Houston/Galveston National Weather Service Office

Storm Signals

Volume 67 Spring 2004

2004 Houston/Galveston Hurricane Workshop

You are cordially invited to attend the 2004 Houston/Galveston Hurricane Workshop. The workshop will take place on May 25th from 5:00pm until 9:00pm at the Pasadena Convention Center. The time of the workshop has been moved to the evening to allow more citizens an opportunity to attend this very important workshop and become better prepared for the 2004 Hurricane Season. The workshop is once again being sponsored by East Harris County Manufacturers Association (EHCMA), the City of Pasadena and the Houston/Galveston National Weather Service. It is free and open to everyone.

The theme of this year's workshop is "***Hurricane Forecasting: Can it Continue to Improve?***" We will concentrate on recent improvements in hurricane forecasting and how that affects the actions of citizens along the Texas Gulf Coast. Last year, Hurricane Claudette made landfall near Matagorda. This was the first hurricane to strike the Upper Texas Coast since 1989. Representatives from Matagorda County will speak on the impact Claudette had on Matagorda County even though it was only a category one Hurricane.

There will be several breakout sessions to choose from that will be of interest to the general public and also be of interest to emergency managers and private industry representatives. In addition to the speakers and breakout sessions, numerous vendors will be on hand to demonstrate ways you can be better prepared for a hurricane in 2004.

5:00 Vendors Open

6:30-6:40 Welcome...Mayor of Pasadena and Harris County Judge

6:40-6:50 Video...FORECASTING

6:50-7:10 Forecasts...Will They Continue to Improve?
Bill Read...Meteorologist In Charge

7:10-7:30 Hurricane Claudette...
It was only a Category 1 Hurricane
Sheriff James Mitchell
Matagorda County Sheriff

7:30-7:40 Break...Visit Vendors

7:40-8:10 *Workshops:*

Evacuation in the event of a Major Hurricane
Captain Patrick Mulligan
Department of Public Safety

Are You Ready?
Tim Kidwell...American Red Cross

Decision Tree for Decision Makers
Meteorologist...Lance Wood

8:10-8:20 Break

8:20-8:50 *Workshops:*

Evacuation in the event of a Major Hurricane
Captain Patrick Mulligan
Department of Public Safety

Will my home or business survive?
Jim Brown...Home Repair Specialist

Considerations for the Petro-Chemical Industry
Lew Fincher...Hurricane Consulting

8:50-9:00 Break

9:00-9:15 Question and Answer / Final Drawing

In this Issue:

Hurricane Talks

The Houston/Galveston National Weather Service Office offers informative hurricane talks to schools, businesses and organizations. These talks include details on the dangers of tropical storms and hurricanes, the history of activity along the Southeast Texas coast and ways to protect your life and property during a tropical threat. Brochures on hurricanes can also be made available to all attendees.

If you are interested in having a meteorologist come to you and talk about hurricanes, please contact Gene Hafele (Gene.Hafele@noaa.gov) or Joshua Lichter (Joshua.Lichter@noaa.gov) at (281)337-5074. The more you know about tropical storms and hurricanes, the better you will be prepared to survive when the next one strikes.

The Naming of Atlantic Basin Tropical Cyclones

Tropical cyclones are named to provide ease of communication between forecasters and the general public regarding forecasts, watches, and warnings. Since the storms can often last a week or longer and that more than one can be occurring in the same basin at the same time, names can reduce the confusion about what storm is being described.

The first use of a proper name for a tropical cyclone was done by an Australian forecaster early in the 20th century. He gave tropical cyclone names "after political figures whom he disliked." During World War II, tropical cyclones were informally given women's names by US Army Air Corp and Navy meteorologists (after their girlfriends or wives) who were monitoring and forecasting tropical cyclones over the Pacific. From 1950 to 1952, tropical cyclones of the North Atlantic Ocean were identified by the phonetic alphabet (Able-Baker-Charlie-etc.), but in 1953 the US Weather Bureau switched to women's names. In 1979, the World Meteorological Organization (WMO) and the US National Weather Service (NWS) switched to a list of names that also included men's names.

There are six lists that are now used in rotation. Thus, the 2004 list will be used again in 2010. The only time that there is a change in a list is if a storm is so deadly or costly that the future use of its name on a different storm would be inappropriate for reasons of sensitivity. If that occurs, then at an annual meeting by the WMO committee (called primarily to discuss many other issues) the offending name is striken from the list and another name is selected to replace it.

