Miami, Florida

AOML Keynotes

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NOAA's Hurricane Hunters

The Hurricane Research Division of AOML is NOAA's primary component for research on tropical cyclones and convective systems. Its highest priority is improving the understanding and prediction of hurricane motion and intensity change.

A key aspect of HRD's work is its annual hurricane field program, supported by reconnaissance aircraft from NOAA's Aircraft Operations Center. Descriptive data from surveillance flights into developing storms is gathered by HRD researchers to support analytical and theoretical hurricane studies.

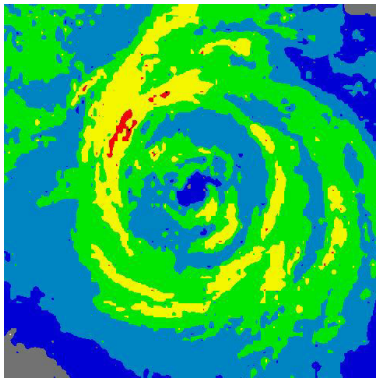
For many hectic days in August, HRD researchers tracked Bonnie from its formation in the Atlantic Ocean to well after its landfall at Cape Fear, North Carolina. Flight crews literally worked around the clock staging surveillance missions to gather precious real time data, crucial for accurate forecasts, about the strength, forward speed, and trajectory of Bonnie.

The data HRD gathers from its surveillance missions is relayed to the National Hurricane Center. Forecasters at NHC depend upon these data to issue advisories, hurricane watches, and hurricane warnings. Adequate lead time enables residents of an endangered area to prepare for the arrival of a hurricane and to evacuate vulnerable, low-lying areas.

When asked about the impact of their work upon the public, HRD Director Hugh Willoughby states, "We can't afford to make mistakes in our business. People depend on us to be accurate." While little can be done to lessen the occurrence, frequency, intensity, or trajectory of hurricanes, data collection by NOAA's hurricane hunters can help minimize and prevent loss of life and damage to property.

Hurricane Bonnie Produces Whirlwind of Data

Hurricane Bonnie, first hurricane of the 1998 Atlantic basin season, has become the best documented storm in history due to the combined surveillance efforts of hurricane hunters from AOML's Hurricane Research Division, NASA, and the U.S. Air Force. From August 20-27, 1998, the period in which Bonnie intensified from a tropical depression to a 115 mph, category 3 hurricane, six research aircraft flew an unprecedented total of 39 missions into Bonnie. The information they gathered has yielded the largest and most complete data set ever compiled of a developing hurricane. It should assist scientists in learning more about the dynamics of how hurricanes intensify and move, ultimately leading to improved storm track prediction and landfall accuracy.



Radar image of Hurricane Bonnie just before landfall along the North Carolina coastline.

As Bonnie began intensifying and drifting northwestward across the Atlantic, 15 scientists and technicians from AOML's Hurricane Research Division were deployed to man NOAA's two P-3 Orion turbo prop aircraft and a Gulfstream-IV jet. In tandem with flight crews and ground support personnel from NOAA's Aircraft Operation Center, HRD researchers staged flight operations to study Hurricane Bonnie from Tampa, Florida, Bermuda, Opa Locka, Florida, St. Croix, and Barbados. Over the next eight days HRD flew 14 data-gathering surveillance missions into Bonnie and released a record 500 Global Positioning System (GPS) dropsondes. Storm data from the dropsondes were immediately relayed to the National Hurricane Center via satellite. Forecasters used the data to track and predict Bonnie's course.

NASA's DC-8 and ER-2 aircraft flew four, eight-hour surveillance missions into the upper levels of Bonnie, marking the first occasion such high-altitude data has been collected since the 1970s and providing scientists a glimpse of how upper altitude winds affect storm development. In fact, the ER-2 aircraft collected data high above the storm at an altitude of 65,000 ft, once again an unprecedented occurrence.

The U.S. Air Force WC-130 Hercules turbo prop reconnaissance aircraft flew 21 missions into the lower levels of Bonnie where the vortex is stronger. New instrumentation aboard the WC-130 relayed data to the National Hurricane Center 20 times faster than previously possible, resulting in more accurate, timely forecasts of Bonnie.

