UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
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SOUTHERN TOPICS

Working Together To Save Lives

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REGIONAL DIRECTOR

For much of the Southern Region the names Bonnie, Charlie, Frances, Ivan and Jeanne will be hard to forget. In a span of just a few weeks the region was battered by one after the other of those tropical cyclones. Collectively, their impact was unprecedented in economic terms, but thankfully the casualties were small in comparison. In no small part that was a result of extraordinary dedication and skill on the part of our employees - regionwide. For example, just for hurricane Ivan the affected offices issued more than 700 warnings, advisories and other statements; 16 of our employees were detailed from offices outside of harm's way to provide assistance at affected offices, including NHC, FEMA Region 6 headquarters, the Louisiana Office of Emergency Preparedness, and other partner agencies. Approximately 400 counties were affected after landfall, and we estimate the offices provided more than 500 media interviews, and over 400 coordination briefings with emergency managers. Southern Region offices launched nearly 150 supplemental upper air flights. All in all, it has been a September to remember with another outstanding performance by the National Weather Service … and the month's not even over yet!

It should be no surprise that reliance on the National Weather Service Web sites is growing, especially during critical weather events. The recent hurricanes tested our capabilities to the maximum, and I'm happy to say we passed the test. The SRH Dissemination and Enhancement Team coordinated early on with other regions, NWSH and NOAA, to make sure bandwidth could support the anticipated increase in Web activity with Ivan. In total, SR Web services received 77.8 million hits on September 15th, for a six day Hurricane Ivan total of 233.5 million hits. From September 12-16, more than *4 trillion* bytes of information were served - the equivalent of downloading over a million mp3 songs!

NEW EAST TENNESSEE MIC. I am pleased to announce the appointment of Tulsa WCM George Mathews as the new Meteorologist-in-Charge of WFO Morristown. George steps in behind recently retired MIC Jerry McDuffie. A veteran meteorologist, George worked as a forecaster in private industry and for WTVC-TV in Chattanooga before joining the NWS in 1990. He interned at was a forecaster at WFO Lubbock before accepting the WCM position WFO Midland/Odessa. He has spent the last four years as WCM in Tulsa where he launched a newly configured and expanded eastern Oklahoma/northwest Arkansas SKYWARN network. George also helped develop and served as an instructor at our recently launched "Learning About Leadership" teletraining sessions. He is also a recipient of the DOC Bronze and Silver Medals. George's broad background of weather experience and dedication to providing the best possible services will benefit all the people of eastern Tennessee. Please join me in congratulating him and in wishing him well as he takes on his new responsibilities.

SOUTHERN REGION CLINE AWARDS. It is a pleasure to congratulate this year's Regional Isaac Cline Award recipients. They are:

Meteorology: Robert Barritt, Mark Conder, Shawn Ellis, Bill Hopkins, Jody James, Ron McQueen and Marty Mullen (WFO Lubbock), for their outstanding skill and professionalism this year during two of the most intense West Texas dust storms in recent memory.

Hydrometeorology: Michael Shultz and Keith Stellman (RFC Fort Worth), for exceptional coordination during excessive rains and flood events in the Texas Hill

Hydrology: Reggina Cabrera Garza (RFC Atlanta), for leadership in numerous cutting-edge hydrologic science advancements in 2004.

Engineering, Electronics and Facilities: Donald Trull (WFO Nashville), for exceptional support of the WFO's upper air program in May 2004, when a series of equipment failures interrupted observations.

Support Services: Laura Sanchez (WFO Birmingham), for her leadership and outstanding contributions in support of office operations.

Upper Air Observation: Awarded to the WFO Little Rock upper air team for consistently excellent observations, achieving the highest score for all stations in the 48 contiguous states during the ranking year.

Leadership: Brian Carcione (WFO Huntsville), for exceptional leadership and vision in the IFPS program at the WFO.

Program Management & Administration: Jason Burks (WFO Huntsville), for the overall outstanding contributions made in all facets of the office's operations.

Attached to the Topics this month is a complete list of all the Southern Region Local Cline Award recipients. Congratulations to all for their outstanding achievements.

DIGITAL SERVICES

GRIDS GO OPERATIONAL. Acknowledging the endless hours our forecasters have spent developing and providing digital services in order to meet the growing needs of customers and partners, NWS director D.L. Johnson has announced that the maximum and minimum temperature and 12-hour PoP grids will become official and operational on December 1. An assessment of the other grid elements indicates they are in varying states of readiness.

The back-to-back-to-back hurricanes which struck Florida and the nearby Gulf Coast over the past month were an extreme test of our overall operations, and every office involved passed the test with flying colors. It doesn't trivialize the accomplishments of all involved to say those colors were red and black hurricane flags! Among all the other critical priorities associated with such widespread significant events, maintaining timeliness, accuracy and consistency in getting our basic forecast products out - now in gridded form – is especially challenging. The hurricanes showed that particularly in regard to wind and QPF grids – probably our most important forecast products in such situations. Skill grows with experience, however, so lessons learned with Charley, Frances and Ivan - and (as of this writing) perhaps Jeanne – will lead to all the grids being declared operational.

VERIFICATION INFORMATION. We have received verification information regarding the point forecast matrix (PFM) product from the OCWWS Performance Branch at NWSH. The new "Stats on Demand" public forecast verification system uses the PFM product as the source for all local forecast data. We have included all of the information about this on the IFPS Intranet site at: http://lucretia.srh.noaa.gov/srh/ifps/verification.html. We urge you to look over the details.

CLIMATE, WATER AND WEATHER DIVISION

METEOROLOGICAL SERVICES BRANCH

Welcome back Paul! Southern Region Fire Weather Program Leader and Regional Aviation Meteorologist Paul Witsaman recently completed his military deployment to the contingency operation in Kosovo, a province of Serbia. His first day back at Southern Region was August 9, following a deployment which began April 6. In Kosovo Paul served as the OIC for the Combat Weather Team at Camp Bondsteel. He led a team of six who provided support for aviation and ground troops. Thanks for a job well done, Paul! We're all glad you arrived back home safely.

Southern Region Supplements Website. Kandis Boyd and Melinda Bailey are the National Directives System (NDS) Focal Points for Southern Region. See the working document which lists Supplements in effect and a crosswalk for ROMLs at the following Intranet site: http://lucretia.srh.noaa.gov/docs/ .

PUBLIC

CID Website. We want to thank everyone for helping review local a2a files for the big CID (Communication Identifier) transition which will occur on November 9. A CID Intranet website has been developed as a resource for this transition. On the website, at http://lucretia.srh.noaa.gov/srh/public/cid.html, are the spreadsheets, PNS's, and frequently asked questions.

Jacksonville Web Kudos. WFO Jacksonville passed on the following note of thanks they received from a fellow NOAA employee in Charleston, South Carolina:

> I had occasion to speak on the phone with a Family Court judge with the Jacksonville District Court system yesterday afternoon … Knowing that I work for NOAA, he made a point to relay to me what a great job NOAA had been doing with its dissemination of tropical cyclone information, and specifically, he paid a big complement to how helpful, convenient and accurate the WFO Jacksonville website has been to him over the past several weeks. I thought you might appreciate hearing some unsolicited praise for your website and for our organization -- we don't hear that kind of thing often enough from the general public. Now if we could just do something about Jeanne...

NOAA ALL HAZARDS RADIO

Accolades to WFO Little Rock. A letter of thanks was received by WFO Little Rock from Congressman John Boozman, 3rd District Arkansas, for making the Harrison, Arkansas NOAA All Hazards Radio transmitter available to residents in Boone, Carroll, Marion and Newton counties. The Congressman stated that Station WXN-92 will truly be an asset in providing critical weather warnings and advisories to his eastern Arkansas district.

What's On the Air? Southern Region was at various stages of installation for NOAA All Hazards Radio (NWR) during the summer. In August, station WNG-654 went on-air at Stillwater, Oklahoma. Broadcast audio for this 1000 watt transmitter will originate from WFO Norman. A second 1000 watt transmitter went on-air at Miami, in the eastern Texas panhandle. Station WNG-713 will provide coverage to the Pampa, Texas area, which has been ravaged by a number of tornadoes in recent years. WFO Amarillo will provide programming for this site. This brings to 17 the number of new All Hazards Radio stations brought on-air by Southern Region this fiscal year.

