Storm Signals

Houston/Galveston National Weather Service Office

Volume 61

Dear Storm Signals Reader,

You are cordially invited to attend the 2002 Houston/Galveston Hurricane Workshop. The workshop this year will be held on Wednesday, May 8, from 8:00 am till 12 noon at the Pasadena Convention Center, located on Fairmont Parkway in Pasadena. We are honored again this year to have as our sponsors the East Harris County Manufacturers Association (EHCMA) and the City of Pasadena.

The theme of this year's workshop is "***Allison: Inland Flood Odyssey***". During the week of June 5-10 2001, Tropical Storm Allison hit the southeast Texas region with record breaking flood producing rains. Allison became the costliest and deadliest tropical storm ever to hit the United States with 22 lives lost and over 5 billion dollars damage done in Harris County alone.

We will use what happened during Allison to address the problem of inland flooding in general. More people have lost their lives due to inland fresh water flooding than any other aspect of tropical storms during the last 30 years. This is a problem that needs attention. One of the big problems is communicating the threat to the people in danger. Cecilia Sinclair, Chief Meteorologist with FOX-26 will discuss some of the problems the local media had in handling Allison. In addition, Steve Lyons, Tropical Specialist with The Weather Channel, will be on hand to discuss how The Weather Channel covers landfalling hurricanes and tropical storms.

We will also have three breakout sessions. Representatives from the petro-chemical industry along with the medical industry will discuss how they handled the flooding in Allison and what lessons they have learned. Jim Brown is back to discuss the problems we have with mold in Houston and how to repair your flood damaged home. A representative from State Farm Insurance will have a breakout session to discuss the different types of insurance that you need today to protect your property from the many natural hazards that affect southeast Texas.

In this Issue:

The workshop is open to the public and no pre-registration is required. In addition to the meaningful talks, there will also be plenty of vendors available to explain what you should be doing to prepare for the 2002 Hurricane Season.

Sincerely,

Bill Read
Meteorologist In Charge
Houston/Galveston National Weather Service

National Hurricane Awareness Week
May 19-25, 2002

Tropical Storm Allison's assault on portions of Southeast Texas last June was a fresh reminder for us on how much we need to be prepared as the start of the 2002 Hurricane Season fast approaches. In an effort to assist your preparation, National Hurricane Awareness Week will be held May 19-25. During each day of this week, information will be released by the National Hurricane Center and the National Weather Service which will cover a wide range of topics including...

Hurricane Basics and Hurricane History (Sunday, May 19) - Information on the formation of tropical storms and hurricanes, tropical storm stages, the Saffir-Simpson Hurricane Scale, upcoming hurricane names and some historic data.

Storm Surge and Marine Safety (Monday, May 20) - Information on storm surge, which has the greatest potential for loss of life related to a hurricane (historically, storm surge has claimed nine out of ten victims), and marine safety, which is needed as more merchant, fishing, and recreational sailors take to the sea.

High Winds and Tornadoes (Tuesday, May 21) - Information on hurricane force winds, which can destroy poorly constructed buildings and mobile homes (debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes), and tornadoes, which add to the storm's destructive power.

Inland Flooding (Wednesday, May 22) - Information on inland flooding, which in the last thirty years has been responsible for more than half the deaths associated with tropical cyclones in the U.S.

Forecast Process (Thursday, May 23) - Information on the products that the National Hurricane Center provides (which has an overall broad view of the hurricane and its potential impact), and what local National Weather Service Offices provide (which has more detailed information tailored to their community).

Disaster Prevention (Friday, May 24) - Information on both being prepared for tropical storms and hurricanes and reducing damages.

National Day of Family Preparedness (Saturday, May 25) - Information on how to develop a hurricane plan for the family.

The Houston/Galveston National Weather Service Office highly recommends everyone read the releases during National Hurricane Awareness Week. More information on this event can be found on the internet through the National Hurricane Center's website at **www.nhc.noaa.gov**.

