AOML Keynotes

Miami, Florida

January-February 2003 Atlantic Oceanographic and Meteorological Laboratory Volume 7, Number 1

Anniversary Celebration

AOML celebrates its 30th anniversary in conjunction with the 25th anniversary of the University of Miami's Cooperative Institute for Marine and Atmospheric Studies

February 19, 2003

Events will take place at both AOML and CIMAS:

AOML

(9:00 a.m.-12 Noon)

(Lobby/First-Floor Conference Room)

- A Vision for AOML
- Reception and Poster Session

CIMAS

(1:00-4:00 p.m., RSMAS Campus)

- Presentations by Past CIMAS Directors
- A Vision for CIMAS

Outdoor Dinner Reception

(5:30 p.m., AOML Grounds)

- Music, food by Parties by Pat, and beverages provided

Remote Sensing Device a High Performer in Measuring Hurricane Winds

Eric Uhlhorn of the University of Miami's Cooperative Institute for Marine and Atmospheric Studies and Peter Black of AOML's Hurricane Research Division have determined that an instrument carried on NOAA research aircraft, the stepped-frequency microwave radiometer (SFMR), is the most accurate and reliable remote sensing device available for measuring hurricane force winds at the sea surface. Surface winds impact coastal areas when hurricanes make landfall and are one of the most important pieces of information gathered for hurricane forecasters and the emergency response community.

The stepped-frequency microwave radiometer (SFMR) is mounted to the underside of reconnaissance aircraft. It appears as the metal box at the right in the photograph.

The study, published in the January 2003 issue of the *Journal of Atmospheric and Oceanic Technology*, determined that surface winds measured by the SFMR are comparable to Global Positioning System (GPS) dropwindsonde measurements that are the current standard for measuring such winds. GPS dropwindesondes are instrument packages designed to measure wind speed, temperature, and humidity as they drop from the aircraft to the ocean surface. The benefit of the SFMR is that winds are continuously measured during research flights, as compared to single point measurements from GPS dropwindsondes, allowing for more complete mapping of the hurricane surface wind structure. In addition, SFMR measurements are not hindered by mathematical errors, for example, when winds at flight altitude are extrapolated to estimations of the surface.

The SFMR works by sensing the high frequency radiation emitted in the microwave band, which naturally radiates from the sea surface. When hurricane strength winds blow over the ocean, they cause the waters to churn and create sea foam. This sea foam radiates a high level of microwave energy, which increases with wind speed over the ocean surface. The SFMR tunes into these microwave frequencies over a series of six channels. Computer models then calculate the wind speed from these microwave measurements, even in the presence of rain.

"The SFMR has been previously used as a research tool. With this new validation of its accuracy, it can now be used as a primary tool for measuring hurricane winds directly below the airplanes," said Peter Black, co-author of the paper. *(continued on page 2)*

(continued from page 1)

The SFMR data are incorporated in near-real time with other observations into a hurricane windfield map called H*Wind. H*Wind contours the wind speeds in different regions of a storm.

Scientists at the University of Massachusetts conceived and built the original SFMR. NOAA first tested the SFMR on research aircraft in 1980 during Hurricane Allen. After initial success, updated models have been used continuously on NOAA research aircraft since 1985. AOML's Hurricane Research Division and the University of Massachusetts each operate an SFMR attached to the fuselage of NOAA's two WP-3D Orion hurricane hunter aircraft.

"The SFMR appears to be an outstanding new instrument that will help hurricane forecasters estimate the radius of tropical storm and hurricane force winds, as well as better estimate the maximum sustained surface winds in tropical cyclones. We are eager to see this instrument installed on hurricane reconnaissance aircraft," said Max Mayfield, Director of the National Hurricane Center.

The Office of the Federal Coordinator for Meteorological Services and Supporting Research of NOAA is funding an additional, newly redesigned SFMR to be located under the wing of one of the WP-3D aircraft. "We hope that one day all planes flying into hurricanes, including the U.S. Air Force Reserve Command's WC-130J aircraft, will be outfitted with this technology," said Black.

2003 Federal Holidays

January 1	New Year's Day
January 20	Birthday of Martin Luther King, Jr.
February 17	Washington's Birthday
May 26	Memorial Day
July 4	Independence Day
September 1	Labor Day
October 13	Columbus Day
November 11	Veterans Day
November 27	Thanksgiving Day
December 25	Christmas Day

Pica Named Junior NOAA Corps Officer of the Year

Lt. Joseph Pica, Associate Director of AOML, was named 2002 NOAA Corps Junior Officer of the Year by the NOAA Association of Commissioned Officers. The Junior Officer of the Year award is an honor bestowed annually by each federal uniformed service on its top junior officer. Pica was commended for his outstanding leadership and management skills at AOML. He was cited for specific achievements, including his creative approach to solving a long-standing facilities energy problem while also saving the Laboratory $450,000 over the next ten years.