AVIATION

Visit to Southwest Airlines Headquarters. Four SR meteorologists and one ESA had the opportunity to visit the Southwest Airlines Corporate Headquarters in Dallas in August. The group included: Tom Bradshaw, Chief MSB; Paul Witsaman, RAM; Kevin Brown, WFO Norman; Matt Moreland, WFO Houston; and ESA Brian Burgess, WFO Huntsville. The group toured the SWA facility, with the majority of their time spent in the large dispatch center. They learned how weather impacts the nation's fourth largest air carrier and how NWS products, especially TAFs, are integrated into their operations. Rick Curtis, Southwest Airlines Manager of Dispatch Solutions Systems, provided insight into the importance of NWS TAFs, emphasizing the airline's reliance on accurate TAFs and the impact of a NIL TAF on dispatching an airplane.

The group came away with a better understanding of the importance of TAFs to this major consumer of NWS aviation services. Rick Curtis has offered to host other SR WFO and CWSU folks who visit the Dallas-Fort Worth area.

Southern Region Attends Friends & Partners Meeting in DC. Jud Ladd, Chief of CWWD, and Paul Witsaman, Regional Aviation Meteorologist, attended the recent Friends and Partners of Aviation Weather Vision Meeting in Washington. The meeting brought together members of government, the commercial aviation industry, and other private sector aviation interests. The purpose of the meeting was to learn more about the draft Joint Planning and Development Office Weather Plan for 2025. Jud and Paul also participated in the resulting discussion.

Combined CR/SR Aviation Workshop. An aviation workshop was held in Kansas City on September 8-9, bringing together Southern and Central Region meteorologists and a number of aviation training experts and commercial aviation customers. About 30 people participated in the workshop. The agenda included the following speakers and topics:

Mike Graf, NWSH – ASB: *Stats on Demand and AVNFPS version 3.0*

Tom Fahey, Northwest Airlines Meteorology Dept.: *Weather Forecasting at Northwest Airlines*

Jeff Hubright, Coordinator, Delta Airlines Flight Control: *Weather Training for Dispatchers*

Buzz Rivard, MIC, CWSU Albuquerque: *ZAB Convective Weather Support*

Tom Amis, CWSU Forth Worth: *Tactical Decision Aids from PACE*

Chip West, CWSU Atlanta: *Holding Times at Major Airports*

Rick Curtis, Manager of Dispatch Automation, Southwest Airlines*: Operational Dispatch Decision Making*

Lynn Brigdon, Training Officer, AFSS Columbia, MO: *Use of NWS Products by AFSS Personnel*

Jack May, Director, NWS Aviation Weather Center: *FAA Requirements and Tiger Team II*

Charlie Liles, WFO Albuquerque: *Airport Climatology Assessment*

Tom Wray, Chief Traffic Management Unit, ARTCC – Kansas City: *Weather, and Weather Forecast, Impact on Enroute Operations*

Marco Bohorquez and Doug Strue, NWS Unit, FAA Academy: *The NWS/FAA Pilot Weather Briefing Program*

Fred Johnson, NCEP/AWC: *Aviation Weather Center Operations – Present and Future*

Mike Campbell, NCEP/AWC: *The Graphical Area Forecast (GFA)*

A CD-ROM will be developed to contain all the presentations, and they will also be placed on the SR Intranet. Planning is beginning for the 2005 national aviation workshop.

HYDROLOGIC SERVICES BRANCH

HAS Forecaster visits HPC. Greg Story, HAS forecaster at the West Gulf RFC, participated in the visiting scientist exchange program with NCEP's Hydrometeorological Prediction Center in August. For a week Greg shadowed HPC staff members in different functions at the center. He viewed first-hand how HPC QPFs are prepared, and with TS Bonnie and Hurricane Charley going simultaneously, Greg saw the tropical outlook desk in operation, as back-up for the TPC in Miami. Greg also spent time with the National Precipitation Verification Unit and the NESDIS Satellite Analysis Branch's National Precipitation Product Unit. As part of his visit, and the exchange program, Greg also presented a talk to the HPC staff on how QPFs from HPC are used in the HAS operations at WGRFC.

JetStream orientation at New Orleans. On August 6 fourteen middle school teachers from the New Orleans Public School District (Orleans Parish, LA) visited the WFO and LMRFC as part of a curriculum planning effort intended to (1) familiarize the teachers with meteorological and hydrological operations of the NWS, (2) introduce other concepts in earth sciences as part of NOAA operations, (3) introduce the teachers to JetStream (the Southern Region's online weather school), and (4) let the teachers know about potential study and job opportunities in NOAA and the NWS. The teachers viewed a PowerPoint presentation designed by SCEP student Danielle Manning and senior service hydrologist Patricia Brown. The presentation covered JetStream in depth, with a discussion on the various topics, exercises, and teaching tools that comprise JetStream. Mention was also made of other aspects of meteorology not covered in JetStream, such as fire and marine weather, and space weather.

AHPS Workshops. During August, HSB staff, in collaboration with hydrologic forecasters from ABRFC, LMRFC and WGRFC, participated in AHPS educational outreach workshops held for staff at WFOs Huntsville, Tulsa and Fort Worth. Jayant Deo, a contractor for the AHPS program, also participated in the outreach workshops. Jayant spoke about the paradigm shift associated with hydrologic information delivery via AHPS Web pages. HSB staff provided an overview of the NWS Advanced Hydrologic Prediction Services program. RFC forecasters gave presentations on the ensemble streamflow prediction model used for probabilistic hydrologic forecasts, and information on how to interpret probabilistic hydrologic forecasts. The workshops ended with discussions on generating the baseline probabilistic hydrologic forecast information graphics. Thanks to John Gordon, Steve Piltz, Bill Bunting and their staffs for hosting these workshops.

SERFC Visit to WFO Mobile. SERFC HIC John Feldt recently visited WFO Mobile and made a presentation to the staff on RFC operations. From the staff John learned that the largest impact area in the WFO's hydrologic service area is the Florida Panhandle, which includes river forecast points at Crestview and Milton. John also learned of a blast furnace at the Brewton AL forecast point location along Murder Creek. When the water level rises to a given height, authorities must shut it down or else it will "blow up the town." Local officials monitor WFO Mobile's forecasts for Brewton closely. Obviously, John will ensure the RFC forecasters follow up to obtain more information about this critical point. There was also discussion about reviewing the SERFC flash flood guidance values for Mobile's HSA. As part of his visit, John also took a field trip to the forecast locations at Crestview and Milton.

MPE Training. SERFC HAS forecaster Jack Bushong provided two days of MPE training to forecasters and HMTs at WFO Tallahassee in July. He conducted six sessions on the first day and three sessions on the second day, providing 2 hours of training to groups of three to four people at a time.

Dambreak Exercise. Joel Lanier, senior service hydrologist from WFO Tallahassee, and Mark Fuchs, hydrologic forecaster from the SERFC, represented the NWS in an Emergency Action Plan dambreak exercise at Lake Blackshear. The exercise involved representatives from various counties along the Flint River and representatives from Southern Company, Lake Blackshear Dam, Albany Dam and Plant Mitchell. The exercise demonstrated to and refreshed participants on procedures for handling various flood levels associated with the Lake Blackshear and Albany Dams on the Flint River, which primarily impacts the City of Albany in southern Georgia. At the exercise, Joel Lanier demonstrated graphical E19 Web page software recently created by Doug Marcy and Mark Kolowith from the NOAA Coastal Services Center in Charleston, SC. The graphical E19 maps displayed extent of flood inundation of the City of Albany based on minor, moderate and major flood categories. The E19 map presentation was well received.