On this year's list, Gaston has replaced Georges and Matthew has replaced Mitch. Here is the complete 2004 list (some with pronunciations):

Alex
Bonnie
Charley
Danielle (dan-YELL)
Earl
Frances
Gaston (GAS-tone)
Hermine (her-MEEN)
Ivan (eye-van)
Jeanne (JEEN)
Karl
Lisa (LEE-sa)
Matthew
Nicole (ni-COLE)
Otto
Paula
Richard (RICH-erd)
Shary (SHA-ree)
Tomas (to-MAS)
Virginie (vir-JIN-ee)
Walter

Names that have been retired are...

Agnes 1972, Alicia 1983, Allen 1980, Allison 2001,Andrew 1992, Anita 1977, Audrey 1957
Betsy 1965, Beulah 1967, Bob 1991
Camille 1969, Carla 1961, Carmen 1974, Carol 1965, Celia 1970, Cesar 1996, Cleo 1964, Connie 1955
David 1979, Diana 1990, Diane 1955, Donna 1960, Dora 1964
Edna 1968, Elena 1985, Eloise 1975
Fifi 1974, Flora 1963, Fran 1996, Frederic 1979, Floyd 1999
Gilbert 1988, Gloria 1985, Gracie 1959, Georges 1998
Hattie 1961, Hazel 1954, Hilda 1964, Hortense 1996, Hugo 1989
Inez 1966, Ione 1955, Iris 2001, Isidore 2002
Janet 1955, Joan 1988
Keith 2000, Klaus 1990
Luis 1995, Lenny 1999, Lili 2002
Marilyn 1995, Michelle 2001, Mitch 1998
Opal 1995
Roxanne 1995

Groundbreaking for the new Galveston County Emergency Management Facility

A groundbreaking ceremony was held on Friday, November 21, 2003 for Galveston County's new Emergency Management Facility. The building will be located next to the old North County building on FM 646 in League City. Occupants of the facility will include Galveston County Office of Emergency, Galveston County Emergency Communications District (911) and the National Weather Service (us!). This is the first time, to our knowledge, that an NWS office has been co-located in partnership with emergency management. The groundbreaking celebrated the success of seven years of planning. When the county first considered upgrading their facility, an offer was made for the NWS to join in the project. They saw that we had the same problem they had - an unsafe facility due to storm surge flooding in the event of a category 4 or 5 hurricane. Working through the logistics of a federal and local agency partnering, developing a hurricane resistant design and developing the funding for the project required support from many outside the three offices, including Congress, NWS management, Texas Division of Emergency Management and the taxpayers of Galveston County.

In addition to providing a safe work environment when we are needed the most, the co-location is expected to provide other benefits to the citizens along the Gulf Coast. By being together during a major storm, we feel we can provide continuous support to the community before, during and after the event. We will be able to provide more consistent information to the public during major events like a hurricane through jointly developed public information releases. By working together on communication of information we can provide more timely support during other hazards such as floods and tornadoes. In the event of man made disasters such as a chemical plant release or train derailment, we will be better able to support first responders with information through the emergency management channels. We will be able to address the media through joint press conferences which should enhance clarity of message to the public. We also hope to develop improved communication and support to emergency management in our other 22 counties in our area of responsibility through this partnership.

We are excited about the possibilities and look forward to moving in during the winter months next year. As you might expect, having the Weather Service involved, the weather has been abnormally rainy since groundbreaking. In spite of the weather, progress is being made. When finished, the facility will look like the architects rendition included below.

A Wet Start to the New Year

2004 started out warm and a little damp. January was relatively mild with temperatures averaging between 2 and 3 degrees warmer than normal. There were several periods of heavy rain throughout the month and January rainfall averaged between 1 and 2 inches above normal. A cluster of strong thunderstorms developed on Saturday, January 17th and raced east along Highway 105. These storms dumped large hail across Montgomery, Madison and Liberty counties.

The wet weather continued in February. Rainfall averaged 2 to 4 inches heavier than normal. Rainfall was distributed evenly throughout the month but the bulk of the heaviest rain occurred during the first half of the month. Due to the rain and extensive cloud cover, temperatures averaged 2 to 4 degrees cooler than normal. Unseasonably cold air filtered into the region on the 13th and 14th. This air mass was cold enough to produce mixed precipitation. A mixture of rain and sleet occurred north of a Brenham to Livingston line on the morning of the 13th and a mixture of rain, sleet and snow fell north of a Brenham to Trinity line early on the morning of 14th. An inch of snow was reported in Caldwell (Burleson county) and a half inch of snow was reported in Weches (Houston county) on the 14th. A brief tornado touched down in College Station on the 24th producing some minor roof damage. The same storm moved southeast and produced pea sized hail near Tomball.

