

AOML Keynotes

March-April 2010

Atlantic Oceanographic and Meteorological Laboratory

Volume 14, Number 2

OAR and AOML Undergo Leadership Transitions

Leadership changes have recently occurred at both NOAA's Office of Oceanic and Atmospheric Research (OAR) and AOML. In April, Dr. Richard Spinrad, Assistant Administrator of OAR since 2005, retired from Federal service to become the Vice President for Research at Oregon State University. With his departure, Mr. Craig McLean, the OAR Deputy Assistant Administrator for Programs and Administration, became OAR's new Acting Assistant Administrator.

Ms. Judith Gray, AOML's Deputy Director since 1998, has been selected to serve as OAR's Deputy Assistant Administrator for Programs and Administration, the position temporarily vacated by McLean. In Gray's absence, Dr. Molly Baringer will serve as AOML's Acting Deputy Director.



AOML Director Dr. Bob Atlas congratulates and bids a fond farewell to AOML Deputy Director Judy Gray, who departed AOML for Silver Spring, Maryland in April to become OAR's new Acting Deputy Assistant Administrator for Programs and Administration.

Moored Acoustic Array Deployed between Puerto Rico and St. Thomas in March

Ryan Smith, *Physical Oceanography Division*

Scientists from AOML's Physical Oceanography Division, the Southeast Fisheries Science Center's Early Life History Laboratory (SEFSC/ELH), and the University of the Virgin Islands Center for Marine and Environmental Studies (UVI/CMES) successfully deployed an array of acoustic Doppler current profilers (ADCP) in the waters of Puerto Rico (PR) and the U.S. Virgin Islands (USVI) in March from the NOAA Ship *Nancy Foster*. Instruments were positioned across the eastern end of Vieques Sound, between Vieques and Culebra (PR), and across Virgin Passage, between Culebra and St. Thomas (USVI) (see map on the following page).

The 6-mooring array is designed to quantify mass transport across the region over a 12-month period, and is a component of the recently funded *Vieques Sound and Virgin Passage Transport Study*. This collaborative project, which is supported by NOAA's Coral Reef Conservation Program, seeks to gain a better understanding of the physical and biological linkages between marine protected areas south of St. Thomas, such as Red Hind and Grammanik Banks, and coastal areas east of PR (within Vieques Sound) and north of St. Thomas, St. John, and the British Virgin Islands (BVI).

Previously collected current velocity data, Lagrangian surface drifter trajectories, and model simulations (North Eastern Caribbean Circulation Model) suggest connectivity between these coastal ecosystems. However, larval transport of economically important reef fish across the PR/USVI shelf and through passages between the islands is poorly understood.

The natural dispersal of these newly spawned larvae is affected by many factors, including bottom regime, island/shelf/bank geometry, tides, small-scale retention mechanisms, mesoscale gyres, and larger-scale mean fields such as wind-driven transport. These processes may carry larvae off the shelf to unsuitable habitat, or relocate them to nearshore areas where settlement is favorable. Quantifying ichthyoplankton flux through the Virgin Passage and into and (continued on page 2)



Grant Rawson of AOML's Physical Oceanography Division installs a Nortek Aquadopp acoustic Doppler current profiler and a Sea-Bird MicroCat salinity/temperature recorder on a Virgin Passage mooring base.



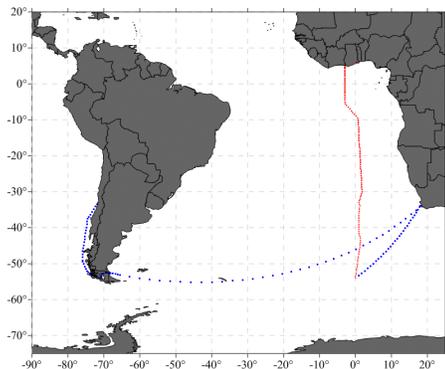
AOML is an environmental research laboratory of NOAA's Office of Oceanic and Atmospheric Research located on Virginia Key in Miami, Florida



Repeat Hydrography Cruise Resamples Eastern Atlantic

Researchers with AOML's Ocean Chemistry and Physical Oceanography Divisions participated in a recent cruise of the NOAA RV *Ronald H. Brown* in support of the Repeat Hydrography Program's efforts to document the changing patterns of carbon dioxide (CO₂) in the ocean. George Berberian, James Farrington, Charles Fischer, Geun-Ha Park, Kyle Seaton, and Kevin Sullivan boarded the *Brown* in Cape Town, South Africa on March 7th, along with researchers from 12 other academic institutions and NOAA laboratories.