"During his two-and-a-half year tenure as the Associate Director of AOML, Lt. Pica has demonstrated skills and insight far beyond what is expected of a junior officer," said Judith Gray, Deputy Director of AOML. "Lt. Pica performs at an outstanding level in leadership, laboratory management, staff supervision, contract management, ship and aircraft coordination, emergency planning, and science support. He sees the big picture as well as the details, seeks innovative solutions, and is an excellent communicator."

"Lt. Pica exemplifies the kind of professionalism and dedication to service that we expect from our best and brightest NOAA Corps officers," said Rear Admiral Evelyn Fields, Director of the NOAA Commissioned Corps and NOAA Marine and Aviation Operations (NMAO). "This award, I'm sure, is only one of many that he will earn throughout his career."

Presentation at the NOAA Marine and Aviation Operations Awards Banquet (left to right): Capt. DeBow, NOAA ACO President; Lt. Pica; Rear Admiral Fields, Director of the NOAA Corps and NMAO; and Rear Admiral Prahl, Director of NOAA's Marine Operations Center.

In addition to the banner recognition from AOML, Pica was recognized at the NMAO Annual Conference in Baltimore, Maryland, on January 8, and once again at the Reserve Officers Association (ROA) Mid-Winter Conference in Washington, D.C., on January 21.

Pica was commissioned into the NOAA Corps in 1992 after obtaining a bachelor's degree in general engineering from the University of Illinois. Since then, he has served two, two-year tours aboard NOAA research ships. His land-based assignments have included hydrologist at the Northwest River Forecast Center in Portland, Oregon, and his current assignment at AOML. While stationed in Portland, Oregon, he earned a master's degree in civil engineering from Portland State University.

Pica is scheduled to depart AOML at the end of February and report for sea duty on April 1st. He will serve as Executive Officer aboard the NOAA Ship *Gordon Gunter* in Pascagoula, Mississippi.

"I have simply tried to work hard and do my best, a work ethic instilled by my parents and enhanced by the NOAA commissioned officers and civilian employees with whom I have had the privilege and pleasure of serving," said Pica at the ROA Mid-Winter Conference. AOML is proud of Lt. Pica's accomplishments and service on behalf of the Laboratory and anticipates an exciting career for him with NOAA.

Outreach Corner

Evan Forde, an oceanographer with AOML's Computer Networks and Services Division, was the keynote speaker for the annual Miami-Dade Math and Science teacher conference on February 8th. The event was attended by approximately 600 Miami-Dade math and science teachers, as well as representatives from several dozen text book publishing and academic supply companies. Forde's presentation was entitled "Inspiring and teaching the next generation of scientists and explorers."

Stanley Goldenberg, a meteorologist with AOML's Hurricane Research Division, gave a presentation for a group of about 40 4-H students in south Dade entitled "In the eye of the hurricane: Experiences of a research meteorologist."

First Aid-CPR-AED* Training Class

January 17, 2003

9:00 a.m. - 4:00 p.m.

First-Floor Conference Room

Contact Jeff Judas to register or for more information

(305-361-4408 or Jeff.Judas@noaa.gov)

Sponsored by the American Red Cross

*Automated External Defibrillator

NOAA's Computer Security Awareness Course is mandatory for all federal, joint institute, and contractor employees and must be completed by March 15, 2003. Access the online course at http://noaa.learnsecuritywith.us.

Diving Future Planned at AOML

Attendees of NOAA's Diving Safety Board annual meeting at AOML (left to right): Steve Urich (NOAA Diving Center), Dave Dinsmore (Director, NOAA Diving Program), Frank Parrish (Diving Officer, National Marine Fisheries Service), Bill Cobb (NOAA Diving Center), Bill Valley (Diving Officer, National Ocean Service), Jules Craynock (Diving Officer, Office of Oceanic and Atmospheric Research), and Ian Workman (National Marine Fisheries Service).

NOAA's Diving Safety Board (NDSB) held its annual meeting at AOML on January 6-10, 2003. The NDSB is an advisory board to the Director of the NOAA Diving Program and is comprised of diving representatives from each of the NOAA line organizations and the NOAA Fleet. NOAA diving operations, procedures, regulations, and evaluation and implementation of new underwater equipment were discussed at the meeting, as well as a special demonstration of a new rebreather underwater system conducted at a local pool. The meeting culminated with the development of a comprehensive Strategic Plan for NOAA diving operations for 2003-2008. This strategic plan will hopefully meet the increasing need for NOAA diver services and expertise in the immediate future. Active NOAA divers at AOML include Jules Craynock (Unit Supervisor), Robert Roddy, James Hendee, Jeff Judas, and Joe Pica.