Upcoming Hurricane Workshops

There are a number of other county and community workshops being held this year to help prepare our citizens for the coming hurricane season. As details on these and other events become available, we will post them on our web site at www.srh.noaa.gov/hgx. As of this letter, the following events are scheduled:

Meeting	*Location*	*Date/Time*	*Contact Phone Number*
Seabrook Town Mtg	Seabrook City Hall	May 15 7:00 pm	281-291-5610
Galveston Town Mtg	Moody Gardens Convention	May 21 6:00-9:00pm	409-797-3710
Brazosport Town Mtg	Lake Jackson Civic Center	May 23 9:30am	979-864-1801
Baytown Town Mtg	Baytown Community Center 2407 Market Street	June 7 10am - 12 Noon	281-420-6656 281-420-5874

Tropical Cyclone Names for 2002

Arthur
Bertha
Cristobal
Dolly
Edouard
Fay
Gustav
Hanna
Isidore
Josephine
Kyle
Lili
Marco
Nana
Omar
Paloma
Rene
Sally
Teddy
Vicky
Wilfred

Experience shows that the use of short, distinctive given names in written as well as spoken communications is quicker and less subject to error than the older more cumbersome latitude-longitude identification methods. These advantages are especially important in exchanging detailed storm information between hundreds of widely scattered stations, coastal bases, and ships at sea.

Since 1953, Atlantic tropical storms have been named from lists originated by the National Hurricane Center and now maintained and updated by an international committee of the World Meteorological Organization. The lists featured only women's names until 1979, when men's and women's names were alternated. Six lists are used in rotation. Thus, the 2002 list will be used again in 2008. Here is more information on the history of naming hurricanes.

The only time that there is a change in the 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 stricken from the list and another name is selected to replace it.

Several names have been changed since the lists were last used. Four names from the 1995 list have been retired. On the 2001 list, Lorenzo has replaced Luis, Michelle has replaced Marilyn, Olga has replaced Opal, and Rebekah has replaced Roxanne. Three names from the 1996 list have been retired. On the 2002 list, Cristobal has replaced Cesar, Fay has replaced Fran, and Hanna has replaced Hortense. Two names from the 1998 list have been retired. On the 2004 list, Gaston has replaced Georges and Matthew has replaced Mitch. On the 2006 list, Kirk has replaced Keith.

A Cold, Dry Start to 2002

By Daniel Huckaby

The winter of 2002 was cold and relatively dry for much of Southeast Texas. After one of the wettest years on record, many locations have only seen half of their normal rainfall through the end of March. In fact, February ranked among the driest on record for Houston and Galveston.

Rainfall Statistics

	Jan-Mar 2002	Avg	Deficit	% of Normal
Houston	4.48	10.02	-5.54	44.7%
Galveston	4.76	9.45	-4.69	50.4%
Bryan/College Station	4.08	8.54	-4.46	47.8%

Normal values (Avg) are based on the new 1971-2000 Climate Normals.

Regionwide Rainfall Totals (January-March)

		2002	2001	Avg
IAH	Intercontinental Airport	4.48	13.04	10.02
HOU	Hobby Airport	6.80	11.51	
LVJ	Pearland (Clover Field)	6.29	9.53	
SGR	Sugar Land (Hull Field)	3.80	11.59	
GLS	Galveston	4.76	11.59	9.45
HGX	League City (NWS)	8.03	11.93	
LBX	Angleton/Lake Jackson	4.75	12.67	
PSX	Palacios	2.37	8.03	
CLL	Bryan/College Station	4.08	10.05	8.54
UTS	Huntsville	5.84	13.81	
CXO	Conroe	4.27	14.43	
DWH	Tomball (Hooks Airport)	3.50	14.53	

Normal values (Avg) are based on the new 1971-2000 Climate Normals.

Although January temperatures were a bit above normal, both February and March were markedly below normal. despite abundant sunshine and dry conditions, February was among the coldest on record for the region.

Temperature Statistics

	January		February		March	
	2002	Avg	2002	Avg	2002	Avg
Houston	54.6	51.8	50.7	53.5	61.3	62.3
Galveston	56.4	55.8	54.3	58.0	62.2	64.1
Bryan/College Station	52.3	50.2	49.0	54.5	59.3	61.6

Normal values (Avg) are based on the new 1971-2000 Climate Normals.

Fierce arctic outbreaks in late February and early March brought record low temperatures to the region. Houston and Bryan/College Station both tied their coldest temperatures ever recorded in March. Galveston reached 32 degrees on both March 3 and 4, but missed the all-time record for the month by 6 degrees.

Coldest March Temperature on Record

Houston - 22	**Galveston - 26**	**Bryan/College Station - 17**
March 4, 2002	March 2, 1980	March 4, 2002
March 2, 1980		March 3, 1943
March 3, 1943		

Using mean temperatures January-March, the table below shows average temperatures during the last 15 winters. For the second consecutive year, temperatures during this 3-month period were considerably below normal across Southeast Texas. For Galveston and Bryan/College Station, these are the two coldest winters since the winter of 1988.