Hydrographic samples were collected along a meridional section through the eastern part of the South Atlantic Ocean along the prime meridian from 54°S to 5°S, concluding in Takoradi, Ghana on April 17th.

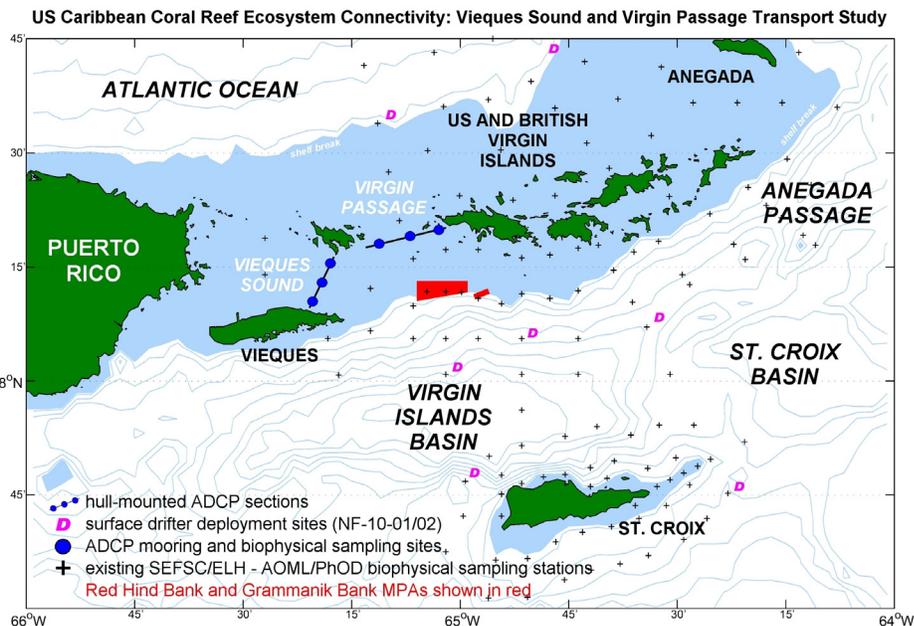


The Repeat Hydrography Program cruise consisted of two legs: the first a transit leg from Valparaiso, Chile to Cape Town, South Africa and the second a scientific leg from Capetown, South Africa to 54°S and then northward along the the prime meridian to Takoradi, Ghana.

The current cruise repeats part of a transect conducted by the RV *Knorr* in 1983-1984. Data gathered from this undersampled region of the Atlantic will aid in monitoring inventories of CO₂, trace metals, heat, and freshwater, as well as their transport in the ocean, and enable researchers to better assess changes that have occurred in the biogeochemical and physical properties of the ocean over the past 25 years.

The Repeat Hydrography Program is jointly funded by the Climate Observation Division of NOAA's Climate Program Office and the National Science Foundation. The effort supports both the U.S. CLIVAR (Climate Variability and Prediction) and U.S. Carbon Cycle Science programs.

(continued from page 1)



out of Vieques Sound will provide scientists and managers with broader insights into the connected nature of the catch found in Vieques Sound and on the northern USVI/BVI banks with the established marine protected areas south of St. Thomas.

Project partners will utilize data recovered from the moored array with repeat hull-mounted (shipboard) ADCP data collected across the moored sections quarterly to construct a detided velocity section and mass transport time-series for each passage. The 4-year *USVI Larval Reef Fish Distribution and Supply Study* biophysical dataset collected during joint AOML-SEFSC shipboard surveys of the region will be combined with these results to determine ichthyoplankton flux across the moored array. Additionally, these in situ data will be incorporated into the University of Miami's North Eastern Caribbean Circulation Model. Ground-truthed model output will supply a tri-dimensional representation of flow across the banks between these areas of interest, providing an additional tool to assess ecological connectivity and marine protected area effectiveness. For further information, contact Ryan Smith (ryan.smith@noaa.gov).

Please make plans to attend the

2010 Federal Employee of the Year Awards Luncheon

Friday, May 7th

11:00 a. m.–2:00 p.m.

