

AOML's Hurricane Research Division worked tirelessly throughout August and September gathering data in support of forecasting efforts to track Bonnie, Charley, Frances, Ivan, and Jeanne. Here is a breakdown of their accomplishments during this very hectic time frame:

Tropical Storm Bonnie (Aug. 3-4, 10)

- 3 Gulfstream-IV missions
- 30.5 flight hours
- 80 dropsondes deployed

Hurricane Charley (Aug. 11-12)

- 2 Gulfstream-IV missions
- 21 flight hours
- 55 dropsondes deployed

Hurricane Frances (Aug. 29-Sept. 4)

- 8 Gulfstream-IV missions
- 6 WP-3D N43RF missions
- 284 flight hours
- 372 dropsondes deployed

Hurricane Ivan (Sept. 6-15)

- 15 Gulfstream-IV missions
- 3 WP-3D N42RF missions
- 6 WP-3D N43RF missions
- 371 flight hours
- 372 dropsondes deployed

Hurricane Jeanne (Sept. 19-25)

- 3 Gulfstream-IV missions
- 3 WP-3D N42RF missions
- 3 WP-3D N43RF missions
- 140.5 flight hours
- 54 dropsondes deployed

August-September Totals

- 52 missions flown
- 847 flight hours logged
- 933 dropsondes deployed

Florida Says "Enough is Enough" to 2004 Hurricane Season

The 2004 Atlantic hurricane season doesn't officially end until November 30th, but already it has secured a place in the record books as one of the most destructive and deadliest in recent decades. In the August-September time frame, 12 tropical storms developed, eight of which intensified into hurricanes. Six of these eight hurricanes became major hurricanes with winds in excess of 110 mph.

Florida endured strikes from four landfalling hurricanes—Charley, Frances, Ivan, and Jeanne—all in the short span of six weeks. This record earned Florida the distinction of being the only other state besides Texas in 1886 to experience four hurricane impacts in a single year. A strong high pressure system stationed off the U.S. eastern seaboard throughout the summer propelled storms in a westwardly direction towards Florida by preventing them from moving farther to the north.

Charley and Frances, the first two storms to strike Florida, developed in August in the far eastern Atlantic. Fueled by warm ocean temperatures, these storms intensified rapidly from tropical depressions into hurricanes and traveled swiftly across the ocean in a west-northwest direction.

Two million coastal residents boarded up homes and businesses and fled low-lying areas in advance of Hurricane Charley. Charley came ashore just north of Fort Myers on Friday, August 13th. Several hours before landfall, the storm unexpectedly intensified into a dangerous category 4 hurricane, plowing into Florida's southwest coast with 145 mph winds. Charley caused 33 deaths and widespread damage on its northward rampage, resulting in 25 of Florida's 67 counties being declared federal disaster areas.

Less than two weeks after Charley made landfall in Florida, Tropical Storm Frances became a hurricane. Frances grew to robust proportions, steadily intensifying into the season's third major hurricane. As Frances drew near, emergency management officials staged the largest evacuation effort in Florida's history. More than 2.5 million residents packed their belongings and fled.

While Frances passed over the Bahamas, an encounter with dry air and wind shear deflated the strength of the massive storm's winds and stalled its forward motion to 4-5 mph. The Bahamas endured 48 hours of pounding winds and rain as Frances inched westward towards Florida's Atlantic seaboard. With nerves and patience worn thin, Floridians kept a vigilant yet protracted watch for the storm's inevitable arrival. *(continued on page 2)*



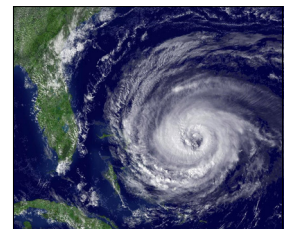
Charley—Aug. 13, 2004



Frances—Sept. 5, 2004



Ivan—Sept. 16, 2004



Jeanne—Sept. 25, 2004

New Password Policy for PCs

As mandated by the Department of Commerce, AOML has implemented strong new password policies for its PC network. As of October 5, 2004, all PC passwords must incorporate the following criteria:

- Passwords must have at least eight (8) non-blank characters.
- At least one of the characters must be from the alphabet (upper or lower case).
- At least one of the characters must be a number (0-9) or a special character (e.g., ~, !, \$, %, ^, or *).
- Six of the characters may only occur once in the password (e.g., 'AAAAAA1' is not acceptable, but 'A%rmp2g3' and 'A%ArmA2g3' are acceptable).
- Passwords must not include any of the following: vendor/manufacturer default passwords: names (e.g., system user names, family names); words found in dictionaries (i.e., words from any dictionary, spelled forward or backward); addresses, birthdays, or common character sequences (e.g., 3456, ghijk, 2468).
- Vendor-supplied default passwords such as SYSTEM, Password, Default, USER, Demo, and TEST, must be replaced immediately upon implementation of a new system.

Passwords must be changed as follows:

- At least every 90 days (AOML PC servers are now configured to expire passwords every 90 days).
- Immediately, if discovered to be compromised or if one suspects a password has been comprised.
- Immediately, if discovered to be in non-compliance with this policy.
- If requested by management.

AOML PC servers will deny reused passwords until at least eight password cycle changes have occurred, or approximately two years from when the password was last used.

(continued from page 1)

In the early morning hours of September 5th, Frances came ashore at Sewall's Point near Stuart, Florida, with 105 mph winds. For the next 24 hours the mammoth storm, almost 300 miles in diameter, lumbered slowly across the state, exiting the west coast near Tampa the following day. Once in the Gulf of Mexico, Frances made a second landfall in Florida, coming ashore as a tropical storm in the panhandle town of St. Marks. Remnants of Frances drenched Georgia, Alabama, and the Carolinas, leaving hundreds of thousands without power as the storm plodded northward up the eastern seaboard, finally fizzling

out in southeastern Canada on September 9th. Frances is blamed for at least 34 deaths.

As Frances came ashore in Florida, a new storm thousands of miles across the Atlantic was developing. Ivan exploded from a minimal hurricane into the season's fourth major hurricane in less than 12 hours. On its long westward journey, the powerful storm reached category 5 status (winds in excess of 155 mph) on three separate occasions, triggering massive evacuation efforts throughout the Caribbean as frightened and concerned communities tried to remove themselves from Ivan's deadly path. "Ivan the Terrible" cut a trail of destruction through the Caribbean, severely impacting Grenada, Jamaica, the Cayman Islands, and the western portion of Cuba, before taking aim at the Gulf coast of the United States.

Ivan made landfall near Gulf Shores, Alabama on September 16th with 135 mph winds and a storm surge of 10-16 feet. Hardest hit, however, was the historic panhandle town of Pensacola, marking the third devastating blow to Florida. The tenacious storm flooded communities as far north as New York and caused massive power outages, leaving more than a million people in 13 states in the dark. Ivan claimed at least 92 lives.

While Ivan will likely be regarded as the most destructive storm of the 2004 hurricane season, Jeanne will undoubtedly be regarded as the deadliest. Jeanne became a tropical storm on September 14th while passing to the west-northwest of the Leeward Islands. After drenching Puerto Rico with almost two feet of rain, the storm passed over the northern coastline of Hispaniola on September 16-17. In western Haiti, more than 2,400 individuals either perished or were missing and presumed dead as Jeanne's torrential rains and near hurricane-force winds triggered flash floods and mudslides.

After devastating Haiti, Jeanne's path became erratic. The storm drifted to the north and then meandered in a complete clockwise loop before heading west towards the Bahamas and Florida. On the evening of September 25th, Jeanne became the fourth hurricane to strike Florida, coming ashore with 120 mph winds and impacting the same communities—Stuart, Ft. Pierce, and Vero Beach—devastated by Hurricane Frances just 20 days earlier.

While not officially over until November 30th, storm-weary Floridians have already experienced the most active and expensive hurricane season in the state's history. Insurance claims reveal that one in five residents suffered damage to their homes. The combined costs from Charley, Frances, Ivan, and Jeanne will likely supplant Hurricane Andrew's south Miami-Dade landfall in 1992 as the costliest natural disaster in U.S. history.