The combination of turbo prop and jet-propelled surveillance aircraft made it possible for sampling to occur within the upper, middle, and lower levels of Bonnie simultaneously, providing researchers a more thorough vertical profile of the storm. At any given time, as many as two to six planes were flying into and through the 380-mile diameter Bonnie collecting data.

Collaboration between NOAA, NASA, and the U.S. Air Force has resulted in a landmark study of hurricane development and progression. Future research involving NOAA, NASA, and university collaborators is planned and will be conducted under the Hurricanes at Landfall focus of the U.S. Weather Research program.

Travel

Silvia Garzoli and **Michael Farmer** attended a supervisory training course in Silver Spring, Maryland on August 2-8, 1998.

Mark Bushnell attended the Fifth Meeting of the South Atlantic Buoy Program in Buenos Aires, Argentina on August 10-14, 1998 and made several presentations about the current status and plans of NOAA's drifting buoy program.

Kristina Katsaros attended the commissioning ceremony of the NOAA Ship R/V *Gordon Gunter* (R336) in Pascagoula, Mississippi, on August 28, 1998. R/V *Gordon Gunter* is the National Marine Fisheries Service's newest oceanographic research vessel. It will conduct scientific surveys of the health and abundance of fisheries resources and marine mammals in the Gulf of Mexico, Atlantic Ocean, and Caribbean Sea. The ship is named for Dr. Gordon Gunter, an eminent marine biologist whose career has spanned 60 years. The R/V *Gordon Gunter,* originally a U.S. Naval vessel built in 1990, was acquired by NOAA and converted to a fisheries research vessel in the spring of 1998.

Kristina Katsaros attended a Mesoscale Observations and Modeling Group Meeting in Boulder, Colorado on August 24-26, 1998.

Jim Hendee will attend the Second International Conference for Environmental Problems in Coastal Regions in Cancun, Mexico on September 7-11, 1998. He will make a presentation entitled "An expert system for marine environmental monitoring in the Florida Keys National Marine Sanctuary and Florida Bay."

Deputy Director Featured as Guest Speaker

AOML Deputy Director Judy Gray was the featured guest speaker at the Women's Equality Day Luncheon held at the Renaissance Ballroom in Miami on August 26, 1998. The luncheon celebrated the 150th anniversary of the women's rights movement in the United States.

Deputy Director Judy Gray with flower arrangement presented to her on behalf of the Miami Federal Executive Board and the Federal Women's Council.

As the featured speaker, Ms. Gray spoke of her own experiences in setting and achieving professional goals and invited the audience to consider what they wished to individually accomplish. Each audience member was given pencil and paper and asked to answer a series of thought-provoking questions designed to increase awareness of personal values and motivations. Ms. Gray reminded her audience that failure was an indispensable precursor to success and that hard work, determination, self-reliance, and creativity were necessary components in accomplishing goals. Believe that if you can dream it you can achieve it, surmised Gray.

The progress of woman, from the early days of the suffragette movement before ratification of the 19th amendment to the present-day struggle for equality in the workplace, was addressed by opening speaker Marge Michnewicz, President of the Miami Federal Women's Council. From a personal and historical perspective, Suzanne Mejia, a direct descendent of Elizabeth Cady Stanton, shared with the audience the pioneering and progressive role her great grandmother played in the women's rights movement.

Overall, a total of 150 individuals from various federal agencies in the metropolitan Miami-Dade County area attended the luncheon, the largest turnout ever noted. The event was sponsored by the Miami Federal Executive Board and the Miami Federal Women's Council.

It's a Girl!

Congratulations to Stanley and Barbara Goldenberg on the birth of their seventh child, Hannah, a healthy baby girl born Sunday, September 6, 1998. Hannah weighed in at 8 lbs., 4 oz.

GUEST SPEAKER SEMINARS*

Date	Time	Speaker	Title of Report
September 8, 1998	3:00	**Dr. James J. O'Brien** Center for Ocean-Atmosphere Prediction Studies, Florida State University	ENSO as understood by Jim O'Brien with emphasis on impacts on the continental United States.
September 9, 1998	3:00	**Dr. Xuri Yu** Pacific Marine Environmental Laboratory	Dynamics of seasonal and interannual variability in the equatorial Pacific.