Science workshop. WFO San Juan hosted a workshop called "Hurricane-Flood-Landslide Continuum" for staff from NOAA, USGS, NASA, the University of Puerto Rico, USAID, and the OAS. The meeting was designed primarily to craft a scientific strategy for a national program to address the spectrum of phenomena which occur when tropical systems impact populated areas (such as the May 24-25, 2004 disaster in the Dominican Republic and Haiti). A key goal of the workshop is to use Puerto Rico as a test bed for technologies which would eventually be transferable to those countries with similar problems, such as the Dominican Republic and Haiti.

The genesis of the workshop began in the Hurricane Mitch (1999) aftermath when collaboration among these agencies resulted in new contacts and agreements on the need to better anticipate the impact of such events. The conference organizers, Randall Updike of USGS, Joe Golden of NOAA and Andrew Negri of NASA, brought together researchers from various agencies involved to present their latest work. The service hydrologist at WFO San Juan led a tour of the office for workshop participants, including a RAOB release. In addition, workshop participant Pedro Restrepo, senior scientist at the NWS Office of Hydrologic Development, spent a day at the WFO to become familiar with their hydrologic operations.

SEVERE WEATHER PREPAREDNESS & OUTREACH

WFO Nashville Celebrates Storm Day. Storm Day was a success at Lakeview Design Center grade school at Antioch, Tennessee. Approximately 400 children from kindergarten through 4th grade learned about thunderstorms, lightning, hail, tornadoes, flash floods and NOAA Weather Radio over a two-day period. The concept originated with Skywarn spotter and music teacher Mr. Brian Waldrop. WCM Jerry Orchanian, along with TV weathercasters Kevin Skarupa (WKRN), and Charlie Neese and Lelan Statom (both from WTVF) were featured guests. The weathercasters described how they prepare a forecast for TV and revealed secrets of chromo-key.

Home School Group Kicks Off Year at WFO Birmingham. As a new school year begins WFO Birmingham hosted the first home school group of the year. Over fifty students and parents from Day Springs Academy spent a few hours learning about weather and the NWS mission of protecting life and property. HMT Kristina Sumrall and forecaster Krissy Hurley talked about weather instruments and used a series of demonstrations to teach students about the weather. Forecaster Darone Jones shared his knowledge and expertise about upper air, and treated the group to a tour of the inflation shelter. Senior forecaster Faith Borden played the ever popular hurricane toss game with the group and reviewed safety rules for all types of inclement weather.

NWS Becomes Permanent Part of Lubbock's Science Spectrum. WFO Lubbock recently unveiled a large educational display that will be permanently located within Lubbock's Science Spectrum, a science and history museum collocated with the WFO. With SRH support, a WFO team designed and produced the display. Team members included Mark Conder, Gary Skwira, John Hickman, Carl Hill, Ed Calianese, Steve Cobb, Justin Weaver, Marsha Black, John Holsenbeck, and John Lipe. The unique project provides an interactive educational experience for both adults and children. Highlights of the display include a touch screen that allows the user to experience a virtual tour of the WFO, a weather quiz, a working anemometer the visitor can "operate" by pedaling a bicycle, and an NWR display that allows the visitor to listen to any of the WFO's live broadcasts. A centerpiece of the exhibit is a large monitor displaying a repeating slide-show emphasizing a variety of seasonal weather and safety topics. The next addition to the display will allow visitors to access real-time weather data and forecasts directly from the WFO's Web site. While offering an educational benefit to tens of thousands of yearly visitors, this display will also increase exposure of the NWS throughout West Texas and eastern New Mexico.

University Students Visit WFO Brownsville. DAPM Jim Campbell provided an office tour for Dr. Ravi Nandigam's earth science class, including 15 students, from the University of Texas at Brownsville. Jim provided a presentation on office operations and weather impacts in the Rio Grande Valley. Following a weather briefing by forecaster Mike Castillo, the tour group saw first-hand how upper air observations are obtained.

EMERGENCY MANAGEMENT COORDINATION

StormReady Update. Three new StormReady recognitions were recently added to the Southern Region roster for fiscal year 2004. WFO Jacksonville recognized St. Johns County, Florida as StormReady; WFO Tulsa recognized Muskogee County, Oklahoma; and WFO Huntsville recognized Moore County, Tennessee. WFO Huntsville has (for the second time) recognized their entire county warning area as "StormReady" in the wake of a recent county warning area expansion. Southern Region has recognized 34 StormReady communities so far in FY04.

MEDIA/PUBLIC EXTERNAL SUPPORT

Huntsville Hamfest a hit! WFO Huntsville WCM Tim Troutman and senior forecaster Robert Boyd manned the NWS booth at the annual Huntsville Hamfest on August 21. Over 3,000 people attended this large amateur radio festival. Tim and Robert spoke with hundreds of amateur radio operators from across the Southeast about NWR and forecast and warning operations at NWS Huntsville and surrounding WFOs. They also fielded numerous questions about the weather in general from those in attendance.

American Red Cross Awards Birmingham Weather Office. WFO Birmingham MIC Ken Graham and WCM Jason B. Wright recently attended an American Red Cross annual volunteer recognition luncheon. At the event, Ken and Jason were honored to accept the 2004 Community Disaster Education Award on behalf of WFO Birmingham. Specifically cited was the 2004 Alabama Severe Weather Awareness brochure created through a partnership between the NWS, the Red Cross, and Mercedes Benz. Birmingham meteorologists Darone Jones and Michael Scotten designed the brochure, 10,000 copies of which were printed to strengthen public severe weather knowledge and preparedness. Congratulations to the Birmingham staff!

SCIENTIFIC SERVICES DIVISION

RECORD PRECIPITABLE WATER OBSERVATIONS. The recent hurricanes provided an opportunity for some unique, and probably record-setting observations of precipitable water, thanks to the work of the GPS-Met Observing Systems Branch of NOAA's Forecast Systems Lab. Seth Gutman, chief of the branch, provided the summary we've included as a technical attachment this month. The maximum PW ever measured using GPS remote sensing techniques was observed as tropical storm Frances passed over Tallahassee on September 6. The observed value of 7.57 cm (2.98 in) represents the average between 1900 and 1930 UTC. A record? If so, it did not stand for long. Ten days later, Ivan made landfall and passed over the U.S. Coast Guard DGPS site at Mobile Point as a strong Category 3 hurricane. The maximum PW derived from the GPS signal by FSL was 80.4 mm (3.16 in) between 0630 and 0700 UTC. This resulted in two notable events: the first known ground-based observation of upper-air moisture from within the eye of a hurricane, and the highest recorded precipitable water measurement using GPS techniques.

PIONEER FUND. All Commerce employees recently received an email describing the DOC Pioneer Fund program. The gist of the program is to encourage employees who have good ideas for service improvement, but lack funds from their line organization to develop them, to submit those ideas directly to Commerce for support. The Pioneer Fund has been around for at least 15 years. That long ago we had the first of several successful applications from SR employees.

Support can range from $5000 to $50,000. Full details and an application form are at www.osec.doc.gov/pioneer. We encourage you to consider this a potential source of funding for local initiatives, but we also want you discuss your ideas with SRH staff. If successful the funding will be provide from DOC, but the region will be involved in fund transfers, etc. SSD (Dan Smith) will be the regional point of contact. Ideas for projects should be discussed first with the appropriate program leader or division chief at SRH.

NEW TELETRAINING SERIES. The first of our new series of teletraining seminars was given by WFO Houston/Galveston forecaster Lance Wood on Monday, August 16. Lance's topic was "A Decision Tree to Assess Forecast Track Confidence for Landfalling Gulf of Mexico Tropical Cyclones." Seminar titles and dates will be posted on the new Southern Region Intranet site at http://lucretia.srh.noaa.gov/srh/ssd/Seminars/August2004.html. By clicking on a title you'll be taken to an abstract of the seminar and links to download the VISITView electronic materials, plus any related materials. As with any seminar, registration for a session is not required, but we encourage participation. You should download and test the electronic material a couple days ahead of time, then just join the seminar by dialing in at the specified time and day. SSD will provide additional information and dialing instructions prior to each seminar.

