



**UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL WEATHER SERVICE  
Fort Worth, Texas**

**September 2003**

## **SOUTHERN TOPICS**

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*Working Together To Save Lives*

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### **REGIONAL DIRECTOR**

Please join me in congratulating the many Southern Region employees who will be recognized later this month in the Department of Commerce Gold and Silver Medal award ceremonies in Washington, D.C. They are:

**MIC Mike Foster** and **SOO David Andra** at WFO Norman, who will share the Gold Medal as part of the seven-member team which conceived the Weather Event Simulator (WES) and developed the concept to the point of national implementation. As a result of their efforts all forecast offices now have a tool which greatly enhances training for warning and forecast improvement.

**Shawn Bennett**, MIC at WFO Brownsville, will receive the Silver Medal for his individual leadership over many years in NWS international activities to advance aviation safety and forecasting in Asia, the Pacific Islands and Central America. Shawn provided training and computer expertise on many international trips for the WMO which led to implementation of the World Area Forecast System, which includes tailored application of NCEP's workstation Eta local numerical forecast model.



**WFOs Birmingham, Jackson and Morristown** will each be honored with Silver Medals for providing timely and accurate warnings and using innovative dissemination techniques to save lives during the Veterans Day weekend tornado outbreak in November 2002. Overall, 27 tornadoes occurred in their combined county warning areas, with an average warning lead time of 15 minutes. Moreover, special statements were issued and briefings were conducted days in advance of the outbreak, further preparing citizens for the expected hazardous weather.

The staff at **WFO Austin/San Antonio** is being honored with a Silver Medal for their outstanding performance during an unprecedented flood in the Texas Hill Country over the Fourth of July in 2002. More than 30 inches of rain fell between June 30 and July 6 over a four county area around the office, creating record-breaking floods. The staff's skill, dedication and sacrifice during the event, and its exceptional preparedness work with local officials, drew praise after the event. Because of the holiday the potential for loss of life was high, and the WFO's actions undoubtedly saved many lives and reduced property loss.

**NASA HONORS.** It is also a pleasure to note that a team of meteorologists from the NASA/NWS Applied Meteorology Unit at Kennedy Space Center, including WFO Melbourne forecasters **Pete Blottman** and **Scott Spratt**, and Spaceflight Meteorology Group forecasters **Tim Oram** and **Tim Garner**, received the prestigious 2003 NASA Space Act Award for their work on the Advanced Regional Prediction System (ARPS) Data Analysis System (ADAS). Congratulations to all for their outstanding work which merited this distinct honor.

The NASA Space Act Program was created to recognize and reward inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical, commercialization, and space goals. The Applied Meteorology Unit, which includes WFO Melbourne and the SMG as active partners, was established soon after dedication of the Melbourne forecast office. The work for which they have been honored is typical of applied research projects they have worked on since the unit was established. More about the award and ADAS applications is included in SSD's section of this month's *Topics*.

## **IFPS**

**IFPS Web Site.** There are some new links on the IFPS Web site. Have you been there lately? The minutes from each IFPS monthly call are online, Tropical Systems help Web page, and there is also an Optimizing Tips Web page for WFOs. Check out the updates today!  
<http://www.srh.noaa.gov/srh/cwwd/msd/ifps.html>

**GRIDDED Tropical Help Online.** There are several excellent resources online to help WFOs handle tropical systems with IFPS/grids. Guidelines, drills and instructions, just to name a few. You can view them on the IFPS Web site at this link:  
<http://www.srh.noaa.gov/srh/cwwd/msd/tropical.html>

## CLIMATE, WATER AND WEATHER DIVISION

### METEOROLOGICAL SERVICES BRANCH

**SMG TASKED FOR SPECIAL PROJECT.** On July 24 the NASA Mission Operations Directorate requested Spaceflight Meteorology Group to furnish weather support for an unusual project involving a prominent film director, the Russian Academy of Sciences, and a diverse marine expeditionary force. This endeavor was labeled the “NOAMA” project (NASA Oceanographic Analog Mission Activity). Full details are included in a *technical attachment* this month.

**AIR FORCE ONE CALLING.** While working severe weather one evening last month, senior forecaster Dave Martin at WFO Fort Worth received a couple of calls from Air Force One - once from Denver and again just after the President’s plane landed in Texas. Apparently, their weather radar computer was down so the pilot went to the source for weather information! The pilot told Dave they really appreciate the ability to call us and that our forecast information is always very accurate. Good feedback from a very important customer. It’s unknown whether the President was aboard ... he was vacationing at his Crawford, Texas ranch at the time.

**AVIATION WORKSHOP IN HUNTSVILLE.** On Saturday August 23, WFO Huntsville hosted the “I-65 Aviation Workshop” at the Lockheed Martin Auditorium in Huntsville. More than 125 general, commercial and military pilots attended the 6-hour workshop. A number of participants from surrounding NWS offices helped make the workshop a great success:

- Senior forecaster Jason Wright from WFO Birmingham spoke on how to read METAR and TAF codes,
- WFO Birmingham SOO Kevin Pence discussed basic radar interpretation,
- Senior forecaster Matt Zika and forecaster Mark A. Rose from WFO Huntsville spoke on thunderstorm hazards,
- Huntsville MIC John Gordon discussed weather-related aviation crashes,
- MIC Alan Gerard from WFO Jackson spoke on low clouds and fog,
- and forecaster John Gagan from Jackson explained sources of NWS aviation information.

In addition, local TV Channel 48 meteorologist Dan Schmit spoke on icing and turbulence, representatives from the Huntsville International Airport spoke on improvement plans and current activities at the airport, and Bob Baron from Baron Services showcased his “Weather in the Cockpit” equipment.

WFO Huntsville forecaster Matt Zika was the event organizer, assisted by Jason Wright, Mark A. Rose and John Gagan. The overwhelming response to the event was very positive, and most of the participants encouraged the NWS to consider more frequent local aviation workshops. The event was sponsored by the Huntsville International Airport, Baron Services, and Warning System, Inc. Rob Lindstrom, an FAA safety councillor described it as "One of the best workshops I've ever attended." Huntsville tower manager Ray Palmer said, "Saturday was one of the most professional events I have seen in this area. The NWS work was especially impressive."

Congratulations to all involved in planning and conducting the workshop. This shows once again how effectively we can serve our customers - in this case aviation interests - by building strong partnerships and sharing the work.

