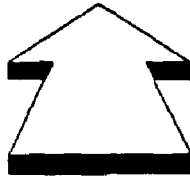


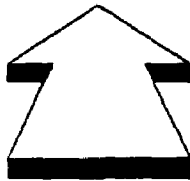
HURRICANE

Tropical storms are upgraded to hurricane status when winds reach constant speeds of 74 mph or more and blow in a large spiral around a relatively calm centre, the eye of the hurricane.



TROPICAL STORM

A tropical depression is upgraded to a tropical storm when the rotary circulation of winds become DISTINCT and constant wind speeds range between 39-73 mph.



TROPICAL DEPRESSION

An area of low pressure with rotary circulation of clouds and winds with highest constant windspeeds of 38 mph.

1997 ATLANTIC HURRICANE SEASON FORECAST

by

PROFESSOR WILLIAM GREY

This Atlantic Hurricane season summary presents the forecast activity for the Atlantic Basin by Professor William Grey and his colleagues at the Colorado State University together with meteorological information through late November 1996.

This forecast is based on new research by the author and his colleagues which allows estimates of next season's Atlantic tropical cyclone activity to be made by late November of the prior year. The forecast scheme is based on a 10-month forward extrapolation of the Quasi-Biennial Oscillation (QBO) of equatorial stratospheric zonal winds, two measures of Western Sahel rainfall through mid-November 1996, an extended range forecast of El Nino conditions for August to October 1995 and an extended range forecast of Western Sahel rainfall amount for next season.

Information obtained through May 1997 indicates that, as during the previous two seasons, the 1997 Atlantic hurricane season is again likely to have a greater-than-average activity. We project that total season activity will include 11 named storms (average is 9.3), 55 named storm days (average 47), 7 hurricanes (average 5.8), 25 hurricane days (average 24), 3 intense (category 3-4-5) hurricanes (average 2.2), 5 intense hurricane days (average 4.7) and a Hurricane Destruction Potential (HDP) of 75 (average 71). Whereas net 1997 tropical cyclone activity is expected to be 110 percent of the long term average, *this years activity should be appreciably less than the unusually active 1995 and 1996 seasons.* Still, 1997 should be significantly more active than the average of the generally suppressed hurricane seasons during the last 25 years and especially in comparison to the particularly quiet seasons of 1991-1994. This early June updated forecast is the same as project in our early December (1996) and early April 1997 forecasts. *If this 1997 hurricane forecast is approximately correct, then the 3-year period of 1995-1997 will have been the most active consecutive three years of hurricane activity on record.* This suggests that we are entering a new era of generally greater Atlantic basin hurricane activity. A final updated forecast for 1997 will be issued on August 6, 1997. A verification of this year's forecast will be made in late November 1997.

N.B.: It is important that the reader appreciate that these seasonal forecasts are based on statistical schemes and forecasting judgements which will fail in some years. These forecasts also do not specifically predict where within the Atlantic basins storms will strike. Even if 1997 should prove to be an above average hurricane season, there are no assurances that any hurricanes will strike along the U.S. or Caribbean Basin coastline.

Arago's Admonition

*"Never, no matter what be the
progress of science, will honest
scientific men who have regard for
their reputations venture to predict
the weather"*

**1997
HURRICANE SEASON PREDICTION FOR ATLANTIC BASIN
(June 6)**

7	HURRICANES
11	NAMED STORMS
3	INTENSE HURRICANES
55	NAMED STORM DAYS
25	HURRICANE DAYS
5	INTENSE HURRICANE DAYS
75	HURRICANE DESTRUCTION POTENTIAL