Dozens of Southern Region employees participate each year in conferences of the professional societies. Their presentations share cutting-edge science and forecast procedures with fellow participants at those meetings. This new seminar series is designed to provide a means to also share those presentations with other forecasters in the region.

BAMEX. The Bow Echo and MCV Experiment (BAMEX) has been a collaborative study using a variety of mobile platforms to examine the life cycles of mesoscale convective systems in the central U.S. The field project took place during the spring and early summer of last year, investigating bow echoes, principally those that produce damaging surface winds and last at least four hours, and larger convective systems which produce long-lived mesoscale convective vortices - MCVs. BAMEX included representatives from NCAR, universities, NSSL, the NCEP Storm Prediction Center, and forecasters from several WFOs. Chris Buoanno, SOO at WFO Little Rock, participated in the field project and helped provide real time support to forecast operations. He and the other NWS forecasters often teamed with researchers to focus their efforts on providing specific support for, first, planning Day 1 or Day 2 Intensive Operations Periods, and two, once an IOP was in place, short-range forecasts to support the day's operations. A detailed summary of BAMEX was published in the August 2004 *Bulletin of the AMS*, and more details can be found at http://www.crh.noaa.gov/lsx/science/bamex.htm.

UNIVERSITY INTERACTION. Drs. Patrick Market and Neil Fox from the University of Missouri Atmospheric Science Program visited WFO Austin/San Antonio on Friday, August 6. Topics discussed included a current COMET Partner's Project on the July 2002 Texas Hill Country Floods, methods for calculating precipitation efficiency, use of GPS integrated water vapor measurements, and radar-based algorithms for short-term forecasting of the rear edge of precipitation systems and total precipitation estimates. In addition to the WFO Austin/San Antonio staff, WFO Corpus Christi MIC Armando Garza and WCM John Metz traveled up for the seminar portion of the meeting.

NASA BRIEFED. On August 18, WFO Huntsville MIC John Gordon spoke addressed a GOES-N users conference at NASA's Goddard Space Flight Center in Maryland. The GOES-N group meets bi-monthly and includes engineers, launch and mission control specialists and contractors. John spoke about how GOES products are used by NWS forecasters, with special emphasis on MODIS data from the Terra and Aqua satellites which WFO Huntsville receives as a result of their collaboration with meteorologists collocated at the NASA Marshall Space Flight Center. Learn more about MODIS at http://modis.gsfc.nasa.gov/. John's presentation was well received. Questions from the participants dealt primarily with utility of the GOES sounder products.

G.V. RAO. We were saddened to learn a few weeks ago that Prof. G.V. Rao from Saint Louis University drowned while in Mexico participating in the NAME project. Apparently he was caught in a rip current. G.V. was well known to many in the Southern Region because of his involvement in COMET-sponsored projects. He was intensely interested in operational meteorology and was involved with forecasters at several NWS offices. We understand a scholarship has been established in the meteorology department at SLU to honor Dr. Rao's memory.

DGEX TELETRAINING. Teletraining sessions for DGEX (Downscaled Global forecast system with Eta eXtension) are included on the VISIT calendars for September and October at http://www.cira.colostate.edu/ramm/visit/ecal.asp. Register for the sessions by sending an email to: visit@comet.ucar.edu .

WRF WINTER WEATHER EXPERIMENT. The WRF testbed group (including FSL, NCAR and NCEP) will be conducting a winter weather modeling experiment starting in November. They plan to run a 5 km WRF model with explicit microphysics once per day out to 42 hr over the CONUS and are seeking NWS field office evaluation of the model guidance. Interested field forecasters will be asked to provide their evaluation of the model guidance to the developers via a Web-based form. The WRF testbed folks have been coordinating with NWS Eastern Region, and have recently invited Central and Southern Region to participate. Bernard Meisner (SSD) is the SR focal point for this project.

WSR-88D GHOST ECHOES. Recent findings by the Radar Operations Center (ROC) have identified the potential for the WSR-88D to produce ghost echoes when the radar is transmitting in batch mode. These ghost echoes could impact operations, so the Warning Decision Training Branch (WDTB) developed a Web page summarizing the issue and explaining how to eliminate the possibility for these ghost echoes: http://wdtb.noaa.gov/resources/fieldupdates/ghostechoes. The page also includes a link to the detailed three-page analysis by the ROC.

ACCESS TO JOURNALS ONLINE -- UPDATE. The American Meteorological Society Journals Online Web site (http://ams.allenpress.com) provides access for anyone to search the journals and/or view the abstract of any article. To view the complete text or print a copy of an article in journals other than the *AMS Bulletin*, however, you must be a subscriber to the online journal(s). Beginning in 2001, in lieu of purchasing printed copies of *Monthly Weather Review* and *Weather and Forecasting* for all offices, NWSH - with concurrence from the regions - opted to purchase annual subscriptions to the online versions of the journals. (Most offices indicated they preferred online access and were running out of storage space for journals.) The purchase included *MWR* and *W&F* (both back to 1997), and the more recent *Journal of Hydrometeorology* (back to 2000). For copies of articles from other journals not included in these online subscriptions, or from older issues of *MWR, W&F* or the *Journal of Hydrometeorology*, contact the NOAA Central Library at http://www.lib.noaa.gov.

A shortage of training funds precluded purchase of the journals this year, but funds were recently made available to support the online subscriptions to the 2004 and 2005 issues of the journals. Expect to have access to these years once the funds have been transferred to the AMS and they have directed Allen Press to update their records. The focal point at NWSH for the online subscriptions is Mike Dion in the Training Division of the Office of Climate, Water and Weather Services. Field offices with *noaa.gov* domain names should supply Mike with the IP addresses of those machines for which access to the full-text articles is desired. Mike can also provide user IDs and passwords to offices which do not have *noaa.gov* domains.

Access to the National Weather Association's *Electronic Journal of Operational Meteorology* (http://www.nwas.org/ej/e-j.html) is unrestricted.

NWS LEARNING MANAGEMENT SYSTEM. As part of an enterprise agreement all DoC employees now have access to over 1500 commercial online courses in the NETg library through the NWS Learning Management System (http://e-learning.noaa.gov). This course library is in addition to the 40 online courses which have always been available under the "Free Courses" heading of the online course catalog. Access to the SkillSoft and Karta commercial online course libraries requires that an additional fee be paid.

GOES-N/O/P/Q - THE NEXT GENERATION. Each SR field office and SRH division has been sent a copy of the *GOES-N/O/P/Q - The Next Generation* brochure. GOES-N is scheduled to be launched during the first quarter of calendar year 2005, with about a six-month checkout period. The satellite will then be placed in on-orbit storage until needed to replace either the current GOES-East or GOES-West satellites. Compared to the existing GOES satellites, the improved batteries in these new spacecraft will allow them to operate through the spring and autumn eclipse periods, and the new sun shield louver will reduce the number of images lost because of eclipse and keep-out zones.

SYSTEMS OPERATIONS DIVISION

Commendations. Facilities engineering and electronics staff are commended for their excellent work which resulted in rapid restoration of our equipment and facilities after hurricanes Charley and Frances. Through their efforts no equipment was out of service prior to either of the storms, and most equipment was restored to operational status, with storm debris removed and roof leaks repaired soon after the storms passed.

Our special thanks to everyone involved in getting the WSR-88D in Miami back up and ready before hurricane Frances, especially the staff from the Radar Operation Center (ROC) in Norman and ESAs from WFOs Jackson and Huntsville, who were at the site prior to and during the hurricane. Even though the radar was functional during the hurricane it was not operating in an optimal manner since there wasn't enough time to complete all the calibration work before the radar was needed to track the storm. Nevertheless, the staff from the ROC remained in Miami to finish work and return the radar to full functionality prior to the third hurricane in the progression, Ivan.

SYSTEMS INTEGRATION BRANCH

AWIPS. All Southern Region offices have successfully installed OB3 and maintenance release OB3.1. As a reminder, offices should install all Maintenance Releases (MRs) in a timely manner. These releases contain many software fixes and patches that are needed for applications and systems to run properly.