Marriott Coral Springs Hotel

AOML has three nominees in the following categories:

- **Management**—Judith Gray (Office of the Director)
- **Scientific**—Silvia Garzoli (Office of the Director/Physical Oceanography Division)
- **Scientific**—John Kaplan (Hurricane Research Division)

Support your co-workers!

Sponsored by the South Florida Federal Executive Board

Contact Howard Friedman for tickets and additional info
305-361-4319 – howie.friedman@noaa.gov



AOML recycles a number of materials in support of environmental stewardship. Please support these efforts by depositing the recyclable items listed below into designated bins and receptacles located throughout the AOML facility. Mother Earth will thank you:

- **Cardboard:** Recycle bins are located on the first floor near the loading dock for cardboard.
- **Paper:** Recycle bins are located at all public-domain printers. Staff are also encouraged to use recycling bins for paper in their offices.
- **Glass:** Recycle bins are located on all five floors near the main elevator for clear, brown, and green-colored glass.
- **Plastic:** Recycle bins are located on all five floors near the main elevator for plastic types 1, 2, and 3 (look for triangular recycling symbol).
- **Aluminum:** Recycle bins are located on the first, fourth, and fifth floors for aluminum cans.
- **Batteries:** Recycle bins are located in the basement for dry cell household batteries, lithium batteries, and wet cell batteries.
- **Packing peanuts:** A bin for styrofoam packing material ("peanuts") is located on the first floor near the loading dock. Please place peanuts from incoming packages in this bin rather than discarding them. Staff are welcome to use the peanuts as needed for outgoing packages.



All Federal, joint institute, and contract employees are required to complete NOAA's 2010 Information Technology Security Awareness training course by May 10, 2010. Visitors on-site at AOML for more than 30 days are also required to complete the training. The mandatory course can be accessed online at <http://noaa.learnsecuritywith.us/>.

Recordbreaking 2009-2010 Winter Linked to NAO Phase

Chunzai Wang, Physical Oceanography Division

The winter of 2009-2010 was unusual because it was extremely cold in many places and was the snowiest on record for many cities. In particular, the weeks of December 28, 2009 to January 13, 2010 were the coldest from North America to Europe, as well as Asia, during which recordbreaking cold air temperatures were measured in many locations. Washington, DC, for example, received 72 inches of snow. At Miami International Airport, the National Weather Service reported a temperature of 36°F on January 11, 2010, beating the record of 37°F set in 1928.

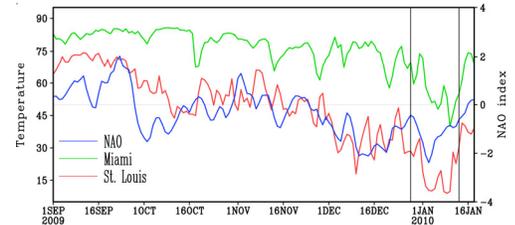
A study accepted for publication in *Atmospheric Science Letters* by AOML researchers Chunzai Wang, Hailong Liu, and Sang-Ki Lee shows that a strong negative phase of the North Atlantic Oscillation (NAO) was associated with the cold winter of 2009-2010. The NAO, also known as the Arctic Oscillation, is referred to as the fluctuation of the Icelandic low and the Azores high. It is one of the most important manifestations of climate fluctuation for the North Atlantic Ocean and its surrounding continents.

The study focuses on the cold period of December 28, 2009 to January 13, 2010 and shows that as the season progressed from the fall to winter, daily air temperatures decreased in Miami, Florida and St. Louis, Missouri, along with the NAO index (see first graphic). In addition to the seasonal transition, the drop in air temperatures was also associated with the decrease (downward trend) of the NAO index.

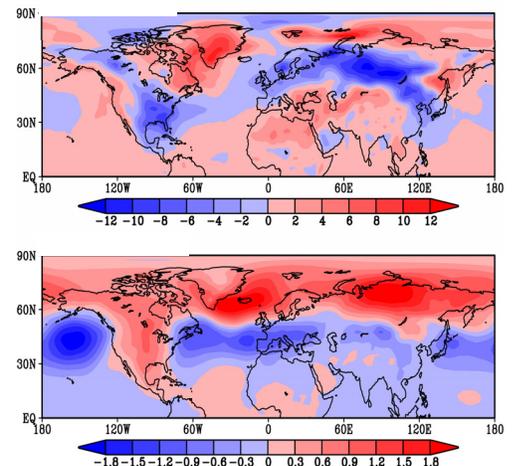
The spatial distribution of air temperatures during the cold period was similar to the traditional NAO-influenced pattern. In particular, air temperatures showed cold surface air anomalies in the southeastern United States, Europe, and even Asia (second graphic, upper panel). This suggests that the period of cold temperatures was due to the NAO.