March came in like a lamb with mild temperatures and some spring showers. Galveston established a record high temperature on the 10th. Temperatures were much warmer than normal averaging 4 to 5 degrees warmer than normal. This was the 9th warmest March in recorded history for the city of Houston. Only one episode of severe weather occurred during the month on the 17th. This event affected parts of Brazos, Burleson, Grimes, Washington and Waller counties. These storms produced wind damage and nickel sized hail in Brazos county.

Looking ahead, the remainder of the spring, defined as April, May and June will feature temperatures near or just slightly warmer than normal. Rainfall is expected to remain near normal for the upcoming three month period. Looking further ahead, the current outlook for summer indicates temperatures will be above normal with rainfall near normal levels.

Here are the three month totals for some climate sites across Southeast Texas:

				January					
Element	**IAH**	**CLL**	**GLS**	**HOU**	**SGR**	**CXO**	**UTS**	**PSX**	**LVJ**
Avg High	62.9	61.9	61.5	63.2	63.7	62.3	61.5	67.4	63.3
Avg Low	46.5	44.4	50.4	48.3	47.1	43.5	44.3	51.4	48.1
Avg Month	54.7	53.1	55.9	55.7	55.4	52.9	52.9	59.4	55.7
Rain	6.01	4.53	4.78	3.88	6.71	7.60	4.67	4.60	4.57

				February					
Element	**IAH**	**CLL**	**GLS**	**HOU**	**SGR**	**CXO**	**UTS**	**PSX**	**LVJ**
Avg High	62.0	59.0	60.6	61.9	62.5	60.1	59.1	64.2	61.9
Avg Low	45.2	41.9	49.0	46.4	44.7	40.9	41.7	46.4	45.3
Avg Month	53.6	50.4	54.8	54.2	53.6	50.5	50.4	55.3	53.6
Rain	5.58	5.92	4.18	5.85	5.19	6.26	5.83	2.70	6.82

				March					
Element	**IAH**	**CLL**	**GLS**	**HOU**	**SGR**	**CXO**	**UTS**	**PSX**	**LVJ**
Avg High	76.4	75.6	72.4	75.1	75.9	76.0	75.5	76.6	74.3
Avg Low	58.2	56.9	61.0	59.1	58.3	54.1	56.0	60.0	58.1
Avg Month	67.3	66.3	66.7	67.1	67.1	65.0	65.7	68.3	66.2
Rain	2.23	2.78	2.41	0.92	2.08	2.16	3.58	0.91	1.51

Climate Site ID's:
IAH = Bush Intercontinental Airport - Houston
CLL = College Station – Easterwood Field
GLS = Galveston – Scholes Field
HOU = William P Hobby Airport – Houston
SGR = Sugar Land
CXO = Conroe
UTS = Huntsville
PSX = Palacios
LVJ = Pearland

THE ADVANCED HYDROLOGIC PREDICTION SERVICE (AHPS) THE AHPS WEB PAGE

By David C. Schwertz
Service Hydrologist

Introduction

The Advanced Hydrologic Prediction Service (AHPS) is the National Weather Service's (NWS) frontline solution to provide improved river and flood forecasting along with water information across America. The current suite of AHPS products for the Houston/Galveston Hydrologic Service Area (HSA) include flood forecasts ranging from hours to weeks presented through user-friendly graphical products, enhanced Flash Flood Monitoring and Prediction (FFMP), Site Specific Hydrologic Modeling, and Multi-sensor Precipitation Estimates (MPE).

An additional feature of AHPS for the user community is the AHPS Web Page (http://www.srh.noaa.gov/cgi-bin/ahps.cgi?hgx). Linked to the Weather Forecast Office (WFO) homepage, the AHPS web page opens to a map of the river basin and various points along the river for which considerable hydrologic information is available (Figure 1). Information such as the forecast level to which a river will rise and when it is likely to reach its peak or crest, is shown through hydrographs.