Thirty-three of 38 offices have installed the OB3.2 MR, which contains 16 patches, including the PX Bios and NIC firmware patches. The remaining offices will install this MR as soon as possible making sure all prerequisites have been completed before installing.

Nineteen of 38 offices have installed the OB3.3 MR. This MR contains an additional 27 patches which encompass much of the new VTEC and WBC functionality needed for the upcoming testing. Fixes to data display problems as well as the addition of the new DGEX model are included. The sooner WFOs can install this MR, the sooner they can begin setting up and getting used to using WWA and practicing WCN issuances.

Release OB4 was successfully installed at WFO Lubbock on August 11. To date, few problems have been uncovered with the OB4 software release. WFO Nashville will be validating the final install procedure before the software goes national on September 23. We have published more information regarding new features, tips, and tricks with OB4 on the AWIPS Intranet site: http://lucretia.srh.noaa.gov/srh/awips/install_status.html

WSR-88D. WFO Little Rock installed ORPG Build 6 the week of September 7 as beta testing continues. Some early problems were discovered and have been resolved at other beta test sites. Deployment is still on schedule for the October timeframe.

WFO Corpus Christi will be participating in some initial field testing of ORDA clutter suppression techniques the week of October 18. A portable ORDA (Porta ORDA) will be installed at the KCRP WSR-88D site to collect sea clutter data for testing the ORDAs new clutter suppression routines. An official ORDA installation schedule should be coming out from the ROC soon.

Upper Air. In support of the NWSH Test and Evaluation Branch, Phase-1B testing for the RSS, SOD Regional Maintenance Specialist, Charlie Lake, configured two files on the AWIPS ds1 server to ingest test data from Caribou, Maine.

Again this month we have had an extended outage of an upper system, this time in Key West, due to a parts shortage. A part was finally located at the test facility in Sterling. It was shipped to Key West, installed, and cleared the outage.

ASOS. Five more sites in SR have been approved to receive the new AWPAG precipitation gauges.

TELECOMMUNICATIONS. New NWR circuits for Miami, Texas have been installed, tested, and accepted by NWS. The transmitter site is on the air and operational. The circuit for Center, Texas has been put on hold pending site survey for a new location. The tower at that location has structural issues and was not suitable for NWS.

The IV-ROCS comms circuits are up and operational. The system was brought on line after the two T-1 circuits were provisioned. The T-1s are trunked together to allow for 48 channels of calls, 24 per circuit.

The frequency proposals for the Birmingham Hydro Alert network were submitted this week. A total of 23 proposals were issued to NWSH for review and forwarding to NTIA. The review of the frequency database and updating continues.

Our Telecommunications manager, Cecil Tevis, attended the GSA/FTS conference in Nashville this month. Cecil attended AT&T DAR training on Monday and met with vendors and exhibitors throughout the rest of the week. He also participated in agency meetings and training sessions throughout the week.

OSERVATIONS AND FACILITIES BRANCH

Wear Those Shoes! WFO Lubbock ET John Hickman was wearing his NWS-provided safety boots when a rattlesnake bit his ankle about an inch down from the top of the boot, but the snake was unable to penetrate the leather. We'll skip the picture of the dead snake that John provided and just remind everyone that if you are authorized to have safety shoes, be sure to wear them! If you don't have safety shoes yet and you're an ET or FET, funding should be available after the start of the new fiscal year. Contact Terry Brisbin. Meanwhile … watch out for snakes.

Holm & Jefferson Awards. The two Thomas Jefferson Award and five John Campanious Holm Award certificates for 2004 were received last month. The certificates will be forwarded to the appropriate WFOs for presentation to the volunteer cooperative observers later this fall.

IV-ROCS. Southern Region's Interactive Voice-Remote Observation Collection System became a national data collection system on August 19. Cooperative observers across the country are now able to call into IV-ROCS and submit daily climate observations. The new system is easier to use, improves the quality and timeliness of observations, and reduces the workload on local office staff.

North American Monsoon Experiment (NAME). On August 13 the five upper-air sites in our region who were involved completed their outstanding support of NAME by ending their last Intensive Operating Period (IOP). Each IOP included special flights at 0600 and 1800 UTC. Participating SR sites were WFOs Albuquerque, Amarillo, El Paso, Midland, and the contract upper-air site at Del Rio. Learn more about NAME at http://www.ofps.ucar.edu/name/.

Upper-Air Forms. The Upper-Air Program Manager received the test version of the new on-line Upper-Air B-85 electronic form. This will be the only electronic form used during this initial test. NWSH will release the H-6 and B-29 forms in the near future. NWSH plans to evaluate three types of users initially, including NWS HQ users, who will be able to see and/or update all B-85s; regional users, who will have access only to their region's forms; and station users, who will only be able to create and update their own forms. The upper-air program leaders will have the ability to "lock out" updates, at their discretion, after a specified update window of time. He or she will notify by e-mail prior to when lock outs will occur. Upper-air focal points will have to contact NWSH after that time.

Updated Spill Plans. Six SR sites with expired EPA spill prevention, control, and countermeasures (SPCC) plans were updated in late August and early September by the NOAA environmental contractor Louis Berger, Inc. These WFOs are Brownsville, El Paso, Midland-Odessa, Morristown, Miami and Atlanta. WFOs Jackson, Birmingham, and Corpus Christi are being converted to Best Management Plans, which essentially contain the same environmental protections as the SPCC plans, but without the EPA regulatory oversight due to the placement or lower volume of diesel fuel stored on site.

Confined Space Entry Procedures. OSHA examined the WSR–88D radomes in Norman and Sterling, Virginia and determined those to be confined spaces with permit-required entry procedures, due to the potential for injury to employees from electrical and crushing hazards. By using a Lock Out/Tag Out procedure developed by the ROC, the dome can be re-classified as a non-permit required confined space for preventive and corrective maintenance. This condition also applies to the large air handlers found at NWS-owned WFOs/RFCs and also at WFO Miami/NHC. OSHA is reviewing the upper air domes for a similar confined space designation, however, this has not yet been communicated to NWS. The permit-required entry process for general troubleshooting in the WSR–88D dome will require prior notification to the senior forecaster or MIC before work can begin, plus key circuit breakers controlling the antenna drive motors must be locked out to prevent movement and possible injury to employees in the dome.

WFO Key West Construction. The winning construction contractor, Sauer, Inc., was given the Notice to Proceed by the Navy on August 20, contingent on receipt of a schedule, the safety plan, the environmental plan, and performance bonds. The building completion date is June 28, 2005, with $1300 per day liquidated damages.

ADMINISTRATIVE MANAGEMENT DIVISION

DIVERSITY/EEO AND COMMUNITY OUTREACH ACTIVITIES

WFO NEW ORLEANS AREA. On August 6 fourteen middle school teachers from the New Orleans Public School District (Orleans Parish) visited WFO New Orleans/Baton Rouge as part of a curriculum planning effort intended to introduce the teachers to NOAA's role in the earth sciences in general, and NWS operations in meteorology and hydrology in particular. The visit also familiarized the teachers with the Southern Region's online weather school – JetStream, as well as potential study and job opportunities in NOAA and the NWS.

The teachers viewed a PowerPoint presentation designed by SCEP Danielle Manning and senior service hydrologist Patricia Brown, the first part of which covered various topics, exercises and teaching tools detailed in JetStream. That was followed by other aspects of meteorological operations not covered in JetStream, such as fire, marine and space weather. Most of the teachers were familiar with the study of meteorology, but few are prepared to teach topics in hydrology beyond the concept of the water cycle, so presentations introduced the four categories of hydrologic sciences: oceanography, limnology, glaciology and hydrology. Pat concentrated on hydrology, with an in-depth discussion of warnings, forecasts and developmental work done by the RFCs, WFOs and NCEP. Her presentation highlighted Web sites developed by the Lower Mississippi RFC, U.S. Geologic Survey, and the American Geophysical Union (AGU). Danielle provided a compilation of useful Web sites on meteorology, hydrology and earth science, along with a list of reference books for the middle-school level student. The teachers also received an informational JetStream brochure designed by SCEP Ashley Hayes, along with large cloud charts for their classrooms.

