very good idea on Kristina's [Katsaros] part, although I'm not sure my wife agreed. That head start enabled me to "hit the ground running."

While I miss daily contact with Ocean Chemistry and Physical Oceanography Division colleagues (it seems to be a dreary haul for all but the most determined to get up three long flights of stairs), the denizens of the fifth floor have welcomed me. I am truly grateful for the warm reception I have been given. With time, they may even acclimate to their new neighbor's boisterous energy level and chronic impatience.



None of us is entirely immune from the anxiety induced by the ever-changing rumors (and realities) associated with new budget formulation structures and the laboratory consolidation study. Nonetheless, I truly believe that AOML will prevail and that this time of change is equally a time of opportunity. A community like ours that is able to adapt to a rapidly changing environment can evolve and prosper. Our shared flexibility, diversity, and persistence will win out.

That said, I want to take this occasion to thank all of you for the unflagging and enthusiastic support I have received to date. It is more than welcome; it is absolutely essential. During my tenure, you can be assured I will be working hard not only on the political front but also to reinforce AOML's well-deserved reputation for delivering outstanding science relevant to socially important issues, from elucidating the ocean-climate link, to improving hurricane forecasts, to assuring a healthy, sustainable coastal ocean ecosystem.

The holiday season is now upon us and we all need to focus on what is truly important, our friends and families. Nothing any of us accomplishes is as important as taking time, whatever time is needed, to "do it right." I certainly intend to (albeit remaining 24:7 electronically available). I wish you all the Happiest of Holidays.

Peter Ortner



AOML is a research laboratory of NOAA's Office of Oceanic and Atmospheric Research located on Virginia Key in Miami, Florida



Hurricane Season Is Over!

The 2003 Atlantic hurricane season officially ended on November 30th. The six-month long season produced 14 tropical storms, seven of which became hurricanes. Three of the hurricanes, Fabian, Isabel, and Kate, were classified as major (wind speeds of at least 111 mph). An average season produces 10 named storms and six hurricanes.

NOAA's team of hurricane experts accurately predicted in May and then again in August, as the season approached its peak period, that the 2003 season would be marked by above-normal levels of storm activity. Long-term wind, air pressure, and ocean temperature patterns all contributed to making conditions ripe for a busy year.

The season began with an early start. Tropical Storm Ana developed southwest of Bermuda on April 21st, well ahead of the June 1st hurricane season start date. Ana became the first tropical storm on record for the month of April. Tropical Storm Bill was the season's first storm to impact the United States, coming ashore along the eastern coast of Louisiana on June 30th. The remnants of Tropical Storm Nicholas, the season's final system, moved across the Florida peninsula in early November.

In total, five tropical storms (Bill, Claudette, Erika, Grace, and Henri) affected the United States with damaging winds, heavy rains, and widespread flooding. Long-lasting Hurricane Isabel, the first category 5 hurricane in the Atlantic basin since 1998, also impacted the United States. Isabel carved a path of destruction from eastern North Carolina northward to New York State, causing over a billion dollars in damages along the way.

On a more positive note, the 2003 hurricane season yielded a wealth of data about the intense ocean surface winds and sea swell found in tropical cyclones. Investigators with AOML's Hurricane Research Division and their colleagues coordinated several data-gathering reconnaissance missions, particularly in major Hurricanes Fabian and Isabel, using an assortment of sensors and new, more accurate instruments. The data they collected should advance understanding of the physical processes that cause the extreme winds and heavy precipitation found in hurricanes.

Happy Holidays!

Newly Designed CREWS Station Up and Running

The design upgrade of the Coral Reef Early Warning System (CREWS) station located near Lee Stocking Island, Bahamas has been completed. The new CREWS station is fully operational and making daily and hourly data reports of wind speed, wind direction, barometric pressure, air temperature, water temperature, salinity, ultraviolet (305, 330 and 380 W/m²) radiation above and below the water surface, and photosynthetically available radiation, also above and below the water surface. The data reports can be viewed on the Coral Health and Monitoring Program web site at http://www.coral.noaa.gov/crw/real_data.shtml.

Onsite installation of the updated station was a collaborative effort that involved personnel from AOML's Ocean Chemistry Division (OCD) (Michael Shoemaker, Jules Craynock, Clarke Jeffris, James Hende, Jeffrey Absten, and NOAA Corps Officer Jeffrey Judas), Skeet Perry (contractor), John Halas of Environmental Moorings International, and Kareen Schnabel of the Caribbean Marine Research Center. OCD's Louis Florit and Monika Gurnee provided computer programming and Web support for the effort from AOML.