**WFO BIRMINGHAM AVIATION EFFORTS.** WFO Birmingham aviation program leader Jason Wright gave a presentation on TAF usage at the Mississippi State Broadcast Meteorology Workshop last month. Also in August, the WFO Birmingham Aviation Team, lead by Jason, helped in planning and eventual implementation of Airport Weather Warning Services for Shelby County and Montgomery Regional airports. A new TAF location was established at Troy Municipal Airport(TOI) on August 19.

**SR IMETs PROVIDE FIRE WEATHER SUPPORT TO NORTHWEST.** Southern Region IMETs had a busy August. IMETs worked 65 days at deployed locations in Oregon, Idaho and Montana. Here is a recap of SR IMET participation last month:

<u>IMET/WFO</u>	<u>Fire/Location</u>	<u>Total Days</u>
Joe Goudsward WFO Little Rock	Wedge Canyon Fire near Eureka, MT	15
Joe Goudsward WFO Little Rock	Kelsay Complex Fire Roseburg, OR	5
Brent Wachter WFO Albuquerque	Rough Draw Livingston, MT	14
Mike Edmonston WFO Jackson	Slims Fire Grangeville, ID	10
Bryan Henry WFO Jackson	Slims Fire Grangeville, ID	10
Rick Davis WFO Tampa Bay Area	Mineral Prim Fire Missoula, MT	11

Thank you to the WFO teams at each of these outstanding offices. Their continued sacrifice covering shifts and completing additional duties during an IMET's absence keeps the Southern Region as a leader in this vital national program.

**FIRE RELATED EFFORTS IN MORRISTOWN COMING IN OCTOBER.** In cooperation with the Tennessee State Forestry Commission, Cherokee National Forest and the Great Smoky Mountain National Park, WFO Morristown is developing daily fire prevention statements to be aired on the NOAA Weather Radio during Fire Prevention Week, which is set for the week of October 6. Potential daily topics are Fire Safe Your Property, Campfire Safety, Debris Burning, and Children and Arson. The vision of the daily statements is to increase fire prevention and fire weather awareness. The WFO is also cooperating with the surrounding WFOs to expand the Fire Prevention Week to adjacent offices.

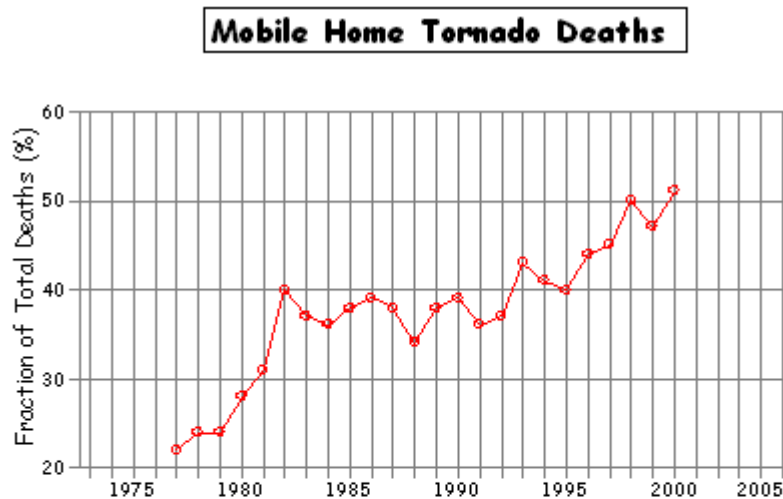
## **PUBLIC**

**NOAA HAZMAT.** Quite a few HAZMAT incidents affected SR WFOs in August and forecasters have been giving excellent site-specific information to NOAA HAZMAT. Specifically:

- Kudos to WFO New Orleans/Baton Rouge forecaster Fred Zeigler for a wonderful response and data analysis on August 18 due to an oil spill from drilling operations in a marsh region on the west bank of Southwest Pass in the Mississippi Delta. Fred also helped out on August 11 when a barge carrying spent sulfuric acid on the Mississippi River in Baton Rouge blew two pressure relief valves. The damaged valves created a plume of SO<sub>2</sub> and a smaller amount of H<sub>2</sub>S gas, both of which are very hazardous. Emergency operators were not able to control the leak for 10-12 hours, and Fred helped out with site-specific forecasts for the CAMEO/ Aloha, chemical database and NOAA/EPA air plume model.
- Kudos to WFO Houston/Galveston forecaster Lance Wood for his great assistance and site-specific forecast for a five mile "chocolate brown" slick 15 miles southeast of the Galveston coast. Initial reports indicated the possibility this spill contained a bilge product that had been emulsified. (A Coast Guard helicopter over-flight discovered that the five mile slick was actually floating debris with Sargasso sea weed caught in a coastal convergence zone.)
- Kudos to WFO Brownsville forecaster Tim Speece who gave concise weather data analysis and site-specific forecast for an area that was outside his regional bounds on August 25. NOAA/HAZMAT was contacted by a scientific support coordinator from Tampico, Mexico. A joint US/Mexico government oil spill drill operation was in play. Unfortunately, because of the unfamiliarity of HAZMAT protocols, the Mexican emergency spill officials were not prepared to supply weather forecasts for this operation. Generally, NOAA/HAZMAT does not call the NWS for a "drill" forecast - especially for a region outside of the United States. However, because this training was considered a high profile drill event, the NWS was brought into the loop. Marc Hodges, NOAA HAZMAT, commented "The weather information [from Tim Speece] was very well received."

**MOBILE HOMES AND TORNADO FATALITIES.** The figure below, courtesy of Harold Brooks at the National Severe Storms Lab and published in the spring/summer issue of *NSSL Briefings* ([www.nssl.noaa.gov](http://www.nssl.noaa.gov)), shows that more than half of all tornado fatalities in the U.S. now occur in mobile homes. That percentage has doubled from about 25% in the 1970s. Harold points out this is despite the fact that only about 7% of the population now lives in mobile homes. He estimates mobile home residents are killed at a rate about 15 times that of permanent home residents. He goes on to note:

The potential exists for the fraction to continue to increase. Mobile home residency has risen steadily over the past 30 years, particularly in the southeastern U.S. According to the 2000 Census, over 16% of housing units in Alabama and Mississippi were mobile homes ... In 1990 [the] percentage was 13%. Mobile home residents tend to have less access to information and fewer shared information systems (e.g., warning systems). The problem of warning and sheltering mobile home residents has become the biggest obstacle to continuing to reduce death tolls from tornadoes.



## MARINE

**Tropical Cyclone Observations.** WFO Lake Charles, as part of its SAWRS program, routinely collects special marine observations in the Gulf of Mexico from offshore rigs and drill ships during tropical cyclone events. Almost 500 such observations were entered into AWIPS (NEWOSOLCH) during Bill, Claudette and Erika. The data collection program, headed by HMT Todd Mogged, is also used to verify Special Marine Warnings. An AWIPS database of all observation locations is available to overlay on satellite images to identify likely verification sites.