The sea level pressure pattern (second graphic, bottom panel) showed a band of strong positive pressure anomalies circled in the high latitudes of the globe and a band of negative pressure anomalies in the middle Northern Hemisphere. In the North Atlantic sector, the sea level pressure anomalies displayed a pattern similar to that of the negative NAO phase. These pressure patterns produced northerly surface wind anomalies in the middle Northern Hemisphere which advected cold Arctic air to the middle Northern Hemisphere and thus contributed to the cold temperatures across North America, Europe, and Asia.

The NAO index also displays a longer-term variation: it has increased secularly from 1950-1990 and since the early 1990s has been decreasing. Due to the ongoing downward trend of the NAO, the study suggests that more frequent cold outbreaks and heavy snow in the Northern Hemisphere are likely in the coming years.



Daily North Atlantic Oscillation index (blue line) and daily temperatures (°F) for Miami, Florida (green line) and St. Louis, Missouri (red line). The two vertical lines represent the weeks from December 28, 2009 to January 13, 2010, the period in North America when temperatures were at their coldest.



Upper panel: Surface air temperature differences (°C) for December 28, 2009 to January 13, 2010 and the same time period for the previous 60 years. Bottom panel: Sea level pressure differences (hPa) for December 28, 2009 to January 13, 2010 and the same time period for the previous 60 years.

AOML's Ship of Opportunity Program (SOOP) held its annual International Operations Meeting on April 20-21st at AOML. More than 30 scientists, technical specialists, project managers, and contractors from AOML, the University of Miami, National Weather Service, Northeast Fisheries Science Center, National Oceanographic Data Center, and the National Environmental Satellite, Data, and Information Service participated.



Participants of the annual SOOP meeting gather on the front steps of AOML.

SOOP technical and logistical issues were discussed, with a focus on high density and frequently-repeated expendable bathythermograph (XBT) transects and thermosalinograph (TSG) observations. Completed and future trials and installations of new systems such as Iridium satellite transmission technology and the Devil XBT system were reviewed, along with real-time data transmission and quality control procedures and developments. Ship recruitment, logistics, and data management issues were also discussed, and key scientific applications were presented.

SOOP is a worldwide network of commercial vessels that aid NOAA in obtaining surface and subsurface oceanographic measurements through the deployment of oceanographic equipment. The program is supported by both the World Meteorological Organization and the Intergovernmental Oceanographic Commission, as well as NOAA's Climate Program Office. AOML principal investigators include Gustavo Goni, Molly Baringer, and Silvia Garzoli. Additional information about SOOP can be found at www.aoml.noaa.gov/phod/soop.

Workshop Addresses Role of Ocean Heat Content in Tropical Cyclone Predictions for the North Indian Ocean

Gustavo Goni, Physical Oceanography Division

U.S. and Indian researchers participated in a workshop convened in Hyderabad, India on March 25-26th to discuss how to best improve tropical cyclone predictions in the North Indian Ocean (Bay of Bengal and Arabian Sea). The workshop was hosted by the Indian National Remote Sensing Center (NRSC) and organized by Dr. M.M. Ali (NRSC) to investigate the role of the ocean in cyclone intensification and to strengthen existing NRSC-NOAA collaborative scientific investigations.

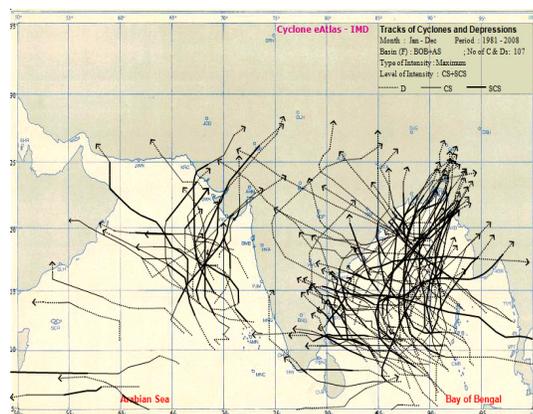
Tropical cyclones (TCs) exist in seven ocean basins, with the North and South Indian ocean basins being possibly the least studied and understood. Similar to the other basins, intensity predictions in the North Indian Ocean lag behind those of track forecasts. Several regional Indian institutions and government laboratories have taken the initiative to enhance research efforts with the objective of reducing errors in both track and intensity forecasts for TCs in this basin.