A tour of the WFO and upper air site was led by forecaster Tim Destri, with assistance from WCM Frank Revitte. Hydrologist Laurie Hall led the tour of the LMRFC. Responses from the teachers indicated that the event was well received and informational. Plans were discussed for bringing another group of teachers to the WFO and RFC for a repeat of the presentation and tours.

WFO BROWNSVILLE. MIC Andy Patrick met with Prof. Terrence Miller from the Physical Science Department of South Texas College in McAllen. Andy gave a presentation to science faculty members and several students on the AMS Online Weather Studies Geosciences Diversity/National Dissemination Project. The presentation provided the opportunity for Prof. Miller and Andy to discuss the availability of an introductory weather course during the 2005 spring semester. Participants were very excited about this opportunity. Also, Andy gave a brief presentation on the 2004 hurricane season (so far), including a recap of hurricane Charley. After the presentation, Prof. Miller showed the group the newly installed weather stations. Former Brownsville MIC Richard Hagan had assisted in the site selection of these weather stations.

SOUTHERN REGION WORKFORCE TRANSACTIONS
AUGUST 1 - SEPTEMBER 30, 2004

Southern Region Gains

Name	To (Office)	Action/Transfer	To Title/Grade
Lewis Harrington	WFO TBW	New Hire	Elec Tech, GS-11
David Wilburn	WFO AMA	New Hire	Elec Tech, GS-11
Mark Cunningham	WFO SJT	Trans. from Central Region	Forecaster, GS-12
Peggy Alander	WFO MFL	Trans. from Central Region	PMO, GS-10
Douglas M. Gaer	WFO TAE	Transfer from NHC	ITO, GS-13
Charles A. Dotson	WFO TSA	Trans. from Central Region	Elec Tech, GS-11
Andrew J. Kula	WFO HUN	Trans. from Central Region	Sr. Forecaster, GS-13
Scott Overpeck	WFO SJT	New Hire	Forecaster, GS-7
Corey Chaskelson	WFO MEG	Trans. from Central Region	Forecaster, GS-11
John J. Brost	WFO AMA	Trans. from Western Region	Forecaster, GS-9
Samuel Shamburger	WFO LCH	New Hire	Met Intern, GS-7
Miguel Sierra	CWSU MIA	Reinstate	Forecaster, GS-12
Anthony Merriman	WFO CRP	New Hire	Met Intern, GS-5

Within Region Transfers/Actions

Name	To (Office)	Action/Transfer	To Title/Grade
Ronald Morales, Jr.	WFO CRP	Reassign from WFO TBW	SOO, GS-13
Philip A. Grigsby	WFO LIX	Reassign from WFO FFC	Forecaster, GS-9
Mary E. Carroll	WFO HUN	Promotion on station	Forecaster, GS-9
Jeffrey D. Williams	SRH	Reassign from WFO OUN	IT Specialist, GS-13
Gregory P. Shelton	RFC FWR	Promotion on station	HAS, GS-13
James E. DeBerry	WFO SHV	Reassign from WFO MAF	Forecaster, GS-12
George Mathews	WFO MRX	Promotion from WFO TSA	MIC, GS-15
Paul Siebenmorgan	WFO LZK	Promotion on station	ESA, GS-12
Patrick Gatlin	WFO HUN	New Hire	Forecaster, GS-7

Attachment

2004 NWS Southern Region Local Cline Award Recipients

OFFICE	CATEGORY	RECIPIENT(S)
WFO Albuquerque	Program Management & Administration	Brent Wachter
WFO Amarillo	Program Management & Administration	Roland Nunez, Richard Wynne, Tabatha Tripp, Mark Fox, John Cockrell
	Meteorology	Ed Andrade
	Support Services	Jason Jordan, David Hennig
	Leadership	Scott Plischke
RFC Atlanta	Hydrometeorology	Christine McGehee
	Leadership	Reggina Cabrera Garza
	Support Services	Judith Bradberry
	Hydrology	Thomas Wallace
WFO Atlanta	Hydrology	Jim Noel
	Engineering, Electronics & Facilities	Richard Black, Steve Scott, Kevin Simmons, Christopher Carney, Timothy Bridges
	Leadership	Von Woods
	Program Management & Administration	Nathan Mayes
WFO San Antonio	Program Management & Administration	Mark Oliver
	Meteorology	Clay Anderson
	Support Services	Norma Jones
	Leadership	David Schumacher
	Hydrology	Dennis Cook
	Engineering, Electronics & Facilities	Dale Lininger
	Hydrometeorology	Robert Blaha
WFO Birmingham	Meteorology	Jim Westland
	Hydrometeorology	Kristen Hurley
	Hydrology	Roger McNeil
	Leadership	Darone Jones
	Program Management & Administration	Mark Linhares

	Administrative Support	Laura Sanchez
WFO Brownsville	Meteorology	Kurt VanSpeybroeck
	Hydrometeorology	Tim Speece, Jeff Philo, Buddy Martin, Sam Martinez
	Support Services	Rachel Gutierrez
	Hydrology	Fred Vega, Mike Castillo
	Program Management & Administration	Brian Miller
	Leadership	Jesus Haro
RFC Fort Worth	Meteorology	Greg Story
	Hydrometeorology	Keith Stellman, Mike Shultz
	Hydrology	Tracy Howieson
	Leadership	Bob Corby
	Program Management & Administration	Greg Waller, Paul McKee, Keith Stellman
	Support Services	Greg Shelton
WFO Huntsville	Meteorology	Michael Richter
	Hydrology	Jason Elliott
	Program Management & Administration	Jason Burks
	Leadership	Brian Carcione
	Support Services	Pearline McCauley
WFO Jacksonville	Meteorology	Andrew Shashy
	Support Services	Terrie Sabato
	Leadership	Angela Enyedi
WFO Midland	Meteorology	Brian Curran, Doug Cain, James DeBerry, Todd Lindley, Cody Lindsey, Alex Lyster, Greg Murdoch, Seth Nagle, Eric Platt, Jack Ciccone
	Hydrometeorology	Eddie Brite, Susan Griffin, Mike Wrinkle, Mike Young
	Hydrology	James DeBerry

	Engineering, Electronics & Facilities	Monty Davis, Eddie Whitefield, Wayne Patterson
	Support Services	Beverly Martin
	Leadership	Juff Cupo, Pat Vesper
	Program Management & Administration	Greg Jackson
WFO Lubbock	Leadership	Jerry English, John Lipe, Robert Robledo, Gary Skwira
	Meteorology	Robert Barritt, Mark Conder, Shawn Ellis, Bill Hopkins, Jody James, Ron McQueen, Marty Mullen
	Program Management & Administration	Robert Barritt, Bill Hopkins, John Lipe
	Support Services	Marsha Black
WFO Nashville	Engineering, Electronics & Facilities	Donald Trull
	Leadership	Steven Clark
	Meteorology	Mark Rose, Michael Davis, Bobby McDaniel, Sam Herron, David Matson
WFO New Orleans Area	Meteorology	Tim Destri
	Hydrometeorology	Robert Ricks
	Hydrology	Jacob Herty, Gary Vaughan, Gilbert Barton
	Leadership	Patricia Brown-Jones
	Engineering, Electronics & Facilities	Michael Festino, Keith DeArmas
	Program Management & Administration	James Vasilj, Leonard Bucklin, Paula Bolline
	Support Services	Freddie Zeigler
WFO Tulsa	Meteorology	Nicole Kempf, Steven Amburn
	Support Services	Diana Riddle
	Program Management & Administration	Robert Darby
	Leadership	George Mathews

Technical Attachment

Record Atmospheric Water Vapor Measured

Seth I. Gutman
GPS-Met Observing Systems Branch
NOAA Forecast Systems Laboratory Demonstration Division

(Ed. Note: See a late-breaking addendum at the end of the author's text.)