The 2004 hurricane season will long be remembered for the massive amount of destruction caused by a succession of powerful storms and for the heartbreaking death toll left in their wake. As became a popular summertime mantra throughout Florida, "enough is enough!"



Boarding up for Hurricane Frances, Armando Cuervo (center), an administrative assistant with AOML's Office of the Director, displays a NOAA emblem while his daughters express a sentiment felt across the Caribbean and state of Florida.



In case of fire, do you know your emergency evacuation route? AOML's Emergency Occupant Plan (OEP) is on the Intranet. It contains evacuation procedures and lists important personal responsibilities. Review the OEP and know the nearest evacuation route from your office or lab. The time to prepare for an emergency is before it happens.

AOML Safety Committee

Milestone Achieved in Monitoring Hurricane Surface Winds

A milestone in monitoring ocean surface wind speeds from aboard hurricane hunter planes was achieved on August 30th when NOAA's N43RF aircraft embarked upon a synoptic surveillance mission into Hurricane Frances. Two Stepped-Frequency Microwave Radiometer (SFMR) instruments aboard the aircraft, which remotely sense surface winds, transmitted operational data to the National Hurricane Center (NHC) in real time.

The surveillance flight was the first high-wind mission using the Aircraft Operations Center's (AOC) new SFMR system and the first mission undertaken in conjunction with the Hurricane Research Division's (HRD) SFMR. Both instruments performed flawlessly.

During the first penetration of the eyewall, HRD's SFMR system transmitted real time surface wind data to NHC. The operational output was then switched to AOC's SFMR. The transition between instruments was indistinguishable to the data analyst at NHC, AOML's Peter Black.

Peak surface winds were obtained from the data plots within minutes of data arrival using the H*WIND surface wind analysis utility pioneered by Mark Powell of HRD. The radii of gale force, 50-knot, and hurricane force winds were also obtained for each of the hurricane's four quadrants as the flight progressed.

Comparisons were made between the SFMR surface wind data and the Global Positioning System (GPS) surface wind dropsonde data transmitted to NHC in real time. After eight comparisons, the average difference between the SFMR and GPS data was only 2-3 kt over a wind range of from 40-100 kt. NHC forecasters, as well as data analyst Peter Black, were delighted with these high-quality, high-frequency observations. Two subsequent flights produced similar results.

These flights represent a significant improvement in operational hurricane surface wind field monitoring. Hopefully, they are the beginning of a sustained effort to observe hurricane surface winds directly from NOAA's WP-3D aircraft, as well as future applications aboard NOAA's Gulfstream-IV jet and the Air Force's WC-130J aircraft.

New Climate Book Highlights Ocean-Atmosphere Interaction

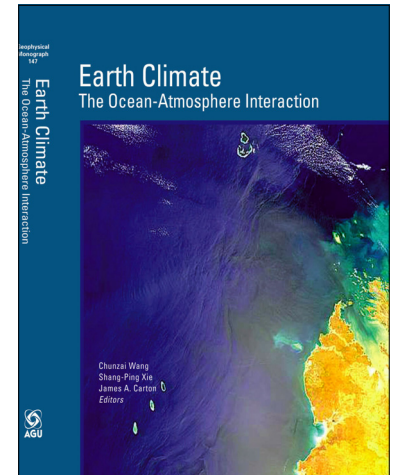
Chunzai Wang, an oceanographer with AOML's Physical Oceanography Division, along with Shang-Ping Xie of the University of Hawaii and James A. Carton of the University of Maryland, edited a new book entitled *Earth's Climate: The Ocean-Atmosphere Interaction*. The book was published in September by the American Geophysical Union as part of its Geophysical Monograph Series (Volume 147, 414 pp.). It summarizes current theories, models, and observations of ocean-atmosphere interaction that help shape climate and its variations over the global ocean.

The El Niño-Southern Oscillation is the most well-known and largest climate phenomenon attributable to ocean-atmosphere interaction. However, the importance of ocean-atmosphere interaction goes far beyond the Pacific El Niño. In the tropical Atlantic and Indian Oceans, ocean-atmosphere interaction can produce the Atlantic Niño (a counterpart of the Pacific El Niño), the tropical meridional gradient ("dipole") mode, and the Indian Ocean dipole (an east-west seesaw mode).

