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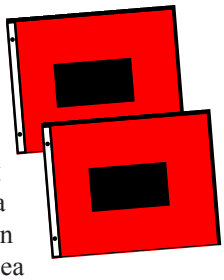
NOAA Forecasts Another Busy Hurricane Season

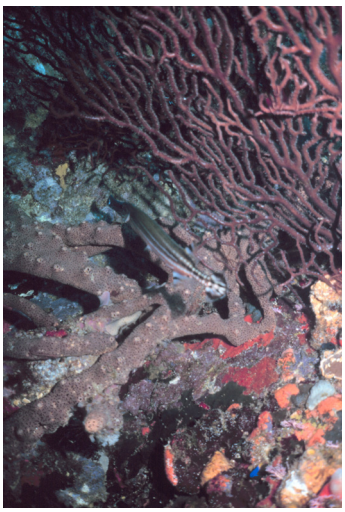
NOAA scientists representing the Climate Prediction Center, National Hurricane Center, and Hurricane Research Division (of AOML) released their first forecast for the year 2000 Atlantic hurricane season on May 10th, calling for an "above-average" year. The ongoing but fading La Niña weather phenomenon and above average sea surface temperatures persisting across large portions of the North Atlantic since 1995 were cited as the greatest factors influencing the forecast. These factors have established a global-scale atmospheric circulation pattern conducive to above-average hurricane activity by contributing to: lower wind shear, critical for hurricane development; a more favorable mid-level jet stream from Africa, which energizes developing storms; and lower surface air pressure, which makes it easier for storms to develop.



United States and Caribbean island coastal residents should brace for a season expected to produce 11 or more tropical storms. Seven or more storms are predicted to become hurricanes, with at least three classified as major (sustained winds surpassing 110 mph, a category 3 storm on the Saffir-Simpson scale). NOAA's forecast also indicates the possibility that storms for the 2000 Atlantic hurricane season, which began June 1st and lasts until November 30th, may be stronger and longer-lasting.

New Program Aims at Early Detection of Bleaching Events

Reef habitats in the Atlantic, Pacific, Gulf of Mexico, and Caribbean are increasingly threatened by environmental changes such as pollution, sedimentation, anomalously warm ocean temperatures, and altered light and nutrient levels, as well as physical disturbance from storms and human visitation. Despite their economic importance in terms of fisheries, tourism, and coastal protection, not enough is yet known about how coral reef environments have varied in the past and how they might change in the future.



Coral Reef Watch is a new NOAA program to develop a long-term coral reef monitoring system with the capacity to predict coral bleaching episodes in all major U.S. coral reef areas. It is a collaborative effort by Dr. Jim Hendee of AOML's Ocean Chemistry Division, Dr. Alan Strong of the National Environmental Satellite, Data, and Information Service (NESDIS), and Dr. John Marr of the National Undersea Research Program (NURP) to fulfill the need for long term in-situ monitoring of reefs, which is essential to understanding the increasing stresses on these unique but fragile ecosystems.

The initial effort involves the installation of meteorological and oceanographic monitoring stations at key sites in the Bahamas and U.S. Virgin Islands. Near real-time data from these stations will be used to validate satellite monitoring data and for analysis of conditions conducive to coral bleaching utilizing the Coral Reef Early Warning System (CREWS), an artificial intelligence technique developed at AOML. CREWS inspects data and models the synergistic effect of environmental conditions such as sea temperature, salinity, tides, and ultraviolet light. When stressful conditions are detected, an alert is automatically sent to researchers and sanctuary managers, as well as posted on the Web.

The Coral Reef Watch program advances NOAA's existing coral reef monitoring activities that have already proven their ability to predict bleaching events. Data from NESDIS' polar-orbiting satellites have been detecting harmful episodes of thermal stresses in reefs as forerunners of bleaching events since 1997. CREWS successfully predicted coral bleaching episodes in the Florida Keys National Marine Sanctuary in 1998 using near real-time data from the SEAKEYS monitoring network and on the Great Barrier Reef in January 2000 using near real-time data from the Australian Institute of Marine Sciences Weather Reporting Network. Based on these successes, the coral reef researchers believe it is feasible to develop an early warning system that will provide 1-2 weeks advanced notice of bleaching episodes and related habitat/ecosystem responses with at least 90% accuracy. Expected benefits of the Coral Reef Watch program include enhanced understanding of the incidents and causes of coral bleaching and coral diseases, timely data essential for management of reefs under stress, advanced warning of events, and clearer perception by the public of the prevalence of coral reef problems and the need for action and conservation.