DEFINITIONS AND ABBREVIATIONS

NAMED STORM (NS)	<i>A hurricane or tropical storm.</i>
NAMED STORM DAY (NSD)	<i>Four consecutive six-hour periods during which a tropical cyclone is observed or estimated to have attained tropical storm or hurricane intensity winds.</i>
HURRICANE (H)	<i>A tropical cyclone with sustained low level winds of 74 miles per hour (33 ms⁻¹ or 64 knots) or greater.</i>
HURRICANE DAY (HD)	<i>Four six-hour periods during which a tropical cyclone is observed or estimated to have hurricane intensity winds.</i>
INTENSE OR MAJOR HURRICANE (IH)	<i>A hurricane reaching sustained low level winds of at least 111 mph at some point in its lifetime. This constitutes a category three or higher storm intensity rating on the Saffir/Simpson scale.</i>
INTENSE OR MAJOR HURRICANE DAY (IHD)	<i>Four six-hour periods during which a hurricane has Saffir/Simpson category three intensity or higher.</i>
HURRICANE DESTRUCTION POTENTIAL (HDP)	<i>A measure of a hurricane's potential for wind and storm surge destruction. HDP is defined as the sum of the square of a hurricane's maximum wind speed during each six-hour period of its existence. This value is summed for the season.</i>
NET TROPICAL CYCLONE ACTIVITY (NTC)	<i>A combined measure of the average seasonal percentage of NS, NSD, H, HD, IH, and IHD to their long term mean.</i>

HURRICANE SEASON 1996 FORECAST VERIFICATION

1996	NOVEMBER	JUNE	<i>AUGUST</i>	<i>ACTUAL</i>
Tropical Storms	8	10	<i>11</i>	<i>13</i>
Tropical Storm Days	40	55	<i>45</i>	<i>78</i>
Hurricanes	5	6	<i>7</i>	<i>9</i>
Hurricane Days	20	20	<i>25</i>	<i>45</i>
Intense Hurricanes	2	2	<i>3</i>	<i>6</i>
Intense Hurricane Days	5	5	<i>4</i>	<i>13</i>
Destruction Potential	50	60	<i>70</i>	<i>135</i>

HURRICANE INTENSITY

Based on their intensity, hurricanes are categorized on the Saffir-Simpson Hurricane Scale of 1-5. With 1 being a minimal hurricane and category 5 being the strongest.

CATEGORY	WINDS (MPH)	SURGE (FEET)	DAMAGE
1	74-95	4-5	Minimal
2	96-110	6-8	Moderate
3	111-130	9-12	Major
4	131-155	13-18	Destructive
5	155+	18+	Devastating

For further information, please contact the Regional Disaster Advisor at USAID-CRP, extension 2230.

US MISSION
- 1997 -
WORST GUEST LIST

ANA
BOB
CLAUDETTE
DANNY
ERIKA
FABIAN
GRACE
HENRI
ISABEL
JUAN
KATE
LARRY
MINDY
NICHOLAS
ODETTE
PETER
ROSE
SAM
TERESA
VICTOR
WANDA

(For the humor impaired, these are the 1997 Hurricane names.)

HURRICANE PRECAUTIONS

THE WARNING SYSTEM

HURRICANE WATCH

When a hurricane watch is announced, it means hurricane conditions are a real possibility and may threaten Jamaica within 36 hours. This means you must take action to purchase supplies.

When a Hurricane Watch is given, a specific area and a period of time for danger will be announced.

The only official source for issuing this type of information is the JAMAICAN METEOROLOGICAL OFFICE and the OFFICE OF DISASTER PREPAREDNESS.

WHEN A HURRICANE WATCH IS ISSUED, WHAT DO YOU DO?

- Check often for official reports on radio or TV.
- Fuel your car, as service stations are likely to be immediately after the storm.
- Stock up on canned and other non-perishable foods.
- Check on supplies of special medicines and drugs.
- Find out the location of the nearest hurricane shelter.
- Start plotting the movement of the storm on your Hurricane Tracking chart.
- Check your family Disaster Plan.

For further information, please contact the Regional Disaster Advisor at USAID-CRP, extension 2230.

HURRICANE PRECAUTIONS

THE WARNING SYSTEM

HURRICANE WARNING

This will be issued over the television and radio stations when winds of at least 74 mph, high water, and storm surge are expected to affect Jamaica within a period of 24 hours.

If a **HURRICANE WATCH** has been upgraded to a hurricane warning, all non-essential staff will be released. If it is over a weekend, a new release will be issued advising non-essential staff not to report to work.

For further information, please contact the Regional Disaster Advisor at USAID-CRP, extension 2230.