NOAA Librarian Teaches Information Management Course

Linda Pikula (standing, second from left, middle row), surrounded by attendees of the ODINCARSA training program in Mexico.

Linda Pikula, a librarian with the National Oceanographic Data Center Regional Library at AOML, helped organize and teach a marine information management training course in Mexico this past September-October 2002. The "Ocean Data and Information Net for the Caribbean and South America" training program (ODINCARSA) brought together 18 representatives from the Caribbean and South America. Collectively they created a regional cooperative electronic resource sharing and networking plan for their marine science libraries. ODINCARSA is sponsored by the Intergovernmental Oceanographic Commission. It seeks to establish a network of ocean data and information centers in the Caribbean and South America to provide services and products to decision makers, researchers, students, the private sector, and the general public.

RSMAS Spring Shuttle Schedule

JANUARY 13-APRIL 25, 2003
(MONDAY THROUGH FRIDAY)

Viscaya Station to RSMAS:

8:15 - 9:30 - 10:15 - 11:15 AM
1:45 - 3:50 PM

RSMAS to Viscaya Station:

9:45 - 10:45 AM
3:30 - 5:30 PM

Congratulations

Stanley Goldenberg and Christopher Landsea, meteorologists with the Hurricane Research Division, along with Alberto Mestas-Nuñez, a CIMAS assistant scientist with the Physical Oceanography Division, are among the recipients of the Office of Oceanic and Atmospheric Research's (OAR) 2002 Outstanding Scientific Paper Awards. They share the award jointly for their co-authored paper published in *Science* [Goldenberg, S.B., C.W. Landsea, A.M. Mestas-Nuñez, and W.M. Gray, 2001: The recent increase in Atlantic hurricane activity: Causes and implications. *Science,* 293 (5529):474-479].

Christopher Meinen, a CIMAS assistant scientist with the Physical Oceanography Division, is a recipient of OAR's 2002 Outstanding Scientific Paper Awards for research completed while working at NOAA's Pacific Marine Environmental Laboratory [Meinen, C.S., and M.J. McPhaden, 2000: Observations of warm water volume changes in the equatorial Pacific and their relationship to El Niño and La Niña. *J. Climate,* 13 (20):3551-3559].

Welcome Aboard

Are Olsen recently began a six-month visit at AOML on a fellowship from the Norweigian Research Council. He is working with the Ocean Carbon Group of the Ocean Chemistry Division on projects relating air-sea CO_2 fluxes to remotely sensed and in-situ parameters to improve CO_2 flux estimates in the North Atlantic. Are's home institution is the Geophysical Institute/Bjerknes Center for Climate Research of the University of Bergen, Norway.

Huiqin Yang joins the staff of the Physical Oceanography Division as a part-time CIMAS employee to work with Drs. Carlisle Thacker and Donald Hansen on development of statistical algorithms for estimation of synthetic salinity profiles for assimilation into ocean circulation models. Huiqin holds a BS degree in chemistry from Lian YunGang University (1993), a MS degree in marine chemistry from the Chinese Academy of Science (1998), and a MS degree in statistics from Mississippi State University (2002).

It's a Girl!

Congratulations to Stanley Goldenberg, meteorologist with the Hurricane Research Division, and his wife, Barbara, on the birth of their ninth child, a daughter, Sarah Rebekah, born December 31, 2002 at 7:44 p.m. Mother, daughter, and Dad are all doing well.

Congratulations to Robert Rogers, a CIMAS assistant scientist with the Hurricane Research Division, and his wife, Jennifer, on the birth of their second child, a daughter, Katherine Ida, born January 9, 2003. Mother, daughter, and Dad are all doing well.

Farewell

Maria Bello, library technician with NOAA/NODC's Miami Regional Library at AOML, departed on January 10th after seven years of employment. Maria accepted a librarian position with NOAA's Southeast Fisheries Science Center located across the street from AOML on Virginia Key. Friends and co-workers gathered in the library on January 10th to bid Maria a fond farewell and to offer their best wishes for her continued success.

Maria Bello (holding flowers) surrounded by friends and co-workers at a farewell party held in the library on January 10th.

Coordinator Selected for New NOAA-Sea Grant Program

Alessandra Score, Education Coordinator for the South Florida Ecosystem Outreach Project.

Alessandra Score has been selected as the Education Coordinator for the South Florida Ecosystem Outreach Project, a new NOAA-Sea Grant pilot program that seeks to utilize the educational and network capabilities of NOAA line offices and the Florida Sea Grant Extension office. The program is being administered and supported by Florida Sea Grant, NOAA's National Sea Grant College Program and the Office of Oceanic and Atmospheric Research, as well as NOAA units in the south Florida area: the Florida Keys National Marine Sanctuary, Southeast Fisheries Science Center, and AOML. Representatives from these agencies will provide programmatic oversight for the two-year program.