OUR SEAS AND OUR SKIES

30 Years

OF EXCELLENCE AT NOAA

OPEN HOUSE 2000

NOAA Shines through Miami Labs' Open House

AOML and the Southeast Fisheries Science Center jointly hosted an open house on May 12-13, 2000 in honor of NOAA's 30th anniversary. The event was well attended by middle and high school students from Dade and Broward County and the general public. Shirley Murillo, Sam Houston, and Alejandra Lorenzo led an enthusiastic team of 31 AOML volunteers on Friday, May 12th in coordinating the logistics of walking more than 650 students and chaperones through the facility. At various locations, volunteers spoke to students about the history and mission of NOAA, weather phenomena and hurricanes, drifting buoys and the variety of data they collect, atmospheric chemistry, and how scientists use acoustics to "listen" to rain. Posters outlining various aspects of AOML's research were also positioned throughout the facility for easy perusal. Approximately 150 individuals from the local community visited AOML on Saturday, May 13th. Guests were invited to tour the facility and to speak with scientists about their research. The willing and cooperative support of AOML's volunteers made for a positive and upbeat "atmosphere," directly contributing to the success of the open house. Erica Van Coverden, AOML's outreach coordinator, organized the event in conjunction with Essie Duffie from the Southest Fisheries Science Center.

Welcome Aboard

NOAA Corp Officer Commander Sean White joined the staff of the Hurricane Research Division as its Executive Director on May 1, 2000. Sean most recently worked for NOAA's Aircraft Operations Center at MacDill Air Force Base in Tampa, Florida as the Gulfstream-IV Project Manager during hurricane synoptic surveillance and winter storm reconnaissance missions. His three-year assignment with HRD will enable Sean to strengthen his administrative and managerial skills, as well as provide valuable expertise and insight regarding AOC's aviation assets. Additionally, Sean will begin classes at RSMAS during the fall semester 2000 in pursuit of a doctoral degree in meteorology.

NOAA Corp Officer Lieutenant Joseph Pica recently joined the staff of the Office of the Director for a three-year assignment as AOML's Associate Director. Joe is known to many at AOML from his service aboard the NOAA Ship *Malcolm Baldridge* from 1992-1994. His professional expertise is in the field of water resource and environmental engineering. He intends to utilize his experience and knowledge to assist with lab management and actively contribute to ongoing projects of the Laboratory.

Farewell

NOAA Corp Officer Lieutenant Commander Kristie Miller departed AOML on June 1, 2000 after a three-year assignment in Miami as AOML's Associate Director. Kristie's next duty station is in Seattle, Washington.

David Forcucci, Oceanographer with the Ocean Chemistry Division, resigned from AOML on June 2, 2000, to accept a civilian position with the U.S. Coast Guard in Alameda, California.

Pamphlets about the U.S. Savings Bond Program, plus registration forms for purchasing savings bonds, are located on the table behind the receptionist's area in the lobby. Contact LT Joe Pica (305-361-4544 or pica@aoml.noaa.gov) for questions and/or information about the program or visit the Federal Savings Bond Program website at http://www.avingsbonds.gov.

"Team AOML" Competes in Corporate Run

"Team AOML" competed in the Club Med Corporate Run 2000 5K race at Bayfront Park, downtime Miami, on Thursday, May 4, 2000. A total of 31 staffers turned out for the event, the largest AOML team ever assembled. In addition to AOML's noncompetitive runners and walkers, AOML also entered four competitive teams into the Run's "government" category: two men's teams (A and B), a women' team, and a coed team. Men's team A (Chris Burr, John Steger, Bob Roddy, Derrick Snowden, and John Kaplan) placed fifth out of 14 entries, the highest finish AOML has ever achieved. Men's team B (Eric Uhlhorn, Craig Engler, Chris Landsea, Charles Featherstone, and Steven Feuer) placed 14th, the women's team (Sonia Otero, Shirley Murillo, and Roberta Lusic) placed sixth out of 10 entries, and the coed team (Cathy Steward, Sandy Taylor, Robert Rogers, and Paul Willis) placed 10th out of 11 entries. Of note is the best time ever for an AOML team (A) of 19:55 turned in by Chris Burr, a colleague from the National Hurricane Center, good enough for a 25th place finish out of 12,000 men.