**Rip Current Technical Team (RCTT).** This national team was formed this summer and will continue through next summer. The vision of the team is to decrease rip current injuries and fatalities by providing rip current awareness and training to forecasters and surf zone partners. There are 14 members on this team, three of whom are from Southern Region: Jim Lushine, WFO Miami; Randy Lascody, WFO Melbourne; and Melinda Bailey, SRH. Contact Melinda for more information.

## NOAA WEATHER RADIO

**Leak Filled in Mississippi and Alabama NWR Coverage.** The ribbon cutting ceremony for the Leakeville, Mississippi NWR station was recently attended by WFO Mobile MIC Randy McKee and WCM Gary Beeler, and representatives of Green County, Mississippi. The mayor of Leakeville, Fred Hight, was instrumental in obtaining USDA - Rural Utilities Service grant funds to purchase the 1000 watt NWR transmitter system which will serve an area of southeast Mississippi and southwest Alabama. The ceremony was also attended by the board of county commissioners, state representatives, law enforcement, and local media. Randy took the initiative to not only thank those responsible for getting station WNG-640 on the air but also to explain the many different types of weather radios that are available for purchase.

**Kudos to WFO Knoxville/Tri-Cities Staff.** A Congressional letter in regard to a private citizen's inquiry to the limited NWR reception in eastern Tennessee provided a unique opportunity for WFO Morristown. MIC Jerry McDuffie and staff members met the challenge by personally visiting the citizen's residence with the Roane County Emergency Response director. There it was discovered that the signal strength from the Knoxville NWR station varied greatly across the irregular terrain of the area and that the Chattanooga NWR would provide a better broadcast reception. The recent inclusion of weather information and tone alert capability for Roane County area on both the Knoxville and Chattanooga NWRs prompted the citizen to write to the NWS the following remarks: "My thanks to Mr. McDuffie and his staff for personally investigating the problem, visiting my residence, and taking immediate corrective action. It is rare to see this responsiveness in private industry, let alone a federal agency."

**Florida Power and Light Switches on Princeton NWR.** South Miami-Dade County, the Upper Keys, and the area surrounding the Turkey Point Nuclear Power Plant in south Florida are all being served by a new NWR station located in Princeton, Florida. The purchase of WNG-663, a 300 watt NWR transmitter system, was made possible by the generous contributions of Florida Power and Light (FP&L) Company.

Dignitaries present at the dedication ceremony included staffers from Senator Bob Graham and County Commissioner Katy Sorenstam's offices, Director Carlos Castillo of Miami-Dade Emergency Management, and directors Irene Toner and Billy Wagner from the Monroe County Office of Emergency Management. Also in attendance were rangers from Biscayne National Park and observers from the Homestead Air Reserve Base. The program included remarks from MICs Rusty Pfost (Miami) and Matt Strahan (Key West) about the benefit of NWR to citizens and marine interests of south Florida. Don Mothena, manager of FP&L's Plant Services Nuclear Division, provided his insight in regard to the contributions of the private sector in expanding NWR broadcast coverage. The program concluded with the ceremonial broadcast of an NWR receiver that was engraved and presented to Don Mothena by WFO Miami.

**Weather Radio Expansion.** Southern Region was at various stages of NOAA Weather Radio (NWR) installations last month. Two 1000 watt dual transmitters went on-air at Hickman, Tennessee and Muenster, Texas. The Hickman NWR site will serve central Tennessee between Nashville and Cookeville. The Muenster NWR will provide broadcast audio to the Red River Valley region of Texas and Oklahoma located between Ardmore, Oklahoma; Wichita Falls and Paris, Texas. The addition of these two sites brings to twenty-five, the number of NWR stations that have been brought on-air in Southern Region this fiscal year.

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## **HYDROLOGIC SERVICES BRANCH**

**AHPS EDUCATIONAL OUTREACH WORKSHOPS.** Southern Region HSB, in collaboration with the Arkansas-Red Basin RFC and Central Region, conducted an AHPS educational outreach workshop for the staff at WFO Amarillo in preparation for AHPS basic service implementation on the Canadian River in Amarillo next month. People attending included SRH HSB chief Ben Weiger, ABRFC senior hydrologic forecasters Greg Stanley and John Schmidt, and Jayant Deo from Central Region. Ben gave an overview presentation on the NWS AHPS program; Jayant gave a presentation about the importance of educating ourselves and our customers about the new probabilistic hydrologic information on the AHPS Web page and providing clear descriptions and definitions about the information online; and Greg and John provided background information about the Ensemble Streamflow Prediction model used to generate probabilistic hydrologic forecast information. WFO Amarillo MIC Jose Garcia and his staff were outstanding hosts for this workshop. ABRFC and WFO Amarillo agreed to collaborate on an AHPS customer service workshop in Amarillo next fiscal year.

Another AHPS educational outreach workshop is scheduled for September 8-10, 2003 at WFO Albuquerque.



**ATCHAFALAYA BASIN ADVISORY MEETING.** WFO New Orleans/Baton Rouge senior service hydrologist Patricia Brown represented the National Weather Service at the quarterly meeting of the Atchafalaya Basin Advisory Committee. The meeting was held in Baton Rouge in late July. Under the auspices of the State of Louisiana Department of Natural Resources, the Atchafalaya Basin Program coordinates the Atchafalaya Basin Advisory Committee and supervises the implementation of the Atchafalaya Basin State Master Plan. The plan is a “gumbo” of projects that support recreation and tourism, along with environmental, economic, historic, and hydrologic projects designed to promote the long-term interests and growth of the parishes that comprise the Atchafalaya Basin.

The meeting included briefings from the United States Army Corp of Engineers on developments at several boat landings in the region that mainly support recreation. Major construction will continue this fall, along with additional land purchases needed for water management and recreational projects. Representatives from the state discussed the status of funding, ongoing water management projects, historic site developments, communication issues, and ongoing recreational projects. Cypress tree planting, bass fishing developments, and familiarization projects were briefly discussed. The Advisory Committee reported that Bass Masters and ESPN have planned major activities in the Basin for the near future.

**COASTAL SERVICE CENTER VISIT.** On August 19, Doug Marcy and Russell Jackson of the NOAA Coastal Services Center (CSC) visited the Lower Mississippi RFC and WFO New Orleans/Baton Rouge to coordinate NOAA activities in the area. CSC is working to measure elevations of critical evacuation routes in southern Louisiana and compare them to previous elevations to show subsidence in the area. This information is critical to local decision-makers during hurricane evacuations.