As education coordinator, Score will serve as a communication link between the general public and NOAA's marine ecosystem management research community. She will also provide information and outreach education to both upland and coastal communities about local marine water quality, living marine resources, protected species, and other issues that impact the south Florida coastal ecosystem.

Score has a M.S. degree in biology from Georgia Southern University and a B.S. degree in marine biology from the Florida Institute of Technology. Her professional experience includes serving as Education Coordinator for the Reef Environmental Education Foundation in Key Largo, Florida, and as Information Systems Coordinator for Gray's Reef National Marine Sanctuary in Savannah, Georgia. She has also served as a Domestic Fisheries Observer in Alaska and a Research Assistant at Aquarium Inc., in California. Score is an accomplished PADI diver and has experience as a webmaster. She also has the ability to converse in several languages, including Italian, Spanish, Portuguese, and French. Although she will be based in Key Largo, Florida (office space provided by the Florida Keys National Marine Sanctuary), she will also have an office in Miami provided by AOML.

February is National African-American History Month

Travel

Judy Gray traveled to Boulder, Colorado and Seattle, Washington to develop ideas for a user interface for Coastal Storms Initiative data on January 15-24, 2003.

James Hendee hosted the First Annual Workshop on the Effects of Combined Sea Temperature, Light, Carbon Dioxide, and Other Factors on Coral Bleaching, Larval Settlement, and Growth in Lee Stocking Island, Bahamas on January 20-24, 2003. Jules Craynock, Derek Manzello, Peter Ortner, and Michael Shoemaker attended.

Kristina Katsaros attended a Senior Research Council Meeting in Honolulu, Hawaii on January 20-24, 2003.

David Enfield and Silvia Garzoli attended a meeting of the Inter American Institute for Global Change Research in Mendoza, Argentina on January 27-31, 2003.

David Bitterman, Carlos Fonseca, Benjamin Kates, Richard Lumpkin, Christopher Meinen, Ulises Rivero, and Robert Roddy participated in a research cruise aboard the NOAA ship *Ronald H. Brown* on February 1-16, 2003.

Clarke Jeffris attended the SANS (SysAdmin, Audit, Network, Security) Conference in Orlando, Florida on February 3-9, 2003.

Silvia Garzoli, Gustavo Goni, and Robert Molinari attended the Workshop on the South Atlantic Climate Observing System in Agra do Reis, Rio de Janeiro, Brazil on February 6-8, 2003.

Peter Black, Robert Burpee, Steven Cook, Howard Friedman, Christopher Landsea, Kristina Katsaros, Frank Marks, and Shirley Murillo attended the American Meteorological Society's 83rd Annual Meeting and the Robert and Joanne Simpson Symposium in Long Beach, California on February 10-14, 2003.

Tsung-Hung Peng will attend the Carbon Dioxide in the North Atlantic (CARINA) second general meeting in Gran Canaria, Spain on February 25-March 2, 2003.

January-February 2003 Informal Seminars*

January 14 ***Decadal Signals in Tropical Storm Formation***
Dr. Robert Molinari
Physical Oceanography Division

January 21 ***Meridional Extent of the Pacific Ocean Tropical-Subtropical Warm Water Exchange***
Dr. Christopher Meinen
Physical Oceanography Division

January 28 ***Warm Season Water Vapor Fluxes in the Intra-Americas Sea***
Dr. Alberto Mestas-Nuñez
Physical Oceanography Division

February 13 ***The Coral Reef Early Warning System (CREWS): Marine Environmental Monitoring to Support Research and Marine Sanctuary Management***
Dr. James Hendee
Ocean Chemistry Division

February 18 ***Long-Term Variations in Late Season Atlantic Basin Hurricane Activity***
Mr. Stanley Goldenberg
Hurricane Research Division

February 25 ***Airborne Doppler Radar Observations in Hurricanes and Other Weather***
Dr. John Gamache
Hurricane Research Division

***Presentations begin at 3:00 p.m. in the first-floor conference room. Coffee and tea are served at 2:45 p.m.**

Thank You!

Nine families in the south Florida community had a brighter holiday season this past year due to the generosity of AOML staff members. Recipients of AOML's holiday-giving campaign, organized by Evan Forde, an oceanographer with the Office of the Director, and Howard Friedman, a meteorologist with the Hurricane Research Division, received Winn Dixie supermarket gift certificates of from $25.00-100.00. Thanks to all who helped make a difference in the lives of others by contributing to the 2002 holiday-giving campaign.

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

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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