Although ocean-atmosphere interaction in the extratropics is relatively weak when compared to that in the tropics, it nevertheless modulates extratropical modes such as the North Atlantic Oscillation and Pacific Decadal Oscillation. As with the Pacific El Niño, these phenomena are responsible for climatic extremes on the regional to global scale. They are attracting increasing attention from the scientific community, general public, and policy makers owing to their great social and economic impacts.

The book is introduced by an overview chapter that provides a global survey of ocean-atmosphere interaction and climate variability, including a discussion of similarities and differences among the tropical ocean basins, influences and interactions among different ocean basins and between the tropics and extratropics. It is organized along five themes: Pacific climate variability, tropical Atlantic climate variability, Indian Ocean climate variability, tropical-extratropical interaction, and cross-basin issues.

Earth's Climate represents the climate community's first effort to summarize the modern science of ocean-atmosphere interaction and the roles that the interaction plays in global climate variability. It is intended to serve as a resource for scientists, researchers, and students of climate, oceanography, and atmospheric sciences. Additional information about the book can be found on the American Geophysical Union web site at www.agu.org.



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Informal Research Reports

(September-October 2004)

September 8

Variability of the North Brazil Current, North Brazil Current Rings, and the Atlantic North Equatorial Countercurrent

Dr. Gustavo Goni
Physical Oceanography Division

September 9

The Meridional Overturning Circulation in the Subtropical North Atlantic

Dr. Molly Baringer
Physical Oceanography Division

September 16

Ocean General Circulation Model Study on the Western Hemisphere Warm Pool Variability

Dr. Sang-Ki Lee
Physical Oceanography Division

September 21

Real-Time Oceanographic Observations in South Florida Coastal Waters

Dr. Elizabeth Johns
Physical Oceanography Division

September 28

Estimating Salinity from Observed Temperature: Gulf of Mexico and Northwestern Atlantic

Dr. Carlisle Thacker
Physical Oceanography Division

September 29

Transports Across 48°N in the Atlantic Ocean

Dr. Rick Lumpkin
Physical Oceanography Division

October 19

A Non-Linear Regression Model of Predicting Salinity in the Ocean: Results for the Atlantic Ocean

Dr. Konstantin Korotenko
Physical Oceanography Division

Field Observations Support Hurricane Forecasts and Research

As Hurricane Frances trekked across the Atlantic this past August, scientists with AOML's Hurricane Research Division (HRD) began their annual field program of collecting specialized data from hurricane hunter aircraft. This data provides vital support to forecasting operations at NOAA's National Hurricane Center (NHC), as well as to studies that seek to advance knowledge of hurricane intensity change and track accuracy.

The 2004 season's hurricane flights are once again a multi-agency, multi-plane operation. This effort requires coordination of flight plans and aircraft usage, plus a balance between flights requested by NHC for forecasting purposes and those requested by HRD and NOAA's National Satellite, Data and Information Service for research purposes. Careful planning with NOAA's Aircraft Operations Center ensures aircraft capability and availability, flight crew requirements, and readiness by NOAA and university research scientists who oversee various instruments aboard the aircraft.

The WP-3Ds, NOAA's primary hurricane research platforms, can fly directly through a hurricane's eyewall. They conduct various experiments that require flight patterns in many parts of the storm. During Hurricane Frances, a Stepped Frequency Microwave Radiometer (SFMR) aboard one of the WP-3D aircraft remotely sensed wind speeds at the ocean surface. HRD scientists coordinated the development of this technology and provided detailed maps to assist specialists at NHC determine the radius of hurricane- and tropical storm-force winds. The SFMR is currently undergoing a transition to operational use by NHC.



NOAA's Gulfstream-IV jet.

NOAA also deploys its Gulfstream-IV high-altitude jet for synoptic surveillance missions in the environment around hurricanes. Data collected by the Gulfstream-IV are transmitted to NOAA's National Centers for Environmental Prediction in real-time to improve the analyses in the Environmental Modeling Center's Global Forecast System (GFS).