For the winter season, Houston Intercontinental recorded 19 freezes (days during which the minimum temperature was 32 degrees or lower). This is actually slightly less than the 30-year average, which is somewhat inflated due to a few severe winters. To show the contrast between Houston's major airports, Houston Hobby recorded only 8 freezes. Bryan/College Station experienced 33 freezes this winter while Galveston had only 4, the coldest of which was a mere 31 degrees on January 3.

January-March Temperature Data

	Houston	**Galveston**	**Bryan/College Station**
1988	55.7	54.5	53.4
1989	57.5	57.2	54.8
1990	60.8	59.7	58.6
1991	59.0	57.1	NA
1992	59.3	57.8	56.6
1993	59.0	57.1	54.5
1994	59.0	56.8	55.3
1995	60.1	58.6	NA
1996	57.3	56.3	55.4
1997	58.1	57.1	54.7
1998	59.1	57.4	55.8
1999	62.5	60.8	59.0
2000	63.2	61.6	59.7
2001	56.7	55.0	53.1
2002	57.6	55.5	53.5
Avg	59.3	56.5	55.4

Normal values (Avg) are based on the new 1971-2000 Climate Normals.

IFPS Generated Products Now Available on the Houston Galveston Homepage

By Charles Roeseler

The National Weather Service has developed techniques that support an interactive forecast environment. This process, called the Interactive Forecast Preparation System or IFPS, allows forecasters to interact with model data to produce a digital database. Currently, the Zone Forecast Product (ZFP) and the Coded Cities Forecast (CCF) are produced via IFPS. In a few years, all NWS forecast products will be generated from this digital database.

IFPS has other powerful attributes. The strongest attribute to date is the ability of this system to generate forecast images. The Houston/Galveston NWS office began producing images in February 2002. These images were made available to the public on March 20, 2002 via the Houston/Galveston homepage. This is a new system and the images are still considered experimental.

Images are produced for various weather parameters including but not limited to hourly temperatures, maximum and minimum temperatures, relative humidity (RH), wind direction and wind speed, probability of precipitation (PoP), wind chill and heat index values.

The following chart indicates the periodicity and duration of IFPS produced images:

Image	Hourly Increments	Duration
Temperature	3 Hours	48 Hours
Maximum Temp	12 Hours	48 Hours
Minimum Temp	12 Hours	48 Hours
RH/Wind	3 Hours	48 Hours
Temp/Wind/PoP Composite	3 Hours	48 Hours
Wind Chill (Seasonal)	3 Hours	48 Hours
Heat Index (Seasonal)	3 Hours	48 Hours

The duration of these images will likely be expanded to 60 hours by the end of 2002 and to a full seven days by the end of 2003. Hourly increments for temperature images will change from three hour increments to hourly increments. A time table for this change has yet to be announced. The production of other images is also underway including images for dew points and QPF (Quantitative Precipitation Forecast).

Another new product available on the HGX homepage is the Revised Digital Forecast or RDF. This is a tabular forecast that indicates expected values for temperature, dew point temperatures, relative humidity, precipitation chances, cloud cover and wind speed and direction at three hour intervals. These are averaged values calculated for a certain geographically paired group of counties. The WMO header for this product is FOUS54 and the product identifier is SATRDFHGX.

IFPS continued

The RDF and IFPS produced images can be found on the Houston/Galveston homepage. Here is a set of brief instructions to assist you in finding these new products. Type in www.srh.noaa.gov/hgx in the internet browser. Wait for the main page to load. Once the main page loads, scroll down the left side of the main menu and search for a product called *'Experimental Forecasts'*. Select the link labeled *'Experimental Forecasts'*. The page will reload launching a table containing most of the weather parameters discussed in this article. The table was constructed to list weather elements along a vertical axis and a temporal scale along a horizontal axis. To retrieve an image, just select the appropriate weather element at the valid forecast time. Each image contains at least one sample point per county, county map outlines and interstates. The resolution of each image is 2.5 kilometers.

The RDF is located on the Experimental Forecasts page located beneath the image generation table. To produce the RDF, just select current or previous.

These new products should provide greater detail. We are interested in hearing what you think about these new products. Feel free to contact us via e-mail at charles.roeseler@noaa.gov or matthew.moreland@noaa.gov. You may also reach us by phone at 281-337-5074.

National Weather Service Home Page

Webpage Changes

The response to the new NWS webpage design has been quite favorable since its inception in early March. The features that have generated the most positive responses include the new clickable map/forecast page and the forecast search engine. These new tools have allowed our users easier and faster access to weather information about southeast Texas and points elsewhere.