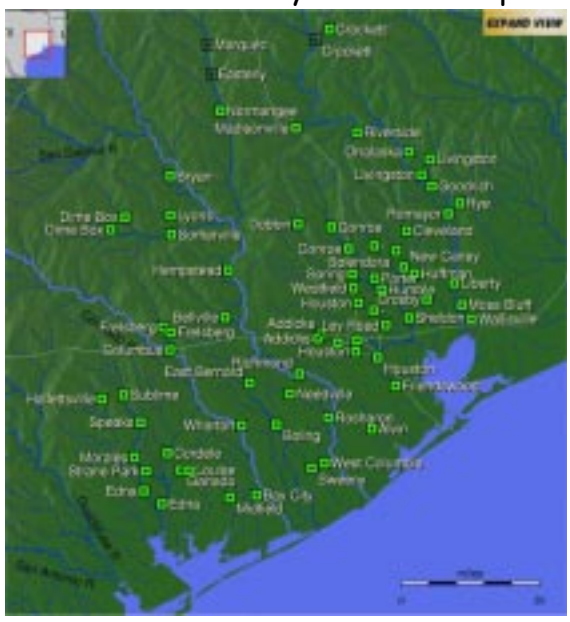

Figure 1. AHPS River Basin Web map

From the basin map simply click on a point to view the information (Figure 2).

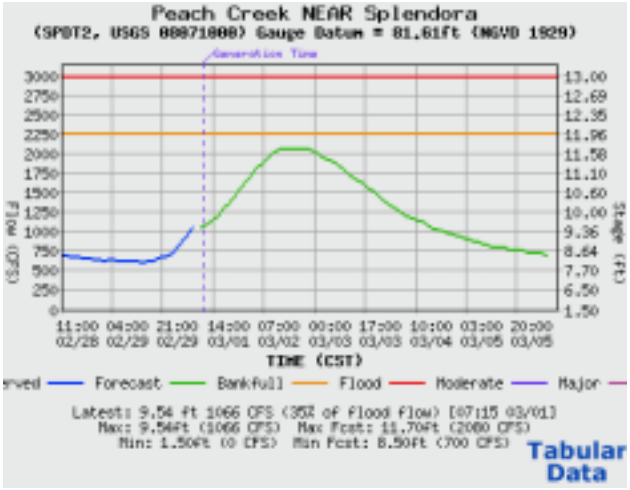

Figure 2. River stage hydrograph.

If information from several points along the river is needed, customers have the option of generating their own unique river page from the drop down menu to the right of the basin map. Not only are observed and forecast stages presented, there are also location maps, impact statements, crest histories, and when available, low water records. This core suite may change over time reflecting the needs of the user community.

Included on the AHPS web page are links to various sources of hydrologic data including rainfall, drought statistics, and forecast precipitation. There is also contact information should a customer have further questions.

Future enhancements will include:

- The chance, or probability, of a river exceeding minor, moderate, or major flooding.
- The chance of a river exceeding certain level, volume, and flow of water at specific points on the river during 90 day periods.
- A map of areas surrounding the forecast point that provides information about major roads, railways, landmarks, and other areas likely to be flooded as well as the levels of past floods.

Through visual internet products, AHPS will expand product accessibility and provide easy-to-read graphical products and information. Everyone who makes water-based decisions will benefit from AHPS.

Lightning Safety Awareness Week

(From the National Weather Service's Lightning safety Website)

June 20 -26, 2004

In the United States, there are an estimated 25 million cloud-to-ground lightning flashes each year. While lightning can be fascinating to watch, it is also extremely dangerous. In the United States, an average of 73 people are killed each year by lightning. In 2003, there were 44 deaths. That's more than the annual number of people killed by tornadoes or hurricanes. However, because lightning usually claims only one or two victims at a time, and because lightning does not cause the mass destruction left in the wake of tornadoes or hurricanes, lightning generally receives much less attention than the more destructive weather-related killers. While documented lightning injuries in the United States average about 300 per year, undocumented injuries caused by lightning are likely much higher.

A large number of people who are victims of lightning strikes do survive. However, they often report a variety of long-term, debilitating symptoms, including memory loss, attention deficits, sleep disorders, numbness, dizziness, stiffness in joints, irritability, fatigue, weakness, muscle spasms, depression and an inability to sit for long.

Lightning Safety Awareness: An Educational Problem

Few people really understand the dangers of lightning. Many people don't act to protect their lives, property and the lives of others promptly because they don't understand all the dangers associated with thunderstorms and lightning. The first step in solving this problem is to educate people so that they become aware of the behavior that puts them at risk of being struck by lightning, and to let them know what they can do to reduce that risk. Coaches and other adults who make decisions affecting the safety of children must understand the dangers of lightning.