Satellite-derived sea height anomalies and oceanic heat content have been used extensively for track and intensity predictions in the Atlantic and Pacific oceans. Knowledge from these ocean basins has also helped to understand several intensification cases in the North Indian Ocean. Therefore, a focal point of discussion was on the utilization of satellite-derived oceanic heat content for tropical cyclone studies in the North Indian Ocean.

Although the upper ocean thermal structure has been used extensively in several forecast models and schemes for tropical cyclone track and intensity predictions in the Atlantic and Pacific oceans, the potential of this parameter in the North Indian Ocean has not yet been realized. It has been shown, however, that accurate determination of the location of mesoscale features and their vertical thermal structure is critical for the correct identification of regions in the tropical Atlantic and Pacific oceans that may be conducive to tropical cyclone intensification. Additionally, mesoscale features with tropical cyclone heat potential values above approximately 50 kJ/cm² have been linked to intensification of the most intense Atlantic hurricanes.

The current ocean observing network was not designed to study or provide forecasts of tropical cyclones, which requires the monitoring of location and vertical thermal structure of mesoscale features. Given the sparse distribution of hydrographic observations globally and, in particular, in the Bay of Bengal and Arabian Sea, observations and products derived from satellites appear to be the best alternative for monitoring the upper ocean thermal structure.

Interaction between scientists from the international community working on this topic will greatly help advance the knowledge of tropical cyclone intensity predictions in the North Indian Ocean. As a follow up to the workshop, it was decided that a coordinated program comprised of research, academic, and operational agencies within India and abroad be developed to study the impact of ocean heat content on cyclone track and intensity predictions in the North Indian Ocean. This workshop also complemented other efforts by NOAA and the India Meteorological Department geared towards the use of field experiments targeted at specific cyclones in the Bay of Bengal.



Tracks of tropical cyclones in the North Indian Ocean during 1981-2008 (image courtesy of the India Meteorological Department, New Delhi, India; from "Climatology of the cyclones over the North Indian Ocean" [<http://www.mausam.gov.in>]).

AOML's hosted an ethnic luncheon in honor of Black History Month on March 25th. The well-attended event was organized by Evan Forde, an AOML oceanographer. Staff members and guests made their way to the AOML lobby following guest speaker Lt. Col. Eldridge Williams' presentation to mingle and enjoy a wide variety of tasty dishes and desserts made by their coworkers.



"I think the story that has not been told is stories like mine in which the home battle that was waged, shall we say, helped open the door so that the [Tuskegee] unit could enter combat and demonstrate its capabilities and be successful."

Lt. Col. Eldridge Williams

Tuskegee Airman Tells Story of Fight for Equality

In celebration of Black History Month, AOML welcomed guest speaker Lieutenant Colonel Eldridge Williams (U.S. Army, retired) on March 25th, a Tuskegee airman during the years of World War II. At age 92, Lt. Col. Williams told the story of how the Tuskegee airmen broke through racial barriers to become the first African-American aviators in the U.S. armed forces. More than 60 staff members and guests attended his presentation.

Williams was drafted into the Army in 1941, the same year the Army Air Corps opened an aeronautical school in Tuskegee, Alabama with the goal of training an all-African-American, then referred to as "negro" or "colored," pursuit squadron. The Tuskegee Army Flying School was the first military installation to allow African-Americans the chance to become pilots, as well as train for a variety of Air Corps ground support positions previously out of their reach.

The school was not without controversy, however. During this era the U.S. military system, as well as most of American society, was racially segregated, and many in the military hierarchy were opposed to providing advancement opportunities to African-Americans. The Tuskegee cadets were thus challenged with achieving their goals while contending with the intolerance of individuals intent on stifling their forward progress.

Eleanor Roosevelt, then First Lady, visited the Tuskegee flight school shortly after it opened. She subsequently aided the Tuskegee effort by rallying the support of President Roosevelt. By 1943, the Tuskegee air units were activated to participate in combat missions overseas.