WC-130J hurricane hunter aircraft operated by the U.S. Air Force Reserve's 53rd Weather Squadron also participate in NOAA's hurricane field program. This multi-plane approach to storm observation includes a study of processes critical to forecasting hurricane structure, track, and intensity.

Hurricane intensity research continues as a top priority for NOAA. HRD conducted the Coupled Boundary Layer Air-Sea Transfer (CBLAST) experiment during Hurricane Frances to address this priority. CBLAST seeks to improve hurricane intensity forecasting skill by gaining greater understanding of air-sea interactions that occur within the complex hurricane environment. Two WC-130J aircraft deployed 55 drifting buoys and subsurface floats in the path of the storm. NOAA's WP-3D aircraft flew above this array as Frances passed overhead. It is hoped that this year's CBLAST experiment, jointly funded by NOAA and the Office of Naval Research under the aegis of the U.S. Weather Research Project, pioneers a new approach to obtaining needed input for a new generation of coupled models by simultaneously sampling the ocean, atmosphere and air-sea interface using complementary aircraft and air-deployed in-situ sampling strategies.

HRD, NHC, and the University of Miami are also working closely together to test a new automated program that draws flight tracks for targeting observations. This program, part of a project funded under the U.S. Weather Research Program's Joint Hurricane Testbed, is being compared with the traditional approach of estimating which regions around a hurricane, when targeted for sampling, will provide the best overall forecast. In 2003, targeted observation strategies increased the GFS model's track accuracy by 25%.

"We can improve NOAA's hurricane products by partnering with other offices and mounting a significant field effort," said Frank Marks, HRD Director. "All of us work very hard to make this happen."



STOP AND ASK! If you encounter someone unfamiliar on AOML property and they have no visible ID badge, politely ask who they are and their purpose for being at AOML. Safety is everyone's responsibility. By speaking up, you ensure your safety and that of others.

AOML Safety Committee

Combined Federal Campaign

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The annual CFC program enables federal employees to support thousands of non-profit charitable organizations and agencies through payroll deductions

CFC 2004:

October 14–November 19

Kickoff Event:

October 14, 2004

Individuals returning pledge forms by October 21st are eligible to participate in a drawing for prizes that include:

- ◊ Special edition "Cloud" and "Coral" U.S. postage stamps
- ◊ Basket of homemade sweets, including cookies and brownies
- ◊ Car wash at AOML
- ◊ Bouquet of flowers
- ◊ Custom ordered NOAA logo polo shirt

For more information contact:

Erica Rule
2004 CFC Coordinator

(305) 361-4541
Erica.Rule@noaa.gov

Meteorologist Aids Typhoon Surveillance Efforts in Taiwan

Sim Aberson, a research meteorologist with AOML's Hurricane Research Division, visited Taiwan on August 21-28th in support of the Taiwanese typhoon surveillance program, DOTSTAR (Dropsonde Observations for Typhoon Surveillance near the TAIwan Region). DOTSTAR is modeled after NOAA's annual hurricane field program. It uses a jet aircraft to conduct synoptic surveillance missions into the hurricane environment. Data gathered from deployment of Global Positioning System (GPS) dropsondes are transmitted and assimilated into numerical models to improve tropical cyclone analysis and track forecasts.

During the visit, Aberson discussed NOAA's hurricane research with faculty and staff at the National Taiwan University and with forecasters at the Central Weather Bureau. He also witnessed one of many tropical cyclones that would

form in the northwest Pacific Ocean when Typhoon Aere, a category 2 storm (winds of at least 96 mph), moved through northern Taiwan. Aere brought almost three feet of rain and hurricane force winds to the region and also impacted China, Japan, and the Philippines. Aberson and other visitors spent a few hours at the Central Weather Bureau in Taipei where they experienced the Taiwanese equivalent of what occurs at the National Hurricane Center and Hurricane Research Division during the Atlantic hurricane season.