Water vapor is one of the most important constituents of the free atmosphere since it is the principle mechanism by which moisture and latent heat are transported and cause "weather." Water vapor is also a greenhouse gas that plays a critical role in the global climate system. This role is not restricted to absorbing and radiating energy from the sun, but includes the effect it has on the formation of clouds and aerosols and the chemistry of the lower atmosphere. Despite its importance to atmospheric processes over a wide range of spatial and temporal scales, water vapor is one of the least understood and poorly described components of the Earth's atmosphere.

In response to the need for improved upper-air moisture observations, the Forecast Systems Laboratory has been using GPS - the Global Positioning System - to make integrated (total atmospheric column) precipitable water vapor measurements since November 1994. Precipitable water (PW) is defined as the height of a column of liquid water that would form if all of the water vapor in that column were to completely condense. In general, the amount of precipitation in a given storm is highly correlated with the precipitable water vapor in the air masses involved in those storms. Note, however, that the amount of precipitation that falls during a rainstorm can often *exceed* the precipitable water amount because moisture-laden air continues to flow into a storm, condense, and fall as rain throughout the storm lifetime.

The maximum precipitable water vapor in the atmosphere ever measured using GPS remote sensing techniques was observed as tropical storm Frances passed over Tallahassee, Florida on September 6, 2004. The observed value, 7.57 cm or approximately 2.98 in, represents the average amount of PW in the atmosphere between 1900 and 1930 UTC. The top figure on the accompanying page reflects this measurement, and also illustrates the close correlation between GPS-derived PW observations and those derived from RAOB sounds at the same location. As can be seen in the bottom figure, the *maximum* PW observation closely coincided with the 30-minute average pressure and temperature *minimum* values of 982.3 mb and 23.9 C, respectively, that were measured in the storm between 1930 and 2000 UTC.

The data used to make this and other continuous GPS measurements in Florida are provided to FSL by the Florida Department of Transportation GPS Permanent Reference Network. More information on the FDOT GPS Permanent Reference Network can be found at

http://web.flgps.dot.state.fl.us/. For more information on GPS Meteorology within the National Oceanic and Atmospheric Administration, please see our web site at http://gpsmet.noaa.gov, or contact the author at Seth.I.Gutman@noaa.gov.

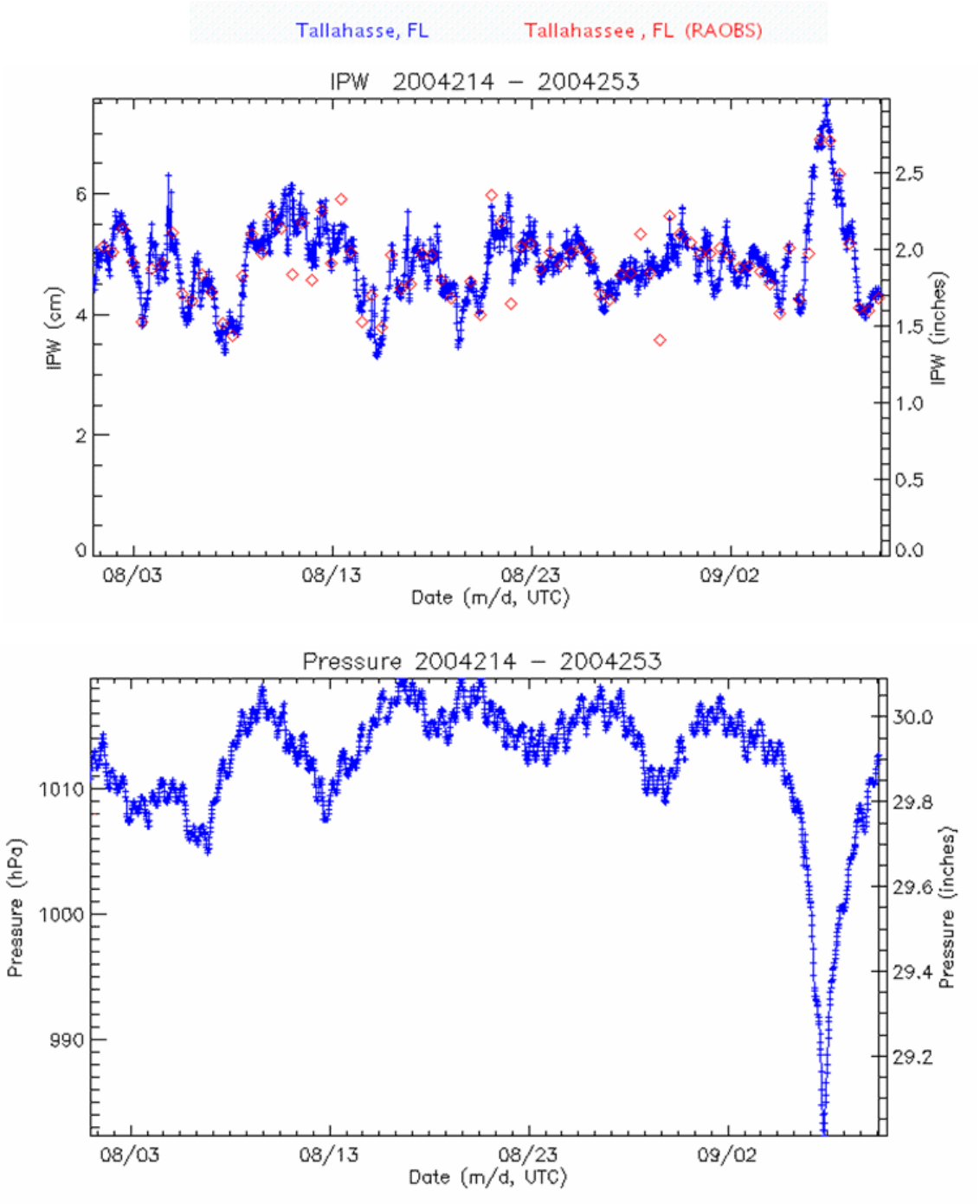
Late-breaking update to the above provide by the author:

This describes the meteorological events associated with the landfall of hurricane Ivan around 2 AM CDT (0700 UTC) on September 16, 2004. Landfall occurred about 31 km (19 mi) east of the USCG DGPS site at Mobile Point. Ivan was a strong Category 3 hurricane at the time, with winds exceeding 58 m/s (130 mph).

Contact with MOB1 (the USCG GPS receiver at Mobile Point) was lost at 0758 UTC; data from the GSOS stopped shortly thereafter. The minimum pressure reported by the NDBC GSOS unit installed at the site was 948.4 mb between 0645 and 0655 UTC. The maximum quantity of precipitable water vapor retrieved from the GPS signal delays by FSL was 80.4 mm (~3.16") between 0630 and 0700 UTC.

The GPS and GSOS equipment at Mobile Point appears to have successfully collected data through the passage of the eye wall and into the eye. This has resulted in two notable events: the first known ground-based observation of upper-air moisture from within the eye of a hurricane, and the highest recorded level of precipitable water vapor in the atmosphere using GPS meteorological techniques.

There is presently no communication with the site, so the status of the equipment is unknown. My sincere thanks to USCG, NDBC, and NGS for their assistance in making this achievement possible.


Tallahasse, FL
Tallahassee , FL (RAOBS)
IPW 2004214 – 2004253
IPW (cm)
IPW (inches)
Date (m/d, UTC)
08/03
08/13
08/23
09/02
Pressure 2004214 – 2004253
Pressure (hPa)
Pressure (inches)
Date (m/d, UTC)

Technical Attachment

Configuring WarnGen to Include Interstate Mile Marker Locations in Warnings

Doug Speheger
WFO Norman, OK

1. Introduction

This paper describes the method used at WFO Norman to allow WarnGen to automatically include a range of interstate mile markers in the warning text included within the warning polygon. This method has also been tested and utilized at WFO Omaha. First, a list of latitude/longitude pairs is needed for the mile markers. This information for Oklahoma was obtained through the Oklahoma Department of Transportation and the Oklahoma Turnpike Authority. Once those data are obtained, the steps below indicate what is necessary to create "Geographic Entity Lookup Tables" (GELTs) that WarnGen will use, and the additions needed in the WarnGen template.