Beware of a Developing Thunderstorm

Thunderstorms are most likely to develop on warm summer days and go through various stages of growth, development and dissipation. On a sunny day, as the sun heats the air, pockets of warmer air start to rise in the atmosphere. When this air reaches a certain level in the atmosphere, cumulus clouds start to form. Continued heating can cause these clouds to grow vertically upward in the atmosphere into "towering cumulus" clouds. These towering cumulus may be one of the first indications of a developing thunderstorm.

The Lightning Discharge: Don't Be A Part of It

During a thunderstorm, each flash of cloud-to-ground lightning is a potential killer. The determining factor on whether a particular flash could be deadly depends on whether a person is in the path of the lightning discharge. In addition to the visible flash that travels through the air, the current associated with the lightning discharge travels along the ground. Although some victims are struck directly by the main lightning stroke, many victims are struck as the current moves in and along the ground. While virtually all people take some protective actions during the most dangerous part of thunderstorms, many leave themselves vulnerable to being struck by lightning as thunderstorms approach, depart, or are nearby.

An Approaching Thunderstorm: When Should I Seek Safe Shelter?

Lightning can strike as much as ten miles away from the rain area in a thunderstorm; that's about the distance that you are able to hear the thunder from the storm. In some instances when a storm is ten miles away, it may even be difficult to tell that a storm is nearby. However, IF YOU CAN HEAR THE THUNDER FROM A STORM, CHANCES ARE THAT YOU ARE WITHIN STRIKING DISTANCE OF THAT STORM. Also, remember that each thunderstorm has a first stroke of lightning, which is just as deadly as any other stroke. If the sky looks threatening, take shelter before hearing thunder.

Outdoor Activities: Minimizing The Risk Of Being Struck

The greatest number of lightning deaths and injuries in the United States occur during the summer months when the combination of lightning and outdoor summertime activities reaches a peak. During the summer, people take advantage

of the warm weather to enjoy a multitude of outdoor recreational activities. Unfortunately, those outdoor recreational activities can put them at greater risk of being struck by lightning. Those involved in activities such as boating, swimming, fishing, bicycling, golfing, jogging, walking, hiking, camping, or working outdoors all need to take the appropriate actions in a timely manner when thunderstorms approach. Where organized sports activities are taking place, coaches, umpires, referees, or camp counselors must protect the safety of the participants by stopping the activities sooner, so that the participants and spectators can get to a safe place before the lightning threat becomes significant. To reduce the threat of death or injury, those in charge of organized outdoor activities should develop and follow a plan to keep participants and spectators safe from lightning.

Indoor Activities: Things To Avoid

Inside homes, people must also avoid activities which put their lives at risk from a possible lightning strike. As with the outdoor activities, these activities should be avoided before, during, and after storms. In particular, people should stay away from windows and doors and avoid contact with anything that conducts electricity. People may also want to take certain actions well before the storm to protect property within their homes, such as electronic equipment.

If Someone is Struck, What Do I Do?

In the unfortunate event that a person is struck by lightning, medical care may be needed immediately to save the person's life. Cardiac arrest and irregularities, burns and nerve damage are common in cases where people are struck by lightning. However, with proper treatment, including CPR if necessary, most victims survive a lightning strike, although the long-term effects on their lives and the lives of family members can be devastating.

Have A Safe Summer!

Lightning is a dangerous threat to people in the United States, particularly those outside in the summer. With common sense, we can greatly reduce the number of lightning deaths. When thunderstorms threaten, get to a safe place, stay there longer than you think you need to, stay away from windows and doors and avoid contact with anything that conducts electricity. Have a safe and enjoyable summer!

Much more information, including the science of this phenomena, indoor and outdoor safety, medical aspects, survivor stories, photos, and tools for teachers can be found on the internet at the National Weather Service's Lightning Safety webpage at www.lightningsafety.noaa.gov/week.htm.

COOP PROGRAM UPDATE

More and more, Cooperative Observers are entering their data daily using either the internet based *WxCoder* program, or by calling the 800 telephone number. When you use either method, your observation is coded in a format that allows computers to access the data, and is transmitted to users across the country.