*Guest speaker seminars are presented in the first-floor conference room; doughnuts and coffee are served 15 minutes prior to presentations.

Aloha Sam

Sam Houston, meteorologist with the Hurricane Research Division, took a leave of absence from AOML on August 20, 1998 to begin a year-long sabbatical at the University of Hawaii. Before his departing for Honolulu, however, Sam's friends at AOML put on a farewell luau picnic on August 11th to wish him well and send him properly on his way. Sam will spend the next year enhancing his knowledge of tropical meteorology.

Congratulations

Melissa Fernandez, a MAST Academy junior and an AOML summer intern, was one of eight students chosen this past July to represent the state of Florida at the Hugh O'Brien Youth 40th Anniversary World Leadership Congress at George Washington University in Washington, D.C. The students met with Secretary of State Madeleine Albright, Secretary of Education Richard Riley, and other national leaders.

Mark Powell, meteorologist with the Hurricane Research Division won a Silver Medal in the windsurfing competition (30-50 year age group) of the Nike World Masters Games held at the Columbia River Gorge at Hood River, Oregon on August 10-14, 1998.

Hugh Willoughby, Director of the Hurricane Research Division, completed over 400 eye penetrations during reconnaissance flights in Hurricane Danielle. He began this streak in 1970 while flying into Typhoon Olga in the western Pacific Ocean as a crew member of the United States Navy typhoon reconnaissance squadron.

Summer Interns Enhance AOML Research Efforts

Marine Academy of Science and Technology (MAST) high-school students and local college undergraduate students assisted AOML scientists and technicians this past summer as student interns. The interns were employed by all four research divisions at AOML and the Office of the Director. In addition to gaining valuable work experience, interns had the opportunity to enhance their computer and mathematical skills and learn general research methods and techniques. AOML's 1998 summer interns were (the division they were employed by is in parentheses):

Hannuman Bull (OAD)
Nick Carasco (HRD)
Noel Charles (HRD)
Douglas Chermak (OCD)
Melissa Fernandez (OD)
Monika Gurnee (OCD)
James Haynes (OD)
Paul Hungerford (HRD)
Adam Koptowsky (OAD)
Paul Lee (HRD)
Sara Marks (Library)
Carolina Mayrinck (OCD/HRD/OAD)
Carl Sandin (HRD)
Summer Spisak (HRD)
Russell St. Fleur (HRD)
Jeremy Wehking (PhOD)

To celebrate the accomplishments of AOML's interns, the Morale, Recreation, and Welfare Committee hosted a Summer Student Appreciation luncheon on Tuesday, August 18, 1998. Congratulations to all of AOML's summer interns for a job well done.

Dr. David Enfield Invites Discussion

NOAA's Climate Prediction Center (CPC) has posted assessments and outlooks that the tropical Pacific is rapidly entering a La Niña phase. The CPC is predicting forecasts for next winter's climate and tropical storms based upon these assessments.

"In the spirit of constructive discussion, I would like to suggest that there are alternative ways to interpret current conditions in the tropical Pacific. To see what my own particular slant on this is, you may visit a web page I have prepared at http://www.aoml.noaa.gov/phod/docs/la_nina.html," states Enfield.

DAILY TROPICAL WEATHER DISCUSSION

WEEKDAYS: 12:30 P.M.
4TH FLOOR MAP ROOM
DURATION: APPROX. 15 MINUTES

In support of our annual Hurricane Field Program project, we have begun daily map discussions about tropical weather conditions around the world with a focus on the Atlantic basin. Each week we'll have a new volunteer to lead the discussions. Contact Chris Landsea (305-361-4357 or landsea@aoml.noaa.gov) for more information.