HURRICANE PRECAUTIONS

AT THE START OF HURRICANE SEASON

- Check on these emergency items: water, boots, raincoats, flashlights and batteries, battery powered radio, hurricane lamp, matches, hurricane shutters, hooks and latches.
- Keep plastic bags, nails, hammer and other tools handy.
- Have on hand simple First Aid supplies
- Stock up on 4-5 days supply of food that does not need cooking or refrigeration.
- Make sure you have material for battening up doors and windows.
- Make sure you have containers for storing water
- See that galvanized sheeting on your roofs, in out-buildings and fences are securely fastened.
- If your house is in a high risk area - subject to a storm surge (tidal wave) or flooding, be sure you know of a safe shelter, preferably with relatives or friends.
- Be sure to keep in touch with your Parish Disaster Preparedness Committee and know how your committee works. (This can be gotten from the ODP)
- Be sure you understand the hurricane warning system.
- Be sure you have adequate insurance coverage.
- Be sure to trim garden trees whose branches can be missiles during a hurricane.
- Learn how to track a Hurricane and find out the hurricane names and the season's predictions

For further information, please contact the Regional Disaster Advisor at USAID-CRP, extension 2230.

HURRICANE PRECAUTIONS

BEFORE THE HURRICANE

USAID employees should respond to a bulletin containing a warning by taking all necessary precautions as set out below:

- Keep your radio on and listen for the latest warnings and bulletins which will be given over Radio and Television Stations at least once per hour, on the hour
- Pay no attention to rumors. Rely only on official advice from the **OFFICE OF DISASTER PREPAREDNESS** or the **METEOROLOGICAL OFFICE** via bulletins over the radio or television stations. After the first bulletin has been issued, listen carefully for a summary of the most up to date bulletin: **DO NOT CALL THE MET. OFFICE OR THE ODP.**
- Keep away from low-lying areas and beaches or other locations which may be swept by high tides or storm waves. If your only passage to high ground is over a road or causeway likely to be flooded during a severe storm, then leave early. Don't run the risk of being marooned. Try to complete your evacuation in the daylight hours. Remember 90% of hurricane deaths are caused by flooding from the sea.
- If your house is away from the danger of high tide and flooding and is well built (securely anchored to the foundation and with a good roof which is securely fastened) then it is probably the best place to weather out the storm.
- Board up windows or put your storm shutters in place. When boarding up, use good lumber and fasten securely. Makeshift boardings may cause more damage than no boarding at all. Have strong bracing for outer doors.
- Procure extra food, especially of the kind which can be eaten without being cooked or with very little preparation. Remember the electric power may be off and you may be without refrigeration for some time.
- Emergency Cooking facilities (e.g., oil and coal stoves) may be necessary; be sure they are in working order. Procure a supply of kerosene oil and charcoal. Keep the charcoal dry.
- Sterilize the bathtub or a large container and fill it with water as water services may be disrupted. Even for some time after the service has been restored, it is wise to boil drinking water. You will need at least a half a gallon of water per person per day.

- **Have a flashlight in good working order and keep it handy; also matches and storm lanterns - a complete First-Aid Kit is useful.**
- **Check on everything that might blow away or be torn loose. Garbage cans, garden tools, signs, porch furniture, awnings and other loose objects become weapons of destruction in hurricane winds. Store them all inside if possible. Loose objects including television antennae and satellite dishes on the roofs of buildings are especially dangerous and should be removed.**
- **Heavy foliage of vegetable and fruit trees near buildings which may cause damage should be lightened. Also if the force of the wind is likely to exceed 50 miles an hour, coconuts from trees near buildings should be removed.**
- **Be sure that a window or door can be opened on the lee side of the house, that is the side opposite the one facing the wind.**
- **If the centre or "eye" of the storm passes directly over, there will be a lull in the wind lasting from a few minutes to half an hour or more. Stay in a safe place. Make emergency repairs during the lull if necessary, but remember the wind will return suddenly from the opposite direction, frequently with greater violence.**
- **Be calm. Your ability to deal with emergencies will inspire and help others.**
- **Remove all pictures, clocks and other hanging articles from the wall and store them in a safe place.**
- **Remove all items such as books, figurines, etc., from shelves and store in a safe room.**
- **Store all valuable equipment such as tools, office equipment and appliances in a safe room. If possible wrap or cover with plastic.**
- **Wrap all documents and important papers in plastic and store all fluorescent tubes, light bulbs, lamp shades since broken glass can be dangerous during a hurricane.**
- **If you have a car, fill it with petrol as it might be needed in an emergency.**
- **If you have completed your own precautions, offer assistance to your neighbors, particularly families which include very young children, the elderly and disabled persons.**

For more information, please contact the Regional Disaster Advisor at USAID-CRP, ext. 2230.