The rainfall data you send is used by the hydrological modeling computers at the West Gulf River Forecast Center. These computers are used to forecast river flow and height. The forecasts are extremely important to those who live along the Southeast Texas rivers as well as those who farm and ranch along the river floodplains. While it may seem like a waste of time to send a rainfall report of 0.00, this data is also helpful. Since we have no way of determining whether no report actually means that no rain fell at your location or that you didn't enter an observation, a zero report comfirms that no rain fell.

Your temperature observations are used by our meteorologists to fine tune the forecast for your area. Daily data allows the forecasters to compare the forecast with the actual conditions that occurred. This helps to "fine tune" the predictions and to determine any trends that may occur.

Every morning we compile all the cooperative observations that were entered and send them to our users. The product below, which was sent on March 15th, is used by radio and TV stations, emergency managers and others who have a need or interest in weather data. By sending your observation, you put your location "on the map."

An additional benefit for those of you using the internet based *WxCoder* program is that your observations are maintained in a database that is accessible to you at any time. Currently, this data can be downloaded as a spreadsheet. Soon, you will have the ability to print a B-91 directly from the *WxCoder* program. Additionally, we will be able to print a B-91 from your site at our office, eliminating the need for you to mail copies to us every month. We'll let you know when these new features are available. Until then, please continue to mail your forms to our office.

If you are currently not using WxCoder and would like to give it a try, contact Bill Toppin at 281-337-5074 x301 and he'll see about setting you up. Thanks to all of you who continue to take the time and energy to collect and send quality weather reports. Your efforts are appreciated and at least part of the results are shown below.

ASUS64 KHGX 151515
RTPHGX

COOPERATIVE OBSERVATIONS - SOUTHEAST TEXAS
NATIONAL WEATHER SERVICE HOUSTON/GALVESTON TX
915 AM CST MON MAR 15 2004

STATION LOCATION	24-HR PRECIP	7 AM TEMP	HIGH TEMP	LOW TEMP
FREEPORT/DOW CHEM	0.18	63	73	60
NEW CANEY	0.94			
JAMAICA BEACH	2.17	61	67	60
LIBERTY	1.34			
PORT OF HOUSTON	0.05	63	67	63
BRENHAM	0.44	59	67	54
TOMBALL	0.49			
EDNA	0.86			
WHARTON	1.13			
ANAHUAC	1.70	63	65	61
RICHMOND	0.88			
HUNTSVILLE	0.47	56	66	55
WEST COLUMBIA	0.31			
CLEVELAND	0.63	59	64	58
HOUSTON HEIGHTS	1.98			
BAYTOWN	0.70	62	66	61
COLUMBUS	0.24	63	68	59
HOUSTON ALIEF	1.15			
HOUSTON WESTBURY	0.81			
THOMPSONS	0.00	59	70	50

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PRECIP IS FOR THE 24 HOURS ENDING AT OB TIME.

HIGH TEMPERATURES USUALLY OCCURRED YESTERDAY AFTERNOON.

LOW TEMPERATURES COULD HAVE OCCURRED THIS
MORNING OR YESTERDAY MORNING.

OBSERVATIONS ARE TAKEN BETWEEN 6 AND 9 AM.

$$

-Staff Spotlight—

Patrick Blood

Name: Patrick Blood
Position: Meteorological Intern
Favorite 80's Band: Huey Lewis and the News

PERSONAL INFO
Status: Single, 1 cat
Hometown: Alexandria, VA

NWS BACKGROUND
2003 - present .....Meteorological Intern, WFO Houston/Galveston, TX

HIGHLIGHTS/DUTIES/OTHER TIDBITS
Primary duty: Public service shift which includes quality control of forecast products desseminated to the public and on NOAA weather radio, quality control of climate data, responding to public information requests. As an intern, other duties include aiding the duty meteorologists with forecasting and issuing severe weather warnings; public, aviation and marine forecasts.
Focal Point Duties: Storm data
Previous jobs include on-air weather broadcaster with CBS/NBC affliate in Chico, CA; Operational Meteorologist with Weather News; taught meteorology courses at Butte College and Chico State
Most used kitchen appliance: Crock pot
Alma Mater: Florida State University
Served in Air Force; stationed at Dover AFB and Howard AFB (Panama)

Most memorable weather event(s)?
1. '83 Blizzard that affected northern Virginia. Over 5 feet of snow fell.
2. Nov 17th (2003) Tornado Outbreak that affected southeast Texas. First major event at the office.

What was your worst fashion mistake?
Leather belt with embossed truck images on it. Wore it once to school in the 7th grade and everybody made fun of it.

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