**NATIONAL DATA BUOY CENTER VISIT.** On August 12, representatives from the National Data Buoy Center (NDBC) visited the LMRFC to discuss RFC operational backup scenarios. LMRFC is working with NDBC as a potential site to store the new RFC backup computer to be used in the event of a catastrophic failure at the RFC.

**NEW EMPLOYEE AT LMRFC.** Please help us welcome Kai Roth, hydrologic forecaster at the Lower Mississippi RFC. Kai joined the LMRFC on August 25. Kai holds Bachelors and Masters degrees in geology from the University of Southern Mississippi. After completing his graduate studies in groundwater hydrology in 2002, he worked at the Naval Oceanographic Office at Stennis Space Center. Welcome to the Southern Region hydrology family, Kai.

## SCIENTIFIC SERVICES DIVISION

**SOO REFERENCE NOTEBOOK NOW ONLINE.** With special thanks to Leslie Carnahan, SSD assistant and *Topics* editor, we have completed the project of creating an online version of the Southern Region SOO Notebook. Find it at <http://www.srh.noaa.gov/ssd/soonotebook>. The organization of the online version matches that of the hard copy which was originally developed for our *Operational Orientation for New SOOs* workshops, and which we have distributed to all SOOs. Bernard hopes to add a search engine and an index to the Web version in the near future. The notebook attempts to collect in one place for easy reference a variety of materials relevant to the SOO's job. The online version allows us to replace pages with helpful links to a variety of documents, but that introduces the potential for outdated links. Those are being found and fixed. Please let Leslie know if you find any before she does.

**WEATHER EVENT SIMULATOR CASE STUDY DEVELOPMENT WORKSHOP.** Six SOOs and one forecaster from SR field offices attended a 3 ½ day Weather Event Simulator (WES) Case Study Development Workshop in August at SRH conducted by the Scientific Services Division. The participants arrived on Tuesday with their archived data and learning objectives for their case and left on Friday with a completed case (processed data, Simulation Guide and related materials) ready for sharing with other offices. Materials and software tools from the workshop are available on our WES support Web site at:

<http://www.srh.noaa.gov/ssd/DRT-AWIPS/html/BuildingACase.htm>

**PAPERS OF INTEREST.** The August 2003 issue of *Weather and Forecasting* contains the paper, "Climatological Estimates of Local Daily Tornado Probability for the United States," by Harold Brooks (NOAA/NSSL), Charles Doswell (CIMMS/OU) and Michael Kay (NOAA/FSL). The authors provide new insights into risk areas, based on an analysis of tornado climatology from 1980-1999. In relative terms, the greatest threat areas in the U.S. are Florida (in June), in the area of the Texas Panhandle (late May), and perhaps a little more surprisingly, in northeast Colorado (early June). The authors' statistical study produced an objective definition of "tornado alley" as a region extending from the southern Texas Panhandle through Nebraska and northeastward into eastern North Dakota and Minnesota. Related hazard statistics, and interesting graphics, are posted on the NSSL Web site at <http://www.nssl.noa.gov/hazard/>.

The same issue of *WAF* contains a detailed description of the NCAR Auto-Nowcast System, in a paper with that title by Cynthia Mueller and several coauthors at NCAR. Components of the auto-nowcast system have been integrated into AWIPS software as part of SCAN.

**ADAS SUPPORTS FORECAST OPERATIONS IN FLORIDA.** Working in conjunction with NASA's Applied Meteorology Unit at the Kennedy Space Center, WFO Melbourne and the Spaceflight Meteorology Group at Johnson Space Center in Houston have developed procedures for using the Advanced Regional Prediction System (ARPS) and the ARPS Data Analysis System (ADAS) to support their operations. ADAS also supports short-range forecasts issued by the USAF 45th Weather Squadron at KSC. Modifications were made to the ADAS to integrate nationally and locally available observations and to generate real-time high-resolution grid analyses every 15

minutes. The locally-configured ADAS provides a tool to help minimize data overload and improve understanding of important atmospheric processes. The utility of ADAS has been demonstrated frequently, such as through the application of highly-specific instability and steering level wind/moisture products to assist with short-term convective forecasts.

At the WFO, senior forecaster Peter Blottman and other staff prepared a *paper* for the AMS 5<sup>th</sup> Symposium on Fire and Forest Meteorology, to be held in Orlando in November, summarizing use of the ADAS diagnostics and short-range predictions in support of fire weather operations. Of particular note is the wide array of surface data ingested into the analysis system, including in addition to METAR reports, FAWN (Florida Agricultural Weather Network) observations, APRS observations taken by a network of amateur weather spotters (compiled and QC'd to a degree by NOAA's FSL), ACARS data, and observations from an array of instrumented towers in the KSC area.

For their work on local ADAS development and its applications a team of AMU, WFO Melbourne and SMG meteorologists was recently honored with the prestigious NASA Space Act Award, recognizing their significant technical accomplishment in support of NASA's mission. (See the regional director's comments in this month's *Topics*.) The work also represents a noteworthy milestone toward achieving goals of the Southern Region local modeling initiative.

**DISCOVERY CHANNEL VISITS HUNTSVILLE.** The director of scientific documentaries and a film crew from the Discovery Science Channel, visited WFO Huntsville on Saturday, August 23. They were in the region doing research for an upcoming documentary on global change and its effects on society. Senior forecaster Chris Darden and HMT Lary Burgett spent time with them in the WFO operations area. Brief camera interviews were also conducted on the role of the WFO in the forecast process, including analysis of long-range upper air and moisture patterns, preparedness activities, and day-to-day WFO operations. The current plan is for the documentary to air in the summer of 2004.

**HURRICANE INTERNET MAPPING SERVICE.** National Weather Service Southern Region is actively contributing to development of the NWS Hurricane Internet Mapping Service (IMS) prototype on the Web. The intent is to provide weather information in GIS formats for emergency managers when tropical cyclones threaten the Atlantic or Gulf Coasts. It is expected that information on the site will aid emergency managers in assessing the impact of a storm on their area of responsibility. The prototype is also an effort to gain insight into how NWS can best use IMS technology to improve the dissemination of weather information. As interesting as the prototype itself is the great amount of collaboration going on among agencies to make it happen. The WFOs and RFCs are contributing data along with the NCEP HPC and TPC. From NWSH, the Systems Engineering Center and Office of the CIO are working on decoders as well as the infrastructure to ensure the site remains up and running under user demand. In addition, for the prototype we are working with other NOAA agencies such as NESDIS and the NOS Coastal Services Center, who are also moving toward employing similar GIS/IMS technologies. The IMS prototype development effort is a great example of combining interests and skills from a diverse group of people on a common goal. The NWS Southern Region is pleased to be playing an important role.