CREWS stations are a component of the Coral Reef Watch program, which uses remote sensing, computational algorithms, and artificial intelligence tools to monitor, model, and report physical environmental conditions that adversely influence coral reef ecosystems.



Virginia Key Beach Park Restoration Begins

A group of AOML employees attended the groundbreaking ceremonies for restoration of Virginia Key Beach Park on November 7th. The Park is located off the Rickenbacker Causeway immediately behind AOML and the National Marine Fisheries Service's Southeast Fisheries Science Center.

Officially opened in August 1945, the Park was known as the "Colored Only Beach," the only beach in Dade County legally available to African Americans during the era of racial segregation. The Park remained segregated throughout the 1950s and into the 1960s. The City of Miami closed the Park in 1982, citing the high cost of maintenance and operations.

Plans for private development of the Park's 82.5 acres of pristine beachfront property in 1999 prompted a concerned group of Miami citizens to vigorously appeal to the City Commission. As a result, the Commission established the Virginia Key Beach Park Trust, headed by M. Athalie Range, a long-time community activist and former patron of the Park. The Trust is dedicated to preserving and restoring the Park to provide the community with a beautiful beach for swimming and water activities, as well as a meeting place for family and corporate events.

The site was placed on the National Register of Historic Places in August 2002 and given a Florida Historical Marker. Restoration activities are expected to be completed in 2005-2006. Chairperson Range guarantees that no sign will ever exclude any group or individual from enjoying the Park. AOML welcomes its new neighbor.



AOML employees Lloyd Moore, Gail Derr, Joyce Berkeley, Judy Gray, Peter Ortner, and Gladys Medina on the grounds of the Virginia Key Beach Park.

Tropical Atlantic Dynamics Highlighted in New Book

Gustavo Goni, an oceanographer with AOML's Physical Oceanography Division, and Paola Malanotte-Rizzoli, of the Massachusetts Institute of Technology, are the editors of a new book entitled *Interhemispheric Water Exchange in the Atlantic Ocean*. The book was published in November 2003 by Elsevier Science, as part of their Elsevier Oceanography Series (No. 68, ISBN 0-444-51267-5, 524 pp.).

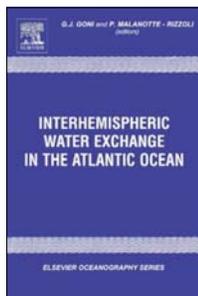
Recent studies have demonstrated that the tropical Atlantic Ocean is a critical region for processes that maintain the meridional overturning circulation, which plays a crucial role in long-term atmospheric climate variability. *Interhemispheric Water Exchange in the Atlantic Ocean* explores the dynamics of the tropical Atlantic, focusing on the interhemispheric and inter-gyre exchanges of heat, salt, and freshwater.

Processes that affect the flow of water mass and heat between the southern and northern hemispheres in the upper few hundred meters of the tropical Atlantic are emphasized. Understanding the dynamics of these processes, and of those associated with ocean circulation or surface signals, is essential to better evaluate their contribution to interhemispheric mass exchange.

The book presents a thorough picture of the current state of knowledge of the interhemispheric interactions occurring in the tropical Atlantic. It covers in situ and satellite observations and modeling. Special attention is also given to the warm, salty anticyclonic rings shed by the North Brazil Current, known to have broad impact upon interhemispheric water mass transfer.

Each of the book's 19 chapters underwent anonymous peer review by two referees, rigorously following the review process of international journals. AOML investigators authored and/or co-authored several of the book's chapters (see "Recent AOML Publications," this page) and also served as anonymous reviewers, stressing the importance the Laboratory places on research in the tropical Atlantic.

Stop by Gustavo's office or the Library at AOML to view and/or borrow the book.



