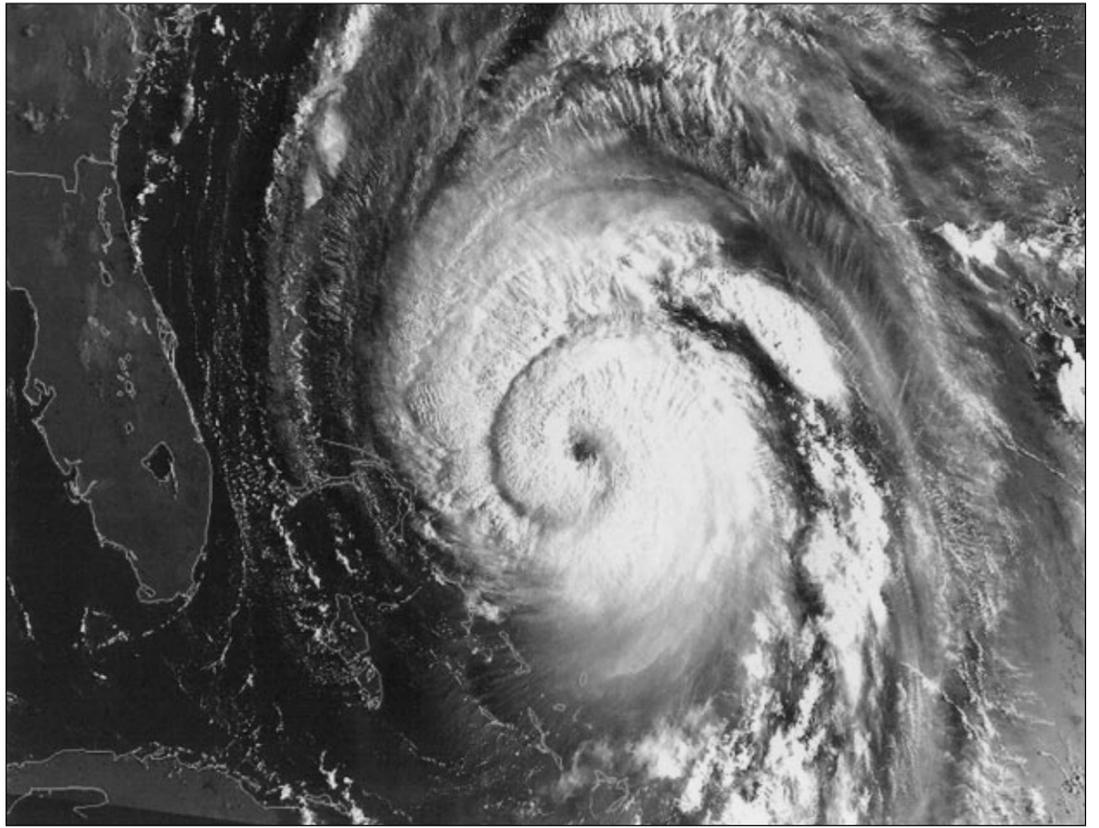


Riding Out the Storm

JSC enters time of year when nature's potential fury merits continual readiness



It is difficult to believe that hurricane season is upon us when the rain gauge has been nearly empty for more than a month.

Hurricane season began June 1 and will extend through Nov. 1. JSC has entered a state of continual preparedness in anticipation of the 1998 storm season. The JSC Hurricane Ride-out Team is preparing for the worst while hoping for the best.

The Hurricane and Severe Weather Plan at JSC lists the guidelines that direct the preparations for a storm.

Action Level 4

Action Level 4 begins when a storm poses a threat to JSC within 72 hours. "This is typically when the storm enters the Gulf of Mexico," said Dennis Perrin, JSC's hurricane planning manager.

Members of the hurricane team are required to review the plan to ensure that all the JSC will have a full stock of emergency supplies to a ride out a storm if needed.

JSC's Bill Roeh, chief of the Plant Engineering Division, is captain of the Hurricane Ride-out Team and has primary responsibility for preparing the Center when severe storms threaten.