**THE NATIONAL WEATHER EVENT SIMULATOR CASE STUDY LIBRARY.** The SOO Science and Training Resource Center (STRC) Case Study Library serves as an on-line repository for operational data and support documentation for use with training in the WFOs. Its purpose is to provide a means of exchanging materials for training efforts utilizing the Weather Event Simulator (WES), and the associated D2D and D3D display interfaces. Trainers may select cases from a collection of peer-reviewed modules identified by their educational objectives and organized for easy identification so offices can meet their particular training needs.

The National Case Study Library will provide resources for training in a variety of areas, including:

- Warning decision-making
- Forecasting techniques
- The use of operational forecasting tools
- The use of operational data types
- Application of scientific principles
- Experience with specific weather phenomena
- Data for case study research projects

Offices are encouraged to submit training materials to meet the above objectives. All cases submitted to our regional Case Study Library will automatically be forwarded to the national library. A peer-review process utilizing NWS SOO expertise has been instituted to insure that the modules maintain a high level of quality in terms of scientific content and applicability to operational forecasting. Acknowledgment of individuals will be given to for those cases included in the library. All cases currently in the library have been migrated to DVD-ROM and the localizations have been updated for the most recent version of WES (version 1.2, OB1).

Of course, the Case Study Library cannot be a success without your support. Over the next few months to years you'll be receiving requests for cases to add to the library. Keep in mind that the cases you donate will nurture the forecasters of tomorrow. Your work may influence the training and operations in many offices.

Visit the SOO/STRC for more information and to order case(s): <http://strc.comet.ucar.edu>

**NEW TEXAS A&M FACULTY.** Dr. Lawrence (Larry) Carey has joined the Texas A&M faculty with appointments in the NWS Cooperative Institute for Applied Meteorological Studies (CIAMS) and the Department of Atmospheric Sciences as an assistant professor. Prof. Carey teaches graduate level courses in radar meteorology, atmospheric convection, cloud and precipitation physics and undergraduate courses in severe and mesoscale weather forecasting. His extensive research publications include studies in radar meteorology, precipitation and cloud physics, lightning and cloud electrification, severe storms and mesoscale meteorology. He holds degrees from Boston University, Penn State and Colorado State. The addition of Prof. Carey to the A&M faculty will significantly enhance the ongoing cooperative research of the National Weather Service with Texas A&M University.

**FALL GOES ECLIPSE SEASON IS UNDERWAY.** Since the GOES are in geosynchronous orbits, near the times of the vernal and autumnal equinoxes the Earth's disk will periodically occult the sun, from a GOES perspective. Each eclipse season spans a 48-day period, symmetric around the equinox. During part of each day in the eclipse season the sun is blocked by the Earth and sunlight is not available to the GOES solar array. Therefore, the energy needed to power the instruments is not available and the instruments are powered down. There is typically a one to three hour outage of imagery each day as GOES progresses through eclipse season. The maximum outage of three hours will occur at or near the equinox.

Also, in order to prevent the Earth sensor from scanning the sun just before and after it is occulted by the Earth, the chord containing the intrusion will not be scanned. There will be an image outage whenever GOES is performing single-chord operations due to a solar intrusion.

Schedules of GOES data outages during the eclipse season are available on our GOES Satellite Information Web page: <http://www.srh.noaa.gov/srh/ssd/html/satinfo.htm>

**CURRENT STATUS OF THE NCEP PRODUCTION SUITE.** We have recently received questions from several offices concerning the availability of NCEP numerical model guidance. A reminder that you can quickly check the current status of the NCEP production suite at the following URL: <http://www.nco.ncep.noaa.gov/pmb/nwprod/prodstat/>

**PROPOSED UPGRADE TO THE NCEP GLOBAL FORECAST SYSTEM.** The NCEP Environmental Modeling Center (EMC) has proposed upgrading the analysis and forecast components of the Global Forecast System (GFS) in early December 2003. Multiple changes are being made to the GFS analysis. Modifications are planned to assimilate new GOES-12 radiance data to improve the use of IR radiance data. More GFS model output will be incorporated into the analysis to more accurately model sea surface emissivity. Additionally, a more compact and efficient radiative transfer model will be used to facilitate the ingest and processing of new satellite data types in the future. Preliminary testing of this component of the implementation has shown a slight improvement in the traditional forecast skill scores.

The GFS forecast will be changed to more accurately simulate air flow in the vicinity of mountainous terrain. The influence of sub-grid orography on NWP models is to retard wind flow in model vertical layers near or within the atmospheric boundary layer. Based on observations, and on work done at the NCEP and elsewhere, air is modeled to flow around the mountain below a calculated elevation, above which gravity waves may be generated and propagate vertically, depending on the lower atmospheric stability. Changes will be made to the input fixed fields, including maximum mountain height, horizontal angle of the mountain block, vertical slope of the mountain, and shape. During development of the mountain blocking scheme, case studies of flow around the Hawaiian Islands using NCEP's 10-km Regional Spectral Model were used to simulate atmospheric flow around an obstacle. The impact on the GFS system will be a general improvement in the Northern Hemisphere, a slight reduction in the low bias of geopotential height, and a reduction in the number of very poor ('bust') forecasts.

EMC plans to perform 30-day retrospective runs for the month of January 2003 in addition to approximately 90-days of real-time parallel testing. Model output from the retrospective runs and the operational runs for January 2003 will be made available in the form of image files on NCEP's Web server starting in early October 2004. The real-time parallel test is expected to begin in mid-September. As with the retrospective runs, image files for the parallel runs will be available on NCEP's Web server, with GRIB and GEMPAK format files available on the Central Computer System.

Any NWS Southern Region field office interested in participating in the subjective evaluation of the proposed changes should contact Bernard Meisner (SSD).

**ACCESS TO ONLINE KARTA IT SECURITY COURSES.** The chief information officer of the Department of Commerce has decided to pay for access by interested employees to the Karta library of online Information Technology (IT) security courses, which are associated with our Learning Management System (LMS) (<http://e-learning.noaa.gov>). Note that this is a separate library from the SkillSoft and NETg business and professional libraries, which are also available through the LMS.