The changes will be continuing in the coming months as the new webpage banners and left side menus are incorporated onto the rest of the NWS Houston/Galveston homepage. Some of this work has already been started (as some of you well know), but there is more work to be done. This retro-fitting project provides a great opportunity for the web team to do some housekeeping. Older links and infrequently accessed pages will likely be changed or updated and new data may be debuted. If you have any ideas or input, please let us know. We are also still welcome to your feedback and opinions (good and bad) concerning the changes thus far. All correspondence should be e-mailed to the following address: sr-hgx.webmaster@noaa.gov.

Thanks to all those who have responded and we look forward to hearing from those of you who have not. Stay tuned for the latest...

Lightning Safety Awareness Week
April 28 - May 4, 2002

From the National Weather Service's Lightning Safety Website

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. During the past 30 years, lightning killed an average of 73 people per year in the United States based on documented cases. This is more than the average of 68 deaths per year caused by tornadoes and the average of 16 deaths per year caused by 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.

Lightning Safety Awareness Week continued

An Approaching Thunderstorm: When Should I Seek Safe Shelter?

Lightning can strike as much as 10 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 10 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 out doors 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 to 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.

—STAFF SPOTLIGHT—

Jim Nelson

Name: Jim Nelson
Position: Port Meteorological Officer (PMO) - **RETIRED**

Personal Info
Hometown: League City, TX
Status: Married, 4 kids, 4 grandkids
Favorite TV Show: "CSI"

NWS Background
1975-1984..... Asst Chief Technical Data Section, National Climatic Data Center, Asheville, NC
1984-1987..... Meteorological Technician, NWSO Galveston, TX
1987-2002..... Port Meteorological Officer, NWSO Houston/Galveston, TX

Highlights/Duties/Other Tidbits
- Primary Duties: include technical support to the NWS marine weather program and the U.S. Voluntary Observing Ship (VOS) program. This support includes recruitment of ships into the VOS program; installing, operating, and adjusting marine weather instruments and stations on the ships and tracking ships and maintaining liaison with shipping companies and agents and other members of the marine community.
- Served 20 years in the U.S. Navy which included a stint in Rota, Spain, and duty aboard an ice breaker that went to both the North and South Poles
- Favorite movie: "Oklahoma"
- Was an instructor in the Navy Weather School at Lakehurst, NJ
- Hobbies: grandkids, including following the possible future baseball career of one grandson
- Originally hails from Washington, D.C.
- Was one of the last of the original crew who helped to move the NWS Houston Office from Alvin to League City
- After 27 years with the National Weather Service, finally retired March 29, 2002!!

What was your most memorable weather event?
In 1961, while in the Navy, steaming in the south Pacific between New Zealand and Antarctica, a tremendous storm hit the ship. Seas were over 70 feet tall and winds were blowing over 100 knots. We were not sure how high the winds were because the wind instrument got tangled up when the winds hit 100 knots.

Any retirement plans?
In the immediate future, will be taking the wife on a trip to Europe. One stopover will be France to visit a sister. Long term plans are to just enjoy the company of my wife immensely.

Storm Signals Questionnaire

Thank you to everyone that answered our questionnaire!
If you have not responded yet, please do so either by email or by returning this questionnaire.

If you do not respond, you will be removed from our Storm Signals mailing list and will only be able to receive future issues off of our homepage.

We are attempting to improve the quality of "Storm Signals" and make it available to more of our users. In addition, we are trying to cut the cost of producing and mailing the publication to our readers. It is our desire to convert the majority of the distribution from mailing it to allowing you to download the publication from the internet. We would notify you via email that the latest publication is available and you would then go and download the latest issue (downloadable issues are available on our homepage at www.srh.noaa.gov/hgx/stormsignals). At the same time, we would like to improve the content of the publication to have information that you find useful. If you would take time to answer the following questionnaire and return it to the Houston/Galveston National Weather Service Office, we would appreciate it.

1. Would you be willing to download "Storm Signals" from the Houston/Galveston National Weather Service homepage?

   _____Check here if you want to receive "Storm Signals" from the internet

   _____Check here if you still want to receive "Storm Signals" by regular mail

Your information...

Name _____

Street Address _____

City, State, Zip _____

Email Address _____

2. What features of "Storm Signals" do you enjoy?

3. What suggestions for improvement do you have for "Storm Signals" publication? **(Different kinds of articles? Too long? Too short?)**

Please return this questionnaire to:

Houston/Galveston NWS
1620 Gill Road
Dickinson, TX 77539

or email it to **SR-HGX.NWS@noaa.gov.**

Storm Signals is a Quarterly Publication of the
Houston/Galveston
National Weather Service Office

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