The Spaceflight Meteorology Group follows the storm using weather satellite imagery and other data and interprets the bulletins issued by the National Hurricane Center. The forecasters advise the JSC senior staff and the Hurricane Ride-out Team throughout the

storm threat period.

"At this point we ask supervisors to allow employees with special considerations such as small children to utilize the liberal leave policy in order to evacuate their families," Perrin said.

Supervisors and managers also should review project priorities and assignments during Level 4 to assure operations can be reduced or terminated before storm conditions pose a threat to the center.

Action Level 3

Action Level 3 goes into effect when a hurricane could threaten JSC/Ellington Field within 48 hours.

At the direction of the Center Operations Director, Jim Hickmon, the Hurricane Ride-out Team moves to the Emergency Operations Center in Bldg. 30L to set up a command center. Each organization has a designated Emergency Planning Representative and an alternate who stay informed of the status of the action levels during a hurricane.

"When a storm is 48 hours out from JSC, we encourage supervisors to allow all employees to utilize the liberal leave policy and we encourage employees to take it," Perrin noted.

Action Level 2

Level 2 is initiated by authorization of the center director when the threat to JSC is within 36 hours from landfall.

"At Level 2 we look for JSC Director George Abbey to release employees and close the

center," Perrin said. "The only people left on site are the Ride-out Team," he added.

Prior to closing the center, employees will be asked to secure their offices.

"An important part of preparing the center for closing because of a hurricane threat is securing offices, a responsibility that falls on every employee," JSC Emergency Preparedness Manager Bob Gaffney said.

These preparations include protecting computers, raising blinds, securing classified materials, and closing all doors. The emergency planning representatives in each organization are kept informed on the status of the action levels during the alert and will coordinate information concerning shutdown activities and work assignments for their area.

A group of 14 Area Protection Teams from the Plant Engineering Division check buildings and roofs, picks up loose objects outside, secure possible hazards and make preparations to shut down site utilities.

"The main thrust should be on preparation; those things that all employees can do to mitigate the effects of a storm or minimize the degree of damage they can do," Roeh said. "Preparation is the key to successful recovery; we'll recover regardless, but our recovery will be faster if we prepare adequately in advance."

The Hurricane Ride-out Team completes all protective measures that will place the Center in a final state of preparedness. The Ride-out Team continues to secure the center up to the point the weather becomes unsafe.

Action Level 1

Action Level 1 is initiated by the center director and goes into effect when gale-force winds arrive at the center making it too dangerous to continue outside activities. The Ride-out Team gathers at their posts and waits for the storm to subside. During the storm, activities are limited to only essential emergency repairs that can be performed without placing the health and safety of the assigned personnel at risk.

Immediately after the storm, the Ride-out Team moves back into action, assessing the damage and arranging for necessary repairs.

"We have a Damage Assessment Plan and a Damage Assessment Team that looks at the damage and evaluates the buildings for safety," Perrin said.

"The Damage Management Team reports to the Hurricane Ride-out Team captain. They evaluate when employees can return to site and what buildings are brought on line first," Perrin added.

In the event of an evacuation, employees can continue to stay in contact with the center through the use of the two emergency information phone numbers listed below.

Public Affairs notifies employees when to return to work through the Employee Information Service, x36765, and broadcasts by local radio and television reports.

For hurricane information on the Internet, employees may access <http://shuttle.nasa.gov/weather/>. □

When disaster strikes

Where will your family be when disaster strikes? They could be anywhere—at work, at school, or in the car. How will you find each other? Will you know if your children are safe? What would you do if basic services—water, gas, electricity or telephones—were cut off?

Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away. Families can—and do—cope with disaster by preparing in advance and working together as a team. Create a family disaster plan. Knowing what to do is your best protection and responsibility.

- **Emergency Supplies:** Keep enough supplies in your home to meet your needs for at least three days. Assemble a Disaster Supplies Kit with items you may need in an evacuation.

- **Utilities:** Locate the main electric fuse box, water service main and natural gas main. Learn how and when to turn these utilities off. Teach all responsible family members. Keep necessary tools near gas and water shut-off valves.

- **Home Hazard Hunt:** During a disaster, ordinary objects in your home can cause injury or damage. Anything that can move, fall, break or cause a fire is a home hazard. Inspect your home at least once a year and fix potential hazards.