The approximately 70 Karta IT Security courses are designed for IT professionals such as system administrators. These courses *do not* replace the required SANS security course which everyone with "root" access has been mandated to complete. Consider these as additional, supplemental learning materials. There is no cost to your office for these courses.

The Department is allocating the pool of seats they have bought and we must request access for our employees. Offices have been asked to provide Bernard Meisner (SSD), by September 12, with the names of any office staff who would like access to these Karta IT Security courses. Remember this should be limited to IT professionals who would benefit from these specialized technical courses. Access to these courses will likely be made available in October, extending through May, 2004.

**GOES/NPOES SOUNDINGS - YOU'RE EVALUATION REQUESTED.** Effective with AWIPS Build OB-1, the capability to display soundings from the GOES and polar orbiting satellites became a reality (see instructions below). With this upgrade, two new convective parameters are also produced: (1) the Wind Index, and (2) the Microburst Day Potential Index (MDPI). The former estimates the maximum possible convective wind gust (in knots), while the latter describes the likelihood of wet microbursts (based on near-surface to mid-level equivalent potential temperature differential). Details on these parameters are available at:  
<http://orbit-net.nesdis.noaa.gov/arad/fpdt/mb.html>

The NOAA Environmental Satellite and Data Information Service (NESDIS) is soliciting your feedback on the utility of the microburst parameters in particular, and the satellite soundings in general, in their ability to assist in severe weather warnings in your area during convective weather forecast situations. Please send your evaluations to Bernard Meisner in SSD. He will collect them and forward them to the appropriate folks in NESDIS.

## **SYSTEMS OPERATIONS DIVISION**

### **SYSTEMS INTEGRATION BRANCH**

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**TELECOMMUNICATIONS.** In the NWR arena, we have accepted the circuit and ROAMS line for Muenster, Texas, and are proceeding to test and accept other circuits as they are released to NWS after testing by the local telcos and carriers. We have placed new orders for El Paso, Milano, Mineral Wells, Plainview, and Summerfield, Texas. We are monitoring the progress of these orders to mitigate any delays in on-air projections for the transmitters.

Updates to the frequency database are being input to NWS Headquarters for 5-year reviews. We continue to monitor the progress of this effort. The frequency database is looking better each month as more of the updates are approved and validated. As the authorizations are processed, we will send out the license to the field office for their records.

The frame relay upgrades for the WSR-88D Archive Level II Data Project are being processed and should be completed by the end of this month. The circuits should be available for these sites to begin ingesting radar data at the scheduled time. We have already completed this upgrade at four of our WFOs and are evaluating it now.

The Key West office has reported that their data lines, including the hurricane hotline circuit were to be moved to a second floor MUX. Bell South has a facility issue that requires new equipment at this location in order to move the rest of their telephone lines. Once all services are moved, the office should have better reliability during tropical events. We will work with Bell South to determine what actions are required to get the rest of the telephone lines moved as soon as possible.

**AWIPS.** Operational Build 2 (OB2) continues to be installed across the region with all sites scheduled to be completed by the end of October. Maintenance Release (MR) OB2.1 is scheduled to be available by the second week of September and will address 18 deficiencies. MR OB2.2 is in development to address additional issues with OB2. We will be testing IFPS 14.2 at Southern Region Headquarters in early September.

**LINUX WORKSTATION STATUS.** WFO San Juan will be the first site in Southern Region to receive the new Linux workstations as part of the Operational Acceptance Test. Installation will occur the second week of September and assistance will be provided by the AWIPS Site Support Team. We have sent Eric Howieson our AWIPS program manager to San Juan to help prepare the site and answer any questions they might have about the new workstations. The West Gulf RFC and WFO Morristown will follow installing the new workstations by the end of September. Testing has gone well with NWS Headquarters systems and the installation time may be shorter than original estimates.

**SBN UPGRADE STATUS.** WFOs Huntsville, Key West, Norman, New Orleans/Baton Rouge and Lower Mississippi RFC have been selected as test sites for the new Digital Video Broadcasting hardware component to be added to the AWIPS SBN equipment. The purpose of the testing is to test the receipt of the new NWSTG2 data channel.

Our final AWIPS officially commissioned on August 21, 2003 at WFO Huntsville brings the total number of commissioned AWIPS systems to 140. Congratulations go out to the staff at WFO Huntsville for all of their hard work in getting this accomplished.

**WSR-88D.** WFOs Atlanta and Knoxville/Tri-Cities participated in the beta testing of ORPG Build 4.0. Beta testing personnel from the ROC installed and tested the new software build at both sites for 43 days and 38 days, respectively. On August 28, a beta test wrap-up meeting was held with the testing director and a unanimous decision was made to deploy the new ORPG Build 4.0 service wide on September 29.

The Warning Decision Training Branch has developed training materials for ORPG Build 4 in addition to ORPG Build 3 items in AWIPS OB2. We are encouraging all offices to check out the new training at the following link: <http://www.wdtb.noaa.gov/modules/RPGIndex.html>

As we move into fall, it is a good time to go over data quality concerns at your office. Operator defined clutter suppression and seasonal bypass maps can go a long way to ensure your office is issuing consistent high quality products.

**ASOS.** WFO New Orleans is still experiencing a differential between the standard wind system and the ICE FREE Wind System of 6 degrees. The staff have examined the jigs for solar noon alignment but all appears to be okay. A site survey may need to be performed to determine true north. The systems installed at Forth Worth Meacham Airport seem to be working fine.

**NOAA WEATHER RADIO.** Two 1000-watt NWR transmitters were powered up and brought on-air at Hickman, Tennessee and Muenster, Texas last month. A 300-watt NWR transmitter also went on-air in Princeton, Florida. Broadcast of the Hickman's station WXN74 located in central Tennessee will originate from WFO Nashville. The second 1000-watt transmitter at Muenster is located in Cooke County in North Texas with its audio originating from WFO Fort Worth.

The 300-watt NWR transmitter in Princeton, Florida came on the air last month with its broadcast audio originating from WFO Miami. The addition of these three sites brings to 26 the number of NWR stations that have been brought on-air in Southern Region this fiscal year.



In the CRS arena, Southern Region is providing support to the Software Branch and also to the Test and Evaluation Branch as they move forward with the development of the system's CRS Build 10 software. Several anomalies have been discovered with the CAFÉ formatters necessitating emergency changes by the Software Branch. Planning is ongoing with the Test and Evaluation Branch to minimize the impact of the improvements in the CRS message transmission of the scheduled CRS Build 10.