HURRICANE PRECAUTIONS

DURING THE HURRICANE

1. Do not go outside unless it is absolutely necessary. When the winds get very strong you are in danger of being hit by flying objects.
2. Children should not be taken outside as they might be in danger of being blown away even when they are held by an adult.
3. If you are away from home, remain where you are until the storm has passed. Many people have lost their lives trying to get from one place to another.
4. If the house or building shows signs of breaking up, stay under a table or a door frame.
5. If your glass windows have been boarded up or taped, attach a cloth over the inside of the window to protect yourself and others from splintering glass.
6. If the roofs are made of tiles, look out for falling tiles and other ceiling materials.
7. Keep your hurricane lamp burning as it might make the night more tolerable.
8. Continue to listen to the radio for information on what is happening.
9. Be calm. Do not panic. Your ability to act logical is important. You can help to inspire others and save lives.
10. During the passage of the hurricane, there may be a brief interruption and signs of calm. This is the eye of the hurricane; it lasts only for a short while and the winds return from the opposite direction. Please do not be fooled by this. Use this time to effect repairs for your personal safety and return inside as soon as possible.

HURRICANE PRECAUTIONS

AFTER THE PASSAGE OF THE HURRICANE - FOLLOW THESE SAFETY RULES:

- Seek medical aid for persons injured during the storm.
- Keep listening to the radio for instructions from the Office of Disaster Preparedness.
- Clear up debris and effect emergency repairs to your premises.
- Don't touch loose or dangling electric wires. Report such damage to Jamaica Public Service Company, Limited, or the nearest police station.
- Report broken water mains to the National Water Commission.
- Do not empty water stored in bath tubs or in other receptacles until you are sure that the reliable water supply has been restored.
- Check food stored in electrical refrigerators and deep freezers if power has been off for more than 24 hours.
- Take down shutters and store the lumber in a handy place for future use.
- Beware of uprooted trees and broken tree limbs. Collect debris on your premises and place in area for easy removal.
- Unless you are prepared to render emergency assistance, stay away from disaster areas where you may hamper First-Aid or rescue work. "Sightseeing" is very hazardous.
- Avoid driving, but if you must, be cautious. Debris-filled streets are dangerous, so keep your eyes on the road along the coast and river banks scoured by heavy flood waters, the earth may be washed away from beneath the pavement, which may collapse under the weight of vehicles.
- Be alert to prevent fires. Low water pressure after damage to the water system makes fire-fighting difficult.

- Water for drinking and food preparation should be boiled vigorously for at least 10 minutes (until the public water system has been declared safe).
- Another method of disinfecting is to mix ½ teaspoon of liquid commercial laundry bleach with 2½ gallons of water... let stand for 5 minutes before using. The flat taste can be removed by pouring the water from one container to another or by adding a pinch of salt.
- Do not waste water. During this period, water can be obtained from draining a hot water tank or melting ice cubes.
- The toilet tank is a potential source of water for pets.
- Report damage to your insurers or the Damage Assessment Teams.
- Report to your workplace for duty as soon as possible. Your services may be critical in assisting victims and restoring normalcy.

For further information, please contact the Regional Disaster Advisor at USAID-CRP, extension 2230.

SAMPLE EMERGENCY SUPPLIES KIT

CANNED FOODS

Milk, meats, fruits, vegetables, soups, fruits, juices, powdered drinks, cereal, baby food, if necessary.

BOTTLED WATER

Water purification tablets (1 tablet per quart of water)

CLOTHING

Comfortable clothing, slacks, T-Shirts, socks, sheets, underwear, foot-wear

LINEN

Sheets, blankets, towels

TOILETRIES

Soap, toilet tissue, toothbrush, toothpaste, sanitary napkins

FIRST AID KIT

Prescription medicine, peptobismol, disinfectant, chlorine bleach, mosquito repellant, cotton, petroleum jelly, safety pins