In the skies above Europe and northern Africa, the Tuskegee fighter squadrons were a formidable force. Known as the "Red Tails," their courage, tenacity, and skill led to a well-earned reputation for excellence. They particularly excelled as escorts for bomber aircraft, and in more than 200 bomber missions never lost a plane to enemy fire, a distinguished record unmatched by other squadrons.

The success and distinction of the Tuskegee airmen changed perceptions of what African-Americans could achieve and were instrumental in President Harry S. Truman's signing of Executive Order 9981 in July 1948. The legislation desegregated the military by calling for the equality of treatment and equal opportunity for African-Americans in the armed services.

Lt. Col. Williams resigned from the military after the war, but was recalled to active duty in 1948 during the Berlin Airlift. He retired in 1964 with 23 years of military service.

At AOML, Lt. Col. Williams was joined by Major General John Mitchell Brown (U.S. Army, retired) and Colonel William Hammond (U.S. Army, retired), both former career military officers with distinguished service records. AOML was also pleased to welcome Darrell Roberts, Chairman of the South Florida Federal Executive Board and Technical Operations Manager of the Federal Aviation Administration, Mrs. Louise Brown, and Lu Hammond, the daughter of Colonel Hammond. Thanks to Howard Friedman, Director of AOML's Office of Equal Employment Opportunity, for coordinating Lt. Col. Williams' appearance at AOML.



Eldridge Williams entered the Army in 1941 and a year later was assigned to the Army Air Corps Flying School in Tuskegee, Alabama.



Guest speaker Lt. Col. Eldridge Williams told of the hardships endured by African-American servicemen and the struggle of the Tuskegee airmen to overcome racism in the military.



AOML welcomed several guests to its ethnic luncheon on March 25th. Pictured from left to right are Darrell Roberts, Lu Hammond, Colonel William Hammond, Evan Forde (AOML), Major General John Mitchell Brown, Mrs. Louise Brown, Howard Friedman (AOML), Lieutenant Colonel Eldridge Williams, and Dr. Bob Atlas (AOML Director).

Farewell

LTJG Madeleine Adler, a NOAA Corps officer with AOML's Office of the Director and Physical Oceanography Division, departed in March for a new assignment in Washington, DC. Adler becomes the new Flag Officer for RADM Jonathan Bailey, Director of NOAA's Commissioned Officer Corps and the Office of Marine and Aviation Operations. During Adler's three years at AOML, she supported both coastal ecosystem and climate-related research programs, spearheaded several energy-efficiency initiatives for the laboratory, and expanded and lead AOML's recycling efforts.



On March 25th, volunteers and researchers with the Ocean Chemistry Division's Coral Health and Monitoring Program (CHAMP) loaded a 38-foot pylon into the bed of a shipping container for transport to Saipan. The pylon and its associated array of instruments will constitute a new Coral Reef Early Warning System (CREWS) station in Laolao Bay. The station will undergo final preparatory construction in Saipan during May before final deployment later this year. CREWS stations gather near real-time environmental data to monitor and assess the health of coral reefs and, together with data from other in situ networks, satellites and radar data, form the basis of the Integrated Coral Observing Network (ICON) at AOML. Saipan is a U.S. territory and is the largest in the chain of islands that comprise the Commonwealth of the Northern Mariana Islands in the western Pacific. Progress of the project, including pictures of the area and reefs, can be viewed online at <http://llbp7-log.blogspot.com/>.

Congratulations

Molly Baringer, an oceanographer with AOML's Physical Oceanography Division, has been selected to serve as AOML's Acting Deputy Director. Baringer accepted the position following the announcement that Judith Gray, AOML's current Deputy Director, had been selected to serve as the Acting Deputy Assistant Administrator for Programs and Administration of NOAA's Office of Oceanic and Atmospheric Research. Baringer will serve as AOML's Acting Deputy Director until Gray's permanent successor, Dr. Alan Leonardi, arrives in August 2010.



Joseph Cione, a meteorologist with AOML's Hurricane Research Division, is the recipient of a 2009 U.S. Department of Commerce Bronze Medal. Cione received the award for successfully executing the first launch and recovery of an unmanned aircraft system (UAS) into the core of a tropical cyclone (Tropical Storm Ophelia, 2005). UAS have the potential for improving forecasts by gathering observations from the lowest levels of the hurricane environment where the winds are strongest, an area too dangerous for manned aircraft to safely venture.