2. Create .id file

First, create an .id file with the latitude, longitude and mile marker information for an interstate. Separate files are required for each interstate used. If an interstate crosses state lines within the CWA, separate files are also required for that interstate in each state. Use a format similar to /awips/fxa/data/localizationSets/LLL/wwa_warn_cities.id. Following is an abbreviated example from the i-40.id file used at WFO Norman:

```
216
  1  35.227  -99.999  p    1    0|1
  2  35.227  -99.991  p    2    1|1
  3  35.230  -99.813  p    3    2|1
  4  35.245  -99.726  p    4    3|1
  5  35.263  -99.643  p    5    4|1
 (continue with additional data points)
216  35.402  -96.379  p  216  217|1
```

The first number on a line by itself should be the total number of data points in the file. The format of the other lines is sequence number, latitude, longitude, p (for a point location as opposed to an area), sequence number repeated, mile marker number, and the goodness number. Since all of the data points are to be used, a goodness number of "1" will be used for all entries. Coordinates for every mile marker should be used, such that WarnGen can successfully find the range of values.

Proper format of the file is crucial in order to obtain the desired results. Specifically, it is important that there is a blank space before the sequence number at the beginning of each data line; the latitude and longitude should have only three digits after the decimal point; and that there are two spaces between consecutive numerical data in the line, especially between the second sequence number and the mile marker number. The columns should also be aligned vertically, which will require extra spaces at the beginning of lines with single digit or double digit sequence numbers. Otherwise, follow the example from wwa_warn_cities.id as closely as possible.

3. Creating GELT files

Although there may be other methods to make the GELT (Geographic Entity Lookup Table), the following is the method used at WFO Norman for this project.

Place the .id file (i-40.id in this example) in the /tmp directory of one of the workstations. On that workstation as user *fxa*:

cd /tmp
/awips/fxa/bin/makeGeoTables
Enter input gelt name: <enter>
Enter geo file: /awips/fxa/data/localizationDataSets/OUN/wwaTables.sup
Enter grid size: 600
Enter cartographic data: none
Use (s)hape file, (i)d file, (b)oth, or make (o)ne entity table: i
Enter filename: /tmp/i-40.id
Use (s)hape file, (i)d file, (b)oth, or make (o)ne entity table: <enter>
0 areas grown, 216 cached points
0 entities defined, 0 cross matched
Enter output gelt name: i40mm

The bold type indicates output from the makeGeoTables program. All values shown are from the WFO Norman configuration and are for example purposes only. File names and site identifiers will vary by site, and grid size may vary. Locate the grid size by finding the value assigned to the TDIM variable in the /awips/fxa/data/localization/scripts/makeWWAtables.csh script.

This will create six files, all beginning with the output GELT name you selected (in this case, i40mm) with the following six extensions: .entity, .EW, .gelt, .id, .NS, .table . After creating the GELT files, check the output .id file to make sure that it looks similar to the input .id file. If there is an extra column of data in the output file, there is likely a problem with the format of the input .id file. If the output .id file looks correct, move all of these files to the /awips/fxa/data/localizationDataSets/LLL/ directory of your test workstation.

4. Incorporating in WarnGen templates

After the mandatory bullets in a WarnGen template (such as wwa_tor.preWWA), add a section that will incorporate the range of interstate mile markers if appropriate:

```
{ ^ Interstate mile markers
<AREA |file=i35mm |area=wwa_counties
        |output_field=1 |sort_by=[0]
        |item_format=[2101][2701] |trail=.
        |lead=THIS INCLUDES INTERSTATE 35 BETWEEN MILE MARKERS~>

<AREA |file=i40mm |area=wwa_counties
        |output_field=1 |sort_by=[0]
        |item_format=[2101][2701] |trail=.
        |lead=THIS INCLUDES INTERSTATE 40 BETWEEN MILE MARKERS~>

<AREA |file=i44mm |area=wwa_counties
        |output_field=1 |sort_by=[0]
        |item_format=[2101][2701] |trail=.
        |lead=THIS INCLUDES INTERSTATE 44 BETWEEN MILE MARKERS~>
}
```

At WFO Norman, this template change has been implemented by placing the above code within curly brackets indicating an operator-selectable field. The inclusion of this code has been turned on by default by adding the carat (^) after the first bracket.

After adding this section to your template in /dsdata/customFiles, or wherever your template resides, relocalize your test workstation with the –wwa flag.

With the inclusion of this section, if a portion of an interstate is included in a warning polygon using WarnGen, the template output will look something like…

"* LOCATIONS IN THE WARNING INCLUDE ERICK AND TEXOLA.

THIS INCLUDES INTERSTATE 40 BETWEEN MILE MARKERS 0 AND 13.

(CALLS TO ACTION)…"

If there are no interstate mile markers included in a warning polygon, no additional output will be created by the additions to the template.

5. Moving Files to Other Workstations

Once this has been successfully tested, the GELT files can be copied to the /awips/fxa/data/localizationDataSets/LLL/ directory on other workstations. Finally, run a new –wwa localization on each workstation to incorporate these changes in the WarnGen templates. A copy of the GELT files should also be placed in a safe location in case the files get removed from the localizationDataSets directory.

6. Issues

This paper documents how to utilize these mile marker locations in WarnGen, but it is recommended that the mile markers also be configured to display on the D2D window. The latitude and longitude data from the .id file can also be reformatted to an .lpi file similar to others found in /awips/fxa/nationalData, and then placed in that directory. The goodness values in this file can be different for each mile marker location to take advantage of the progressive disclosure feature as described in the AWIPS System Manager's Manual. Steps 7 - 15 from Watson (2000) describe what files need to be edited to include a new map background, and these can be used here with one main adjustment. Since point data from an .lpi file are being added instead of a shapefile as in Watson (2000), the entry in XYZ-localDataKeys.txt listed in Step 12 should look similar to:

1019 | | | | | | |NAME |mileMarkers | .lpi| Mile Markers

Where XYZfin has been replaced with the file name of the .lpi file created (in this case "mileMarkers"), and ".lpi" has been added between the 9th and 10th pipes instead of a blank space.

Attempts to use locations from different GELT files in the same sentence in the WarnGen template such as the LOCATIONS IN THE WARNING SECTION section have proven unsuccessful. As an alternative, the interstate references have been placed just after the mandatory LOCATIONS section of the WarnGen template. Similarly, attempts to assign all of the interstates into the same sentence in the WarnGen output have also been unsuccessful. Thus, the method described here will output a different sentence for each interstate within the warning polygon. This will cause some excessive wording when more than one interstate is affected such as in metropolitan areas.

This output will include a range of mile markers on an interstate if the warning polygon includes as few as two mile markers, which may lead to potentially undesired output such as, THIS INCLUDES INTERSTATE 40 BETWEEN MILE MARKERS 15 AND 16, if the warning polygon barely includes an interstate. The WarnGen operators should be made aware of this potential and manually review the warning text before issuing.

This process will use the lowest and highest number mile marker boundaries that are found within the warning polygon, even if the polygon does not include the entire range of mile markers between the highest and lowest. As noted in Sec. 2, if an interstate crosses a state boundary but remains in your county warning area, you will need to have a separate GELT and template entry for each state's section of the interstate since the output will use the lowest and highest mile marker in the warning polygon, even if they are in different states. For example, a warning including I-80 from mile markers 440 to 455 in Nebraska, and 0 to 20 in Iowa, the output would read, INTERSTATE 80 BETWEEN MILE MARKERS 0 AND 455, if the same GELT was used.

7. Reference

Watson, J., 2000: *Installing and Displaying Urban Map Backgrounds on AWIPS*. Eastern Region AWIPS Technical Note No. 5.0-05, 4pp. NWS Eastern Region Headquarters.

Acknowledgements

Thanks are extended to Kevin Drury of the Oklahoma Department of Transportation for his assistance obtaining the latitude/longitude coordinates for the interstates in Oklahoma, and to Eric Howieson (SRH Systems Operations Division), Bryon Miller (WFO Valley, NE), and Steve Nelson and David Andra (WFO Norman) for their reviews of these instructions and additional comments.