- **Evacuation:** Evacuate immediately if told to do so. Listen to your battery-powered radio for instructions. Wear protective clothing and sturdy shoes. Take your Disaster Supplies Kit. Lock your home. Use travel routes specified by local authorities—don't use shortcuts because certain areas may be impassable or dangerous.

After a disaster

Serious injury can result for anyone dealing with the aftermath of a major storm, tornado, or other disaster, so it's wise to be overly cautious.

- Walk or drive cautiously. Debris-filled streets are dangerous. Washouts may weaken roads and bridges. Snakes and rodents may be a hazard.

- Before entering a building, check for structural damage. Make sure it's not in danger of collapsing. Turn off any outside gas lines and let the house air for several minutes. Don't use open flame as a light source.

- Never leave young children alone or allow them to play in damaged buildings or areas that might be unsafe.

- Wear protective clothing on legs, arms, feet and hands while cleaning up debris. Wear rubber gloves while scrubbing flood-damaged interiors and furniture.

Denser population means residents should begin evacuation early

Hurricanes are one of nature's most feared systems. They are not the largest nor are they nature's most violent storm; but they combine those qualities as no other phenomenon does.

Powerful winds rotating around the center of the storm, also known as the eye, will produce very rough seas. As the storm makes landfall, the storm surge will flood coastal areas with tide levels 5 to 10 feet (to as much as 20 feet) above normal levels. Tremendous amounts of rain, in addition to the storm surge, will add to the flooding problems.

Hurricane Alicia, a minimum category 3 storm, visited the upper Texas Coast in 1983. This was the last major hurricane to affect this area. A storm surge of 10 to 12 feet accompanied this storm on the West side of Galveston Bay. High winds caused damage further inland. Windows in many of the downtown Houston skyscrapers were blown out and shards of broken glass covered the streets and sidewalks.

The population in the Clear Lake/NASA area has increased significantly since 1983. An increase in population equates to more vehicles on the roads. More vehicles means more delays on area roads. More delays on area roads means longer evacuation times. Accidents, disabled vehicles, and reduced visibility due to rain will increase evacuation times even more.

Bob Gaffney, JSC's Emergency Preparedness manager, encourages employees to take time, before the storm, to develop their own hurricane evacuation plan.

"Now would be a good time," he said. "Personal protection plans should anticipate the arrival of tropical storm-force winds 12 hours or more before a hurricane makes landfall, and expect more of the same on the backside of a hurricane. People who don't evacuate in advance of a severe storm could be isolated in their homes for an extended period of time before community officials declare the immediate emergency has ended," Gaffney added.

Employees should assess the vulnerabilities of their home and contents and develop firm plans for transportation and shelter for their families. Neither the American Red Cross nor local communities (including the City of Houston and Harris County) open shelters in advance of major hurricane threats because Clear Lake is in a flood plain and people could get trapped in shelters when local flooding is severe.

Evacuation plans should include a specific destination, an evacuation route, and several secondary evacuation routes.

Gaffney explained that people have the best chance of making a successful evacuation if they make a family emergency plan including an early evacuation decision and they

stick to the plan.

Questions to consider when making your hurricane plan are:

How close am I to the coast?

Am I in a coastal flood zone?

Will my evacuation route be cut off as heavy rain and high tides flood the area?

Do I have a safe destination?

How much time is required to evacuate my family to this safe destination?

The National Weather Service recommends planning for the hurricane to be one category stronger and to arrive 12 hours sooner than what is forecast.

Geographical knowledge of the area is a must. Elevation maps are available from the Harris/Galveston Coast Subsidence District.

Plan for delays and make sure you have a full tank of gas before leaving. Have prescriptions filled in advance. It may be difficult to obtain medication during a storm or afterwards due to power outages. Bring plenty of cash. ATM and credit cards also may not work during a storm because of power outages. Time and patience are needed during an evacuation. Give yourself plenty of time to evacuate quickly and safely.

Gaffney noted that knowing what to do in an emergency, such as when a hurricane threatens, and careful and thorough planning can greatly reduce the chances of personal injury and property damage. □