Recent AOML Publications (October-December 2003)*

- BLACK, R.A., G.M. Heymsfield, and J. Hallett, 2003: Extra large particle images at 12 km in a hurricane eyewall: Evidence of high-altitude supercooled water? *Geophysical Research Letters*, 30(21):2124, doi:10.1029/2003GL017864.
- Chung, S.-N., K. Lee, R.A. Feely, C.L. Sabine, F.J. Millero, R. WANNINKHOF, J.L. Bullister, R.M. Key, and T.-H. PENG, 2003: Calcium carbonate budget in the Atlantic Ocean based on water column inorganic carbon chemistry. *Global Biogeochemical Cycles*, 17(4):1093, doi:10.1029/2002GB002001.
- Franca, C., I. Wainer, A.R. de Mesquita, and G.J. GONI, 2003: Planetary equatorial trapped waves in the Atlantic Ocean from TOPEX/POSEIDON altimetry. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 213-232.
- Garraffo, Z.D., W.E. Johns, E.P. Chassignet, and G.J. GONI, 2003: North Brazil Current rings and transport of southern waters in a high resolution numerical simulation of the North Atlantic. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 375-409.
- GARZOLI, S.L., A. Ffield, and Q. YAO, 2003: North Brazil Current rings and the variability in the latitude of the retroflection. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 357-373.
- GONI, G.J., and W.E. Johns, 2003: Synoptic study of warm rings in the North Brazil Current retroflection region using satellite altimetry. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 335-356.
- Halliwell, G.R., R.H. Weisberg, and D.A. MAYER, 2003: A synthetic float analysis of upper-limb meridional overturning circulation interior ocean pathways in the tropical/subtropical Atlantic. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 93-136.
- Jiang, M.-S., F. Chai, R.C. Dugdale, F.P. Wilkerson, T.-H. PENG, and R.T. Barber, 2003: A nitrate and silicate budget in the equatorial Pacific Ocean: A coupled physical-biological model study. *Deep-Sea Research, Part II*, 50(22-26):2971-2996.
- Johns, W.E., R.J. Zantopp, and G.J. GONI, 2003: Cross-gyre transport by North Brazil Current rings. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 411-441.
- KAPLAN, J., and M. DeMaria, 2003: Large-scale characteristics of rapidly intensifying tropical cyclones in the North Atlantic basin. *Weather and Forecasting*, 18(6):1093-1108.
- KATSAROS, K.B., A. MESTAS-NUNEZ, A. Bentamy, and E.B. FORDE, 2003: Wind bursts and enhanced evaporation in the tropical and subtropical Atlantic Ocean. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 463-474.
- Macdonald, A.M., M.O. BARINGER, R. WANNINKHOF, K. Lee, and D.W.R. Wallace, 2003: A 1998-1992 comparison of inorganic carbon and its transport across 24.5°N in the Atlantic. *Deep-Sea Research, Part II*, 50(22-26):3041-3064.
- MAYER, D.A., M.O. BARINGER, and G.J. GONI, 2003: Comparison of hydrographic and altimeter based estimates of sea level height variability in the Atlantic Ocean. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 23-48.
- MOLINARI, R.L., S. BAUER, D.P. SNOWDEN, G.C. Johnson, B. Bourles, Y. Gouriou, and H. Mercier, 2003: A comparison of kinematic evidence for tropical cells in the Atlantic and Pacific Oceans. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 269-286.
- PENG, T.-H., R. WANNINKHOF, and R.A. Feely, 2003: Increase of anthropogenic CO₂ in the Pacific Ocean over the last two decades. *Deep-Sea Research, Part II*, 50(22-26):3065-3082.
- SCHMID, C., Z.D. Garraffo, E. JOHNS, and S.L. GARZOLI, 2003: Pathways and variability at intermediate depths in the tropical Atlantic. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 233-268.
- SNOWDEN, D.P., and R.L. MOLINARI, 2003: Subtropical cells in the Atlantic Ocean: An observational summary. In *Interhemispheric Water Exchange in the Atlantic Ocean*, G.J. Goni and P. Malanotte-Rizzoli (eds.). Elsevier Oceanography Series, 68 (ISBN 0-444-51267-5), 287-312.

*Names of AOML authors appear in capital letters.

Welcome Aboard

Heesook Kang joins the staff of the Physical Oceanography Division as a Cooperative Institute for Marine and Atmospheric Studies (CIMAS) post-doctoral scientist. She will be working with Dr. Carlisle Thacker on a project funded by the National Oceanographic Partnership Program (NOPP) to assimilate data into HYCOM, the HYbrid Coordinate Ocean Model.

Congratulations

Howard Friedman, a meteorologist with AOML's Hurricane Research Division, has been appointed to serve on the Policy Committee of the South Florida Federal Executive Board.

Robert Kohler, Director of AOML's Computer Services and Networks Division, received an award from NOAA's High Performance Computing and Communications (HPCC) office for his outstanding role in reviewing and recommending proposals for selection and funding, resulting in improvements of NOAA's processes, operations, and products through the application of advanced networking and information technology.

Linda Pikula, National Oceanographic Data Center librarian with the NOAA Regional Library located at AOML, received a Bronze Medal Award from the National Environmental Satellite, Data and Information Service (NESDIS) for her role in creating Ocean Teacher, an innovative training program developed for African maritime nations to expand their capabilities to collect and deliver global oceanographic observations.

Erica Van Coverden, AOML's outreach coordinator, married Lance Rule on Saturday, November 8, 2003, in a ceremony on Miami Beach, Florida. Best wishes to the happy couple for a long and prosperous life together. For future reference, please note that Erica will now be using her new married name, "Erica Rule."