**IT.** The Netscape mail migration seems to be on schedule for the directory upgrade next January or February. The MOC has received the hardware for the 5.x masters, and will be bringing them up live over the next month. During October, they will be establishing the meta directory between 4.x and 5.x to ensure that 5.x is getting all of the updates from the 4.x directories. Then in December they will begin testing Tier 3 replications for the 5.x servers, readying us for roll-out in the following few months. What does this mean to you, a more reliable and fast mail service, support for the server software, support for SSL for all protocol, and several other things.

IT security has been a very big issue this past month, with actions being required to resolve virus infestations and attacks. We want to thank everyone for their efforts to minimize the impact of these viruses. Please make sure all Windows systems have the McAfee anti-virus software setup to automatically scan the system and perform auto updates of the DAT files on a daily basis.

The SOBIG virus hit the NOAA mail infrastructure harder than anything before; preliminary numbers from the MOC mention 2.4 million infected emails hitting the scanners. This hammering has caused them to bring additional servers on-line to scan and deliver inbound email. As a result of this you might be seeing servers you've never heard handling mail.

If you are still getting a lot of bounced messages as a result of this virus, you might want to set up a message filter in your netscape email client to remove those subject titles automatically. For help with this please contact Don Pham or Gary Petroski at SRH.

### **OBSERVATIONS AND FACILITIES BRANCH**

**STATION MANAGERS SAFETY RESPONSIBILITIES.** Both the NWS Safety Manual NWSM 50-1115 and the Occupational Safety and Health policy directive 50-11 were sorted for safety responsibilities specifically assigned to the Station Manager (MIC, HIC, or OIC). This information was then summarized in bulleted format and distributed to all SR MICs and HICs for future reference. A similar task can be accomplished when the new NWS Environmental Manual is approved.

**WIRE WEIGHT REPLACEMENTS.** Fifteen remaining wire weight sites identified as primary observation points on bridges with inadequate guardrails per the OSHA requirement of 39" were evaluated for the addition of staff gauges or the use of a clinometer. Guardrail extensions such as those used in Central Region were viewed by the local Dallas OSHA office as "not meeting the intent" of the regulation. A variance request from the regulation was discussed with OSHA, but it requires an alternative other than the guardrail extension, with denial estimated at 99% by the local OSHA office.

**UPPER AIR PCB TRANSFORMER DISPOSAL.** Mod Note 19 was approved and distributed to the field, which describes the process by which PCB-containing transformers will be removed from 17 Southern Region upper air sites this month. It is imperative that the instructions in Mod Note 19 are followed precisely, since mishandling PCBs can result in penalties from the EPA.

In general, the disposal containers and shipping documents are being sent to each of the 17 offices in advance of the hazardous waste transporter's arrival. Once the transporter has arrived at the facility, the PCB-containing item(s) can be removed from the electronic assemblies. We do not want to store PCB-containing items outside of the electronic assemblies since that is governed by very strict EPA requirements.

**SHREVEPORT WASTEWATER CONTAMINATION.** After detecting abnormally low pH levels in the WFO Shreveport sewage effluent for several months by different investigators, the U.S. Public Health Service was asked to perform chemical analyses on the effluent to identify the source of the problem. The PHS analysis found the pH level to be normal with no unusual chemical constituents in the wastewater. The pH will be monitored periodically to determine if it remains stable.

The air pump of the waste treatment plant is being overhauled and a new method of delivering chlorine tablets to the disinfection well was implemented. Two laboratory technicians had to be prevented from entering the disinfection well for sampling due to the likelihood of toxic levels of hydrogen sulfide and chlorine gas. Exposure to these gases could be fatal, or drowning could occur before an emergency rescue would be possible. A sign labeled "Confined Space - Do Not Enter" has since been added to the cover of the disinfection well.

**SEWAGE PERMIT ANNUAL FEES.** The annual sewage permit application for WFO Miami and the National Hurricane Center was submitted to Dade County Environmental Resource Management along with the required fee. Similarly, the fees for operating the sewage treatment plants at WFOs Shreveport, New Orleans/Baton Rouge and Lake Charles were sent to the Louisiana Department of Environmental Quality. WFO Slidell is in the process of being connected to the new municipal sewage line at the Slidell airport, which will eliminate the permit and fee for this location.

**KEY WEST GENERATOR EXHAUST.** Diesel exhaust odors were noted in the WFO building when the generator runs. It was found that the exhaust stack for the generator was directed horizontally immediately above the air handler with the outside air intake. The American Society of Heating, Refrigerating and Air Conditioning Engineers design guidelines, showing exhaust stack placement on roofs, were provided to the MIC to use in his discussions with the city on adding either an exhaust stack height extension or a manual/auto damper to close the outside air intakes when the generator runs, or both.

**KEY WEST FUEL UNLOADING BASIN.** The original Spill Prevention Control and Countermeasures Plan (SPCC) done for the Key West radar found that there was a risk of contaminating nearby waterways in case of a large spill. Because of that, the SPCC contractor TetraTech EMI added a provision that NWS would add a fuel tanker truck unloading basin at the site per EPA regulations (40 CFR 112.7). This is essentially a concrete pad with curbing to contain the volume of the largest single tank in a fuel tanker truck (4,000 gallons) and was estimated to cost \$20K in December 2000.

Since the Key West radar is located on Boca Chica Key on land leased from the Navy, we must get permission to build from the Navy Facilities group before constructing the basin. So far, the Navy has refused permission, despite a clear message from EPA that this unloading basin is not only required, but should have been completed no longer than 18 months after the SPCC plan was written, making the project now about 14 months overdue.

**DUPONT SAFETY TRAINING FOR SENIOR LEADERS.** The November training course for MIC/HICs is now shown on the DuPont Web site ([www.dupont.com/safety/noaasecreg.html](http://www.dupont.com/safety/noaasecreg.html)) for registration with a purchase card.

**WFO HOUSTON 90% DESIGN REVIEW.** A 90% design review was held in early August at the Galveston County Emergency Management Authority across from WFO Houston. At the time of the review, the drawings and specifications were still lacking key information for HVAC, electrical, and plumbing. There should be one more pass at the drawings and specs before the project is sent out for bids or there will likely be increased risk for expensive change orders after construction commences. However, Galveston County has the lead design responsibility on this construction project and NWS Facilities can only serve in an advisory capacity.

**FORT WORTH RDA COOLING MOD.** After consulting with ROC, a local Fort Worth HVAC contractor was authorized to install a 5-ton ground-mounted condensing unit plumbed into the existing 5-ton wall-mounted Bard unit to improve the RDA cooling. The existing Bard units were installed in 1996 and may be near the end of their useful life. However, since the TPMS shelter was installed, the downwind unit has been going off on high head pressure when the winds are out of the southwest, despite the addition of ROC-designed exhaust deflectors. This is partly due to the proximity of the Bard units to each other and possibly also due to the changed airflow around the RDA shelter since the TPMS shelter was installed. This airflow problem should be alleviated by mounting the new condenser section on the ground, at a cost of approximately half what a new Bard unit sells for.