Peter Black organized the 2000 Corporate Run team; Charles Featherstone, Nina Liebig, Michael Sam, and Cathy Steward handled logistics such as providing food and drinks for the team, taking photographs, and making provisions for a team tent. Overall, it was a great event thoroughly enjoyed by all who participated.

June Informal Research Reports*

June 8, 2000

Decadal Variability in North Atlantic Temperature

Dr. Robert Molinari
Physical Oceanography Division

June 15, 2000

A Numerical Study of the Distribution of Precipitation in Hurricane Bonnie

Dr. Robert Rogers
Hurricane Research Division

June 27, 2000

Large-Scale Characteristics of Rapidly Intensifying Atlantic Tropical Cyclones

Mr. John Kaplan
Hurricane Research Division

June 29, 2000

Assimilating Data into HYCOM

Dr. Carlisle Thacker
Physical Oceanography Division

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

Travel

Mark Powell will attend a Coastal Hazards Collegium to review present Sea Grant efforts regarding coastal hazards and to discuss potential directions for the future in Wilmington, North Carolina on June 4-6, 2000.

Christopher Landsea will attend the Center for Science, Policy and Outcome's Extreme Events Workshop in Boulder, Colorado on June 6, 2000. He will also meet with Dr. William Gray and John Knaff of Colorado State University in Ft. Collins, Colorado to collaborate on seasonal hurricane forecasting on June 7-20, 2000.

Silvia Garzoli will attend an ARGO Meeting in Paris, France on June 10-11, 2000.

Rik Wanninkhof will participate in a National Oceanographic Partnership Program/OSCOP Committee Meeting in Santa Barbara, California on June 12-15, 2000. He will also participate in a U.S. Joint Global Ocean Flux Study Scientific Steering Committee Meeting in Washington, D.C. on June 19-22, 2000.

John Proni and Ulyses Rivera will discuss rainfall data collection efforts with officials of the Bahamian Department of Meteorology in Nassau, Bahamas on June 13, 2000.

Kelly Goodwin and Daniel Voss will attend a Molecular Biology Summer Workshop and PCR Training Course at Smith College in Northampton, Massachusetts on June 18-July 1, 2000.

AOML Kids Learn Science Can Be Fun

Erica Van Coverden, Outreach Coordinator

On Thursday, April 27th, AOML celebrated Bring Your Child to Work Day. A total of 18 children participated in activities planned to teach the kids about what their parents do as a part of the AOML team and some general fun science projects. After building a tornado in a bottle and learning a few basic properties about the air that surrounds us, the group set off for a tour of the local science community. Joined by several parents, the children visited the RSMAS hatchery and were introduced to aplysia, the mollusk grown by the thousands for research laboratories in the United States. Everyone got to touch the slimy sea slug and see the organism in its entire life cycle. The group then headed over to the Fisheries lab and toured the necropsy room, where dolphins, sea turtles, and large fish are dissected and studied. It was quite odorous and the kids loved it! They also had a chance to look at dolphin skulls and shark jaws. The rest of the day was filled a great lunch served by none other than Chef Neal Dorst and a lot of basketball, volleyball, and soccer. It was a fabulous experience for all who participated.

It's back! With the arrival of hurricane season on June 1st, it's time to update AOML's Emergency Contact Listing. Please call or email Jannette Perez (305-361-4367 or perez@aoml.noaa.gov) to ensure that your home address and telephone number are up-to-date or if you wish to revise information about your designated emergency contacts.

***Keynotes* can be viewed online in PDF format at the following World-Wide Web Internet address: http://www.aoml.noaa.gov/keynotes**

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: Office of the Director, 4301 Rickenbacker Causeway, Miami, FL 33149. Contributions may also be submitted by fax at (305) 361-4421 or by email (derr@aoml.noaa.gov).

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The deadline for submitting material for the July issue of *Keynotes* is Friday, June 23, 2000.