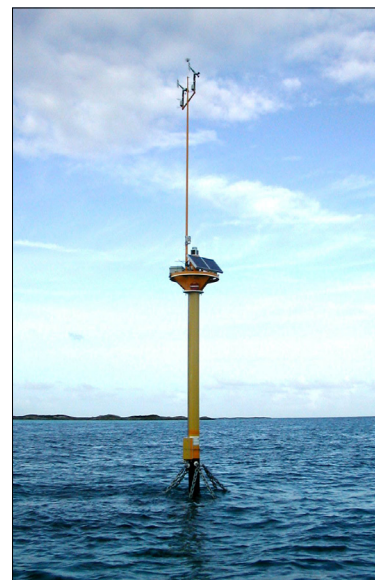
Sharan Majumdar (University of Miami's Rosenstiel School), Chun-Chieh Wu (National Taiwan University), Ching-Yen Tsay (Taiwanese Minister of Science), Michael Morgan (University of Wisconsin), Sim Aberson (AOML-right), and an unidentified forecaster (seated) discuss the approach of Typhoon Aere at the Central Weather Bureau in Taipei, Taiwan.

CREWS Station Records Passing of Hurricane Frances

The Coral Reef Early Warning System (CREWS) station in North Norman's Reef near Lee Stocking Island, Bahamas remained upright and operational during the evening of September 2nd as Hurricane Frances moved slowly across the island chain. In spite of Frances' relentless winds and surf, the station continued transmitting hourly-averaged data from its suite of meteorological and oceanographic sensors via a GOES satellite to NOAA's National Environmental Satellite, Data and Information Service (NESDIS).

The CREWS station data indicate that Frances' strongest maximum average wind gusts, 58.6 knots (67.4 mph), occurred between 7 and 9 p.m. local time. The barometric reading dipped as low as 992 mb, and sustained winds reached about 44 knots (50.6 mph) during the same period. The CREWS station also revealed that there was not a significant storm surge at North Norman's Reef: tide sensors only recorded a 0.5 m tidal surge (the hourly average).

The National Hurricane Center incorporated the hourly-averaged data from the North Norman's Reef CREWS station into its analyses and forecasts of Hurricane Frances. Researchers can access this data, especially for before- and after-the-storm type investigations by contacting Louis Florit, the Integrated Monitoring Network database administrator at Louis.Florit@noaa.gov.



Coral Reef Early Warning System (CREWS) station at North Norman's Reef in the Bahamas.

Welcome Aboard

Gloria Aversano joined the staff of the NOAA Miami Regional Library in August as a Librarian. She will work with AOML librarian Linda Pikula but will also manage the library at the National Hurricane Center on a part-time basis. Gloria recently obtained a Masters degree in library science from Florida State University.

Dr. Christopher Langdon joined the Rosenstiel School's Department of Marine Biology and Fisheries this past August. He will be working closely with Drs. Jim Hendee and Rik Wanninkhof of AOML's Ocean Chemistry Division on ecosystem dynamics of coral reefs and oxygen measurements in support of the CO₂/CLIVAR Repeat Hydrography Program. Chris will have an office and laboratory space at AOML in support of these efforts.

Dr. Heike Luger joined the staff of the Ocean Chemistry Division's CO₂ Group in October as a CIMAS post-doctoral fellow. Heike earned her doctoral degree at the Leibniz-Institut für Meereswissenschaften in Kiel, Germany. She will be working with Dr. Rik Wanninkhof on the interpretation of CO₂ measurements from the Volunteer Observing Ship (VOS) campaign.

Michael Jankulak joined the staff of the Ocean Chemistry Division in October as a CIMAS research associate. He will assist Dr. Jim Hendee in managing coral reef data bases, as well as assisting with OCD's computer software and programming needs. Michael holds a B.S. degree in computer programming from the University of Toronto.

Dr. Doran Mason, a marine ecologist with NOAA's Great Lakes Environmental Research Laboratory (GLERL), joined the Ocean Chemistry Division in October to develop a partnership between GLERL, AOML, and the National Marine Fisheries Service in support of coastal ecology research. Doran will work closely with Drs. John Proni and Peter Ortnier on this effort.