**IV-ROCS TRANSITION.** The transition from PC-ROSA to the new Interactive Voice-Remote Observation Collection System (IV-ROCS) is progressing smoothly. As of mid-August 350 observations were being collected, coded, and transmitted each day. The new IV-ROCS uses voice technology to assist the volunteer observer to submit the daily observations. Internal quality control of the data, with the observer providing verification, has greatly improved the data that is used at the WFOs, RFCs and by other customers.

**METADATA.** During August, 181 Cooperative Station Service Accountability documents were submitted by Southern Region forecast offices and are now a part of the official historical record. Another 173 remain in preparation and/or review process.

**UPPER-AIR OBSERVATION PROGRAM.** In July, the upper air rankings were excellent with 16 of the 23 Southern Region offices receiving scores above the national average. The national average for July was 286.67 with a perfect score being 300.00. WFO San Juan's upper air site had the highest score in July at 297.36. San Juan's upper air ranking score has risen to the top since March's regional low score of 274.49. In April their score improved slightly to 287.22, then rose to an excellent score of 298.97 in May, 292.06 in June, and then reached the top spot in July with a score of 297.36. San Juan's upper air staff has done an outstanding job over the past three months maintaining an excellent average score of 296.13.

Other offices showing a marked improvement the past several months and/or has maintained an excellent three-month average, are Corpus Christi (297.20), Lake Charles (296.28), Key West (294.21), Jackson (293.98), Del Rio (293.74), Nashville (293.45), Amarillo (293.24), Brownsville (292.10) and Little Rock (291.74).

WFO Little Rock continues to hold the top 12-month average for Southern Region with a score of 294.44. In addition, there are nine SR offices that continued to maintain an excellent 12-month average in July including Del Rio (293.74), Corpus Christi (293.42), Nashville (292.50), Brownsville (291.80), New Orleans (291.52), Miami (291.21), El Paso (290.52), Fort Worth (290.44), and Jackson (290.01).

These high scores show how hard SR upper air staffs work to maintain and collect high quality upper air data to meet the public's needs.

**REGIONAL UPPER AIR OBSERVATION CLINE AWARD.** WFO Miami has been selected as the winner of the 2003 Regional Upper Air Observation Cline Award. WFO Miami consistently performs the duties associated with the collection of radiosonde data in an exemplary manner.

WFO Miami's upper air staff participated in several special projects and was a Radiosonde Surface Observing Instrumentation System test site in support of both the regional and national headquarters. During the 2002 hurricane season, the staff conducted numerous special upper air flights in support of the National Hurricane Center/Tropical Prediction Center during periods of approaching hurricane or tropical storm activity threatening the Florida peninsula.

The national upper air station performance scores for WFO Miami are consistently above 290 out of a possible 300, with an annual average of 291.21. This makes WFO Miami one of the highest rated offices in the nation. WFO Miami's upper air balloon burst heights averaged 31,300 meters with over 99% of their flights terminating at burst.

Procedures used at this office far exceed the requirements set by WSOH #10 and are reflected in their high ratings. The WFO Miami staff continuously strive to improve their performance and support of the program.

**RADIOSONDE REPLACEMENT SYSTEM (RRS).** WFO Corpus Christi DAPM Dave Davenport worked a couple of days with the Sterling Test Center personnel to help evaluate the RRS software. It was noted by NWSH that the different upper air observers from other regions including Dave Davenport went very well. They pointed out some minor software problems and that several excellent suggestions were made on how to improve the RRS software.

Southern Region's upper air program manager received the first draft copy of the RRS Operator Training Guide in early July. Several pages of comments were sent to Robert Thomas at NWSH in early August. These comments are the result of four SR DAPMs, Tom Tarlton (WFO Key West), Jimmy Russell (WFO Little Rock), James Maxwell (WFO Fort Worth) and Ralph Troutman (WFO Nashville) taking the time to review the training guide for SR. During August, the RRS Site Installation Plan (SIP) was reviewed by WFO Corpus Christi DAPM Dave Davenport and ESA Don Parkerson, SRH RSS Charlie Lake and UAPM Alton Abernathy. Only a few comments and point of contact changes were suggested and were sent up to NWS Headquarters RRS deployment manager Doran Platt.

## **ADMINISTRATIVE MANAGEMENT DIVISION**

### **DIVERSITY/EEO AND COMMUNITY OUTREACH ACTIVITIES**

**WFO SAN JUAN.** MIC Israel Matos participated in the annual hurricane conference of Caguas City presenting the NOAA's and Dr. Gray's forecast for the remainder of the 2003 hurricane season, and the five-day NHC forecast. There were about 500 participants ranging from middle school students, teachers, emergency managers, and business representatives.

WCM Rafael Mojica participated in the kickoff ceremony of the Safe Home and Hurricane Expo, sponsored by Univision and Plaza Las Americas Mall. Local emergency management agencies, private institutions, and local media attended the activity.

**SOUTHERN REGION WORKFORCE TRANSACTIONS**  
**AUGUST 1 - 31, 2003**

**Southern Region Losses**

<u>Name</u>	<u>From (Office)</u>	<u>Action/Transfer</u>	<u>From Title/Grade</u>
Jim Purpura	WFO CRP	Transfer to WR	MIC, GS-14

**Southern Region Gains**

<u>Name</u>	<u>To (Office)</u>	<u>Action/Transfer</u>	<u>To Title/Grade</u>
Ryan J. Sharp	WFO TBW	New Hire	Forecaster, GS-9
Mark B. Bacon	WFO LCH	New Hire	Met Intern, GS-5
Michael Teer	WFO EPZ	Transfer from NWSTC	ESA, GS-13
Natala Denae Davis	FAA OKC	New Hire	ASA, GS-5
Kai M. Roth	RFC ORN	New Hire	Hydrologist, GS-11

**Within Region Transfers/Actions**

<u>Name</u>	<u>To (Office)</u>	<u>Action/Transfer</u>	<u>To Title/Grade</u>
Jennifer Colson	WFO TBW	Transfer from JAN	Forecaster, GS-7
Armando Garza	WFO CRP	Transfer from FAA	MIC, GS-14
Anthony Reynes	WFO EPZ	Reassign from EPZ	Forecaster, GS-9