Judith Gray, AOML's Deputy Director for the past 12 years, has been selected to serve as the Acting Deputy Assistant Administrator for Programs and Administration of NOAA's Office of Oceanic and Atmospheric Research (OAR) in Silver Spring, Maryland. Gray will oversee the daily operation of OAR's research efforts, as well as its Climate, National Sea Grant, and Ocean Exploration programs.



Christopher Kelble, a CIMAS senior research associate with AOML's Ocean Chemistry Division for the past 11 years, earned a Ph.D. from the Division of Marine Biology and Fisheries of the University of Miami's Rosenstiel School of Marine and Atmospheric Science in March. Kelble successfully defended his thesis entitled *The effect of salinity on the plankton community of Florida Bay*.



Rick Lumpkin, an oceanographer with AOML's Physical Oceanography Division, is the recipient of three 2009 U.S. Department of Commerce Bronze Medals. Lumpkin received the first Bronze Medal for his contributions to the ocean circulation display at the Smithsonian Institution's Sant Ocean Hall of the National Museum of Natural History in Washington, DC. His second Bronze Medal was obtained for serving as author of the "Water Movement and Circulation" chapter of the book *Hidden Depths: Atlas of the Oceans*, released in conjunction with the Sant Hall's opening in September 2008. Lumpkin's third Bronze Medal was awarded for his contributions to the global ocean sea surface temperature observing system, which was highlighted in the January 2009 cover article of the *Bulletin of the American Meteorological Society*.



Frank Marks, Director of AOML's Hurricane Research Division, is the recipient of a 2009 U.S. Department of Commerce Distinguished Career Award. Marks received the award in recognition of his pioneering achievements in airborne radar remote sensing of tropical cyclones and severe storms that have contributed to improved understanding of the dynamics of these storms. Marks was a member of the scientific team that first investigated the use of airborne Doppler radar during the early 1980s in the hope of obtaining more accurate wind measurements. The instrument provided researchers with wind field data of the entire inner core of a storm system, revolutionizing the field of hurricane research. Marks subsequently lead the effort for NOAA to install Doppler radar instruments aboard its hurricane hunter aircraft.



Travel

Pamela Fletcher attended the South Atlantic Fishery Management Council's Information and Education Advisory Panel meeting on Jekyll Island, Georgia on March 1-2, 2010.

Christopher Sinigalliano attended the International Conference on Sea-Level Rise in the Gulf of Mexico: Impacts, Adaptations, and Management in Corpus Christi, Texas on March 1-3, 2010.

John Gamache, George Halliwell, John Kaplan, Sang-Ki Lee, Frank Marks, Michael Montgomery, Shirley Murillo, Robert Rogers, and Eric Uhlhorn attended the 64th Interdepartmental Hurricane Conference in Savannah, Georgia on March 1-4, 2010.

Dwight Gledhill, Derek Manzello, Denis Pierrot, and Rik Wanninkhof attended an Ocean Acidification Instrumentation and Research Needs workshop in St. Petersburg, Florida on March 8-11, 2010.

Bob Atlas attended the NASA/U.S. Geological Survey "Climate in a Box" Workshop in Greenbelt, Maryland on March 22nd; he also attended the OAR Senior Research Council meeting in Washington D.C. and visited with Congressional members on April 12-16, 2010.

Sim Abernson and Robert Rogers attended the International Workshop on Typhoon Morakot in Taipei, Taiwan on March 25-26, 2010.

Silvia Garzoli and Claudia Schmid attended the eleventh Argo Science Team meeting in La Jolla, California on March 23-25, 2010.

Gustavo Goni attended the Utilization of Satellite-Derived Oceanic Heat Content for Cyclone Studies Workshop in Hyderabad, India on March 25-26, 2010.

Mayra Pazos attended the 13th session of the International South Atlantic Buoy Program in Buenos Aires, Argentina on April 14-16, 2010.

Rick Lumpkin and Rik Wanninkhof made presentations at the 42nd International Liege Colloquium on Ocean Dynamics in Liege, Belgium on April 26-30, 2010.

Recent Publications*

Bui, H.-H., R.K. Smith, **M.T. MONTGOMERY**, and J. Peng, 2009: Balanced and unbalanced aspects of tropical cyclone intensification. *Quarterly Journal of the Royal Meteorological Society*, 135(644):1715-1731.

Conzemius, R.J., and **M.T. MONTGOMERY**, 2009: Clarification on the generation of absolute and potential vorticity in mesoscale convective vortices. *Atmospheric Chemistry and Physics*, 9(19):7591-7605.

DONG, S., S.L. GARZOLI, and **M.O. BARINGER**, 2009: An assessment of the seasonal mixed layer salinity budget in the Southern Ocean. *Journal of Geophysical Research*, 114(C12):C12001, doi:10.1029/2008JC005258.

DONG, S., S.L. GARZOLI, M.O. BARINGER, C.S. MEINEN, and **G.J. GONI**, 2009: Interannual variations in the Atlantic meridional overturning circulation and its relationship with the net northward heat transport in the South Atlantic. *Geophysical Research Letters*, 36(20):L20606, doi:10.1029/2009GL039356.

MONTGOMERY, M.T., V.S. Nguyen, R.K. Smith, and J. Persing, 2009: Do tropical cyclones intensify by WISHE? *Quarterly Journal of the Royal Meteorological Society*, 135(644):1697-1714.

Nolan, D.S., **J.A. ZHANG**, and D.P. Stern, 2009: Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ observations and high-resolution simulations of Hurricane Isabel (2003), Part I: Initialization, maximum winds, and the outer core boundary layer. *Monthly Weather Review*, 137(11):3651-3674.

Nolan, S.D., **J.A. ZHANG**, and D.P. Stern, 2009: Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ observations and high-resolution simulations of Hurricane Isabel (2003). Part II: Inner-core boundary layer and eyewall structure. *Monthly Weather Review*, 137(11):3675-3698.

Panda, J., M. Sharan, and **S.G. GOPALAKRISHNAN**, 2009: Study of regional-scale boundary layer characteristics over northern India with a special reference to the role of the Thar Desert in regional-scale transport. *Journal of Applied Meteorology and Climatology*, 48(11):2377-2402.

POWELL, M.D., S.T. MURILLO, P.P. DODGE, E.W. UHLHORN, J.F. GAMACHE, V. Cardone, A. Cox, **S. OTERO, N. CARRASCO, B. ANNANE**, and **R. ST. FLEUR**, 2010: Reconstruction of Hurricane Katrina's wind fields for storm surge and wave hindcasting. *Ocean Engineering*, 37(1):26-36.

Schubert, S., D. Gutzler, H. Wang, A. Dai, T. Delworth, C. Deser, K. Findell, R. Fu, W. Higgins, M. Hoerling, B. Kirtman, R. Koster, A. Kumar, D. Legler, D. Lettenmaier, B. Lyon, V. Magana, K. Mo, S. Nigam, P. Pegion, A. Phillips, R. Pulwarty, D. Rind, A. Ruiz-Barradas, J. Schemm, R. Seager, R. Stewart, M. Suarez, J. Syktus, M. Ting, **C. WANG**, S. Weaver, and N. Zeng, 2009: A U.S. CLIVAR project to assess and compare the responses of global climate models to drought-related SST forcing patterns: Overview and results. *Journal of Climate*, 22(19):5251-5272.

Smith, R.K., **M.T. MONTGOMERY**, and V.S. Nguyen, 2009: Tropical cyclone spin-up revisited. *Quarterly Journal of the Royal Meteorological Society*, 135(642):1321-1335.

Vickery, P.J., F.J. Masters, **M.D. POWELL**, and D. Wadhera, 2009: Hurricane hazard modeling: The past, present, and future. *Journal of Wind Engineering and Industrial Aerodynamics*, 97(7-8):392-405.

WANG, C., S.-K. LEE, and C.R. Mechoso, 2010: Interhemispheric influence of the Atlantic warm pool on the southeastern Pacific. *Journal of Climate*, 23(2):404-418.

WANG, C., Z. Song, F. Qiao, and **S. DONG**, 2009: What signals are removed and retained by using an anomaly field in climatic research? *International Journal of Oceanography*, 2009:329754, doi:10.1155/2009/329754, 7 pp.

*The names of AOML authors are denoted by blue bolded letters.

Keynotes is published bi-monthly by the Atlantic Oceanographic and Meteorological Laboratory to promote the research activities and accomplishments of staff members. Contributions 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).

Editors – Robert Atlas/Molly Baringer
Publishing Editor/Writer – Gail Derr

View *Keynotes* online at <http://www.aoml.noaa.gov/keynotes>