Thanks to all who participated in AOML's 2003 Combined Federal Campaign program. Total employee payroll contributions in support of charitable agencies and organizations well exceeded AOML's overall goal of \$20,000.

AOML Recognized for Energy Conservation Efforts

AOML was recognized for its energy conservation efforts on October 29th at the Federal Energy and Water Management Awards luncheon in Washington, D.C. The annual event is sponsored by the Department of Energy's Federal Energy Management Program. It honors individuals and organizations that have made significant contributions to the efficient use of energy and water resources in the federal government.

AOML received the "Alternative Financing Award" for obtaining an innovative utility energy services contract that reduced its overall electrical consumption by approximately 117 million Btu (39%). The annual savings in energy and maintenance costs, almost \$46,000, will be used over the next decade to reimburse the utility for the majority of the project's expenditures.

Negotiations for obtaining the contract, a General Services Administration (GSA) agreement with Florida Power and Light, was a group endeavor. Joseph Pica (former AOML Associate Director), Deputy Director Judy Gray, and Facility Manager Gregory Banes all contributed to the effort, as well as Bernard Denno of NOAA's Office of Finance and Administration, and Sharon Walker of NOAA's Central Administrative Support Center.

In addition to receiving the Alternative Financing Award, AOML was also one of 20 federal agencies in 2003 designated as a Federal Energy Saver Showcase Facility by the Federal Energy Management Program for its efficient use of energy resources.



Bernard Denno and Gregory Banes, AOML's facility manager, at the Federal Energy and Water Management awards luncheon in Washington, D.C.

Happy ... Oom Pah Pah ... Halloween



AOML hosted its annual Oktoberfest-Halloween party, "Oktoberween," on Friday, October 31st. A record number of lunchtime revelers attended, feasting on Oktoberfest fare and an assortment of ghoulish Halloween goodies. Those who came dressed for the occasion included (standing): Shari Yvon-Lewis (Mad Scientist), Maria Bello, Southeast Fisheries Science Center (Fishy Witch), Nina Liebig (Batman), Craig Engler (Gladiator), Armando Cuervo (University of Miami Mascot), Erica Van Coverden (Tooth Fairy), Neal Dorst (Eric Kristinason), Mayra Pazos (Munchkin), Molly Baringer (Draculady), and (seated) Paul Dammann (Hardly Davidson), Jack Stamates (Grim Reaper), and Peter Dodge (NOAA Budget). Thanks to "Judge Judy" (Gray) and to Neal Dorst, Paul Dammann, Erica Van Coverden, and Alejandra Lorenzo for organizing the happy event.

Travel

Linda Pikula visited several local libraries in St. Croix, St. Thomas, and St. John, U.S. Virgin Islands in search of science literature on corals in support of the Coral Reef Early Warning System (CREWS) network on November 2-12, 2003.

Silvia Garzoli attended the annual meeting of the Science Advisory Committee for the Inter-American Institute for Global Change Research in Santo Domingo, Dominican Republic on November 3-5, 2003.

Robert Molinari, Claudia Schmid, and Silvia Garzoli attended the First ARGO Science Workshop in Tokyo, Japan on November 12-14, 2003.

Sim Aberson attended the Second International Workshop on Extratropical Transition in Halifax, Nova Scotia, Canada on November 16-22, 2003.

Thomas Heeb attended the Internet Protocol Version 6 (IPv6) Workshop at the University of New Mexico in Albuquerque, New Mexico on November 17-19, 2003.

David Enfield attended a Regional Climate Outlook Forum in Guayaquil, Ecuador on November 18-21, 2003.

Thomas Carsey and Jules Craynock attended a NOAA-sponsored Memorandum of Understanding/Memorandum of Agreement training session in Silver Spring, Maryland on November 19-20, 2003.

Rik Wanninkhof participated as an invited opponent on a thesis defense in Bergen, Norway on November 19-24, 2003.

Michael Black attended the annual Department of Commerce Awards ceremony in Washington, D.C. on December 4-6, 2003 where he received a Gold Medal for using Global Positioning System (GPS) dropsonde data to measure the wind structure in the eyewall region of tropical cyclones.

Molly Baringer attended the annual Fall Meeting of the American Geophysical Union in San Francisco, California on December 8-12, 2003.

AOML Holiday Party

December 12, 2003

Lobby -- 12:00 Noon

Bring a dish or dessert to
share with others

Price: \$6.00

(includes turkey, ham, mashed potatoes)

Musical performance
by the
Holiday Ensemble

Raffle drawing with door prizes

Contact Greg Bangs or the Front Desk
for more information
(305-361-4456 or 305-361-4451)

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