Abbreviated RSMAS Shuttle Schedule

(August 26, 1998-December 4, 1998)
Shuttle Service: Monday-Friday

Depart Viscaya Metrorail Station for RSMAS:	Depart RSMAS for Viscaya Metrorail Station:
8:15 AM	8:30 AM
8:45 AM	1:30 PM
1:45 PM	3:30 PM
3:50 PM	5:30 PM

3 ON 3 LUNCH TIME HOOPS

11:15-12:15

Contact:
Chris Landsea
(305-361-4357)
or
Armando Cuervo
(305-361-4550)
for more information

Welcome Aboard

Robert Rodgers joins the staff of the Hurricane Research Division for a one-year appointment as a National Research Council Research Associate. He received his doctoral degree in meteorology from Penn State University in 1998. While at AOML, Dr. Rodgers' research will focus on understanding the mechanisms behind tropical cyclogenesis.

Neville Cohen joins the Office of the Director's Facility Management Group to assist with custodial and maintenance responsibilities.

Oleg Esenkov joins the staff of the Physical Oceanography Division's Buoy Data Assembly Center to assist with quality control of buoy data. Oleg is a graduate student at RSMAS currently seeking his Ph.D.

Jose Ochoa joins the staff of the Physical Oceanography Division's Buoy Instrumentation Group to assist and participate in staging operations for an inverted echo sounder cruise aboard the R/V *Seward Johnson* in November 1998.

Keynotes is published monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions are welcome and should be submitted prior to the last week of each month to ensure inclusion in the following month's edition. Please address all correspondence to Ms. Gail Derr, Office of the Director, 4301 Rickenbacker Causeway, Miami, FL 33149. Contributions may also be submitted by fax at (305) 361-4442 or by email (derr@aoml.noaa.gov).

Editor–Kristina Katsaros
Publishing Editor–Gail Derr

AOML Seeks 100% Participation in CFC Program

The Combined Federal Campaign (CFC) program, an annual fund-raising drive conducted by federal employees through payroll deductions, will begin in October. Every year federal employees and military personnel raise millions of dollars through the CFC that benefit hundreds of non-profit charitable organizations. In 1997, the CFC raised approximately $197.1 million dollars.

AOML's own Jannette Perez is our 1999 CFC coordinator. "Our goal is to get 100% of AOML employees to contribute some amount to this campaign," states Perez. "The monetary goal for AOML in 1999 is $16,000. In order to reach this goal, each AOML employee would only need to contribute an average of $5.00 each pay period. The Combined Federal Campaign provides financial resources and services to many organizations that help people right here in the south Florida community. You can specify which organization a specific portion or your entire donation goes to."

The program was established by the federal government in 1961 and is conducted annually by the Office of Personnel Management. For more information about the CFC program, visit web site http://www.unitedway.org/cfc.html.

Volunteers Needed for Ocean Sciences Competition

Preliminary planning has begun for the Second Annual National High School Ocean Sciences Competition sponsored by the Consortium for Ocean Research and Education. The Rosenstiel School of Marine and Atmospheric Science, in partnership with Harbor Branch Oceanographic Institution, is one of 16 participating regional sites nationwide and the only site in Florida. Harbor Branch will be hosting the competition this year in Ft. Pierce in mid to late February 1999. Jennifer Wright of Harbor Branch is coordinating the two-day competition, which will host between 25-30 high school teams.

The wonderful support and participation by RSMAS students and faculty and NOAA/AOML personnel last year significantly contributed to the success of the competition. This year RSMAS is interested in establishing a minimum of five teams to travel to Ft. Pierce. Each team will consist of a moderator, scientific judge, timekeeper, scorekeeper, and rules judge. A minimum of two practice sessions will be held at RSMAS prior to the competition.

Interested volunteers should contact Virginia Newell at (305) 361-4967 or ginny@mail.rsmas.miami.edu for more information. Prior experience is an asset but not a requirement. Travel and lodging expenses to Ft. Pierce will be covered, you'll receive a free t-shirt, and have a great time.

AEROBICS CLASS

Monday • Wednesday • Friday
11:30 a.m.-12:30 p.m.
1st Floor Conference Room

Contact Ginger Garte
for more information

(305-361-4430 or
garte@aoml.noaa.gov)

Keynotes can be viewed online in PDF format at the following Internet web site address:
http://www.aoml.noaa.gov/od/keynotes/keynotes.html