Erik Valdes joined the staff of the Physical Oceanography Division in September as a CIMAS associate to work with Mayra Pazos and Jessica Redman in the Drifter Data Assembly Center. Erik will assist with data acquisition and quality control of drifter data. He is a student at Florida International University seeking a degree in meteorology.

Congratulations

Dr. Sim Aberson, a research meteorologist with AOML's Hurricane Research Division, is the recipient of a 2003 Presidential Early Career Award for Scientists and Engineers (PECASE). Sim received the award "for his research that has led to significant improvements in hurricane track forecasts and the development of programs that have brought science to young students and young students to science." He was among 57 recipients honored at a White House ceremony on September 9, 2004. The Presidential Award is the highest honor bestowed by the U.S. Government upon outstanding scientists and engineers in the early stages of their careers.



Sim Aberson (center) is joined by James H. Marburger, science advisor to President Bush and Director of the Office of Science and Technology Policy (left) and Secretary of Commerce Donald Evans (right) at the PECASE awards ceremony on September 9, 2004.

Neal Dorst, a meteorologist with AOML's Hurricane Research Division, was named by NOAA's Office of Oceanic and Atmospheric Research as its Employee of the Month. Neal was recognized for his outstanding technical skill in preserving and chronicling the Division's analog, digital, and film data, ranging from the U.S. Weather Bureau's hurricane flights in 1956 to the present day. He serves as HRD's data manager, tape librarian, webmaster, data archivist, and historian.



Shirley Murillo, a research meteorologist with AOML's Hurricane Research Division, received a certificate as a runner-up for the William A. Jump Memorial Foundation Award in August. Shirley was recognized "for her scientific research on important aspects of the hurricane problem and for outreach activities in support of minorities and women." The Jump Award is presented annually to Federal employees under the age of 37 in recognition of their outstanding service in public administration.



Farewell

Jinette Santana, an administrative assistant, resigned on August 20, 2004 after almost two years of employment with the Office of the Director's Administrative Group. Jinette has accepted an administrative assistant position with Husky Injection Molding Systems.

Dr. Shari Yvon-Lewis, an atmospheric chemist, resigned on September 10, 2004 after seven years of employment with AOML's Ocean Chemistry Division. Shari has accepted a faculty position with Texas A&M University's Department of Oceanography in College Station, Texas.

It's a Girl!

Congratulations to Jason Dunion, a CIMAS research scientist working with the Hurricane Research Division, and his wife Paige on the birth of their first child, a daughter, born August 13, 2004. Erika Marie Dunion, born 6½ weeks early, weighed in at 5 lbs. 6 oz. Mother, baby, and Dad are all doing well.



Congratulations to Stanley Goldenberg, a meteorologist with the Hurricane Research Division, and his wife Barbara on the birth of their tenth child, a daughter, born October 3, 2004. Deborah Ruth Goldenberg weighed in at 9 lbs. 3 oz. Mother, baby, and Dad are all doing well.

Travel

Molly Baringer, Silvia Garzoli, Robert Molinari, and Claudia Schmid attended the CLIVAR-sponsored Atlantic Thermohaline Circulation Variability Workshop in Kiel, Germany on September 13-16, 2004.

Gustavo Goni attended and made an invited presentation at the International Geoscience and Remote Sensing Symposium (IGARSS) in Anchorage, Alaska on September 20-24, 2004.

Yeun-Ho Daneshzadeh, Reyna Sabina, and Claudia Schmid attended the 5th Argo Data Management Meeting in Southampton, England on September 29-October 1, 2004.

Steven Cook, Craig Engler, Rick Lumpkin, and Mayra Pazos attended the Drifting Buoy Cooperative Panel Meeting in Chennai, India on October 4-22, 2004.

Mark Powell attended a meeting of the Florida Commission on Hurricane Loss Projection Methodology in Tallahassee, Florida on October 5-7, 2004.

Jeffery Kelley and Ryan Smith participated in the Windward Passage Experiment research cruise aboard the NOAA ship *Ronald H. Brown* from Miami to San Juan, Puerto Rico on October 5-18, 2004.

Rik Wanninkhof attended the SOLAS (Surface Ocean-Lower Atmosphere Study) Science 2004 Conference in Halifax, Canada on October 13-16, 2004.

Kelly Goodwin attended the National Beaches Conference in San Diego, California on October 13-15, 2004. She helped organize and attended the Fourth Florida Marine Biotechnology Summit in Boca Raton, Florida on October 17-18, 2004.

Chunzai Wang attended NOAA's 29th Annual Climate Diagnostics and Prediction Workshop in Madison, Wisconsin on October 19-22, 2004.

Robert Kohler attended a meeting of NOAA's Technical Committee for Computing Resources in Boulder, Colorado on October 18-22, 2004.



Daylight Savings Time Ends
October 31, 2004

Recent AOML Publications*

DeGrandpre, M.D., R.H. WANNINKHOF, W.R. McGillis, and P.G. Strutton, 2004: A Lagrangian study of surface pCO₂ dynamics in the eastern equatorial Pacific Ocean. *Journal of Geophysical Research*, 109(C8):C08S07, doi:10.1029/2003JC002089.

Dugdale, R.C., M. Lyle, F.P. Wilkerson, F. Chai, R.T. Barber, and T.-H. PENG, 2004: Influence of equatorial diatom processes on Si deposition and atmospheric CO₂ cycles at glacial/interglacial timescales. *Paleoceanography*, 19(3):PA3011, doi:10.1029/2003PA000929.

LANDSEA, C.W., C. Anderson, N. CHARLES, G. Clark, J.P. DUNION, J. Fernandez-Partagas, P. Hungerford, C. Neumann, and M. Zimmer, 2004: The Atlantic hurricane database re-analysis project: Documentation for the 1851-1910 alterations and additions to the HURDAT database. In *Hurricanes and Typhoons: Past, Present, and Future*, R.J. Murnane and K.-B. Liu (eds.). Columbia University Press (ISBN 0-231-12388-4), 464 pp.

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McGillis, W.R., J.B. Edson, C.J. Zappa, J.D. Ware, S.P. McKenna, E.A. Terray, J.E. Hare, C.W. Fairall, W. Drennan, M. Donelan, M.D. DeGrandpre, R.H. WANNINKHOF, and R.A. Feely, 2004: Air-sea CO₂ exchange in the equatorial Pacific. *Journal of Geophysical Research*, 109(C8):C08S02, doi:10.1029/2003JC002256.

MEINEN, C.S., S.L. GARZOLI, W.E. Johns, and M.O. BARINGER, 2004: Transport variability of the Deep Western Boundary Current and the Antilles Current off Abaco Island, Bahamas. *Deep-Sea Research, Part I*, 51(11):1397-1415.

MOLINARI, R.L., 2004: Annual and decadal variability in the western subtropical North Atlantic: Signal characteristics and sampling methodologies. *Progress in Oceanography*, 62(1):33-66.

STABENAU, E.R., and R.G. Zika, 2004: Correlation of the absorption coefficient with a reduction in mean mass for dissolved organic matter in southwest Florida river plumes. *Marine Chemistry*, 89(1-4):55-67.

WANG, C., and J. Picaut, 2004: Understanding ENSO physics: A review. In *Earth's Climate: The Ocean-Atmosphere Interaction*, C. Wang, S.-P. Xie, and J. Carton (eds.). American Geophysical Union, Geophysical Monograph Series, Volume 147 (ISBN 0-87590-412-2), 21-48.

WANG, C., S.-P. Xie, and J.A. Carton, 2004: A Global survey of ocean-atmosphere interaction and climate variability. In *Earth's Climate: The Ocean-Atmosphere Interaction*, C. Wang, S.-P. Xie, and J.A. Carton (eds.). American Geophysical Union, Geophysical Monograph Series, Volume 147 (ISBN 0-87590-412-2), 1-19.

ZHANG, J.-Z., C.J. FISCHER, and P.B. ORTNER, 2004: Potential availability of sedimentary phosphorus to sediment resuspension in Florida Bay. *Global Biogeochemical Cycles*, 18(4):GB4008, doi:10.1029/2004GB002255).

*Names of AOML authors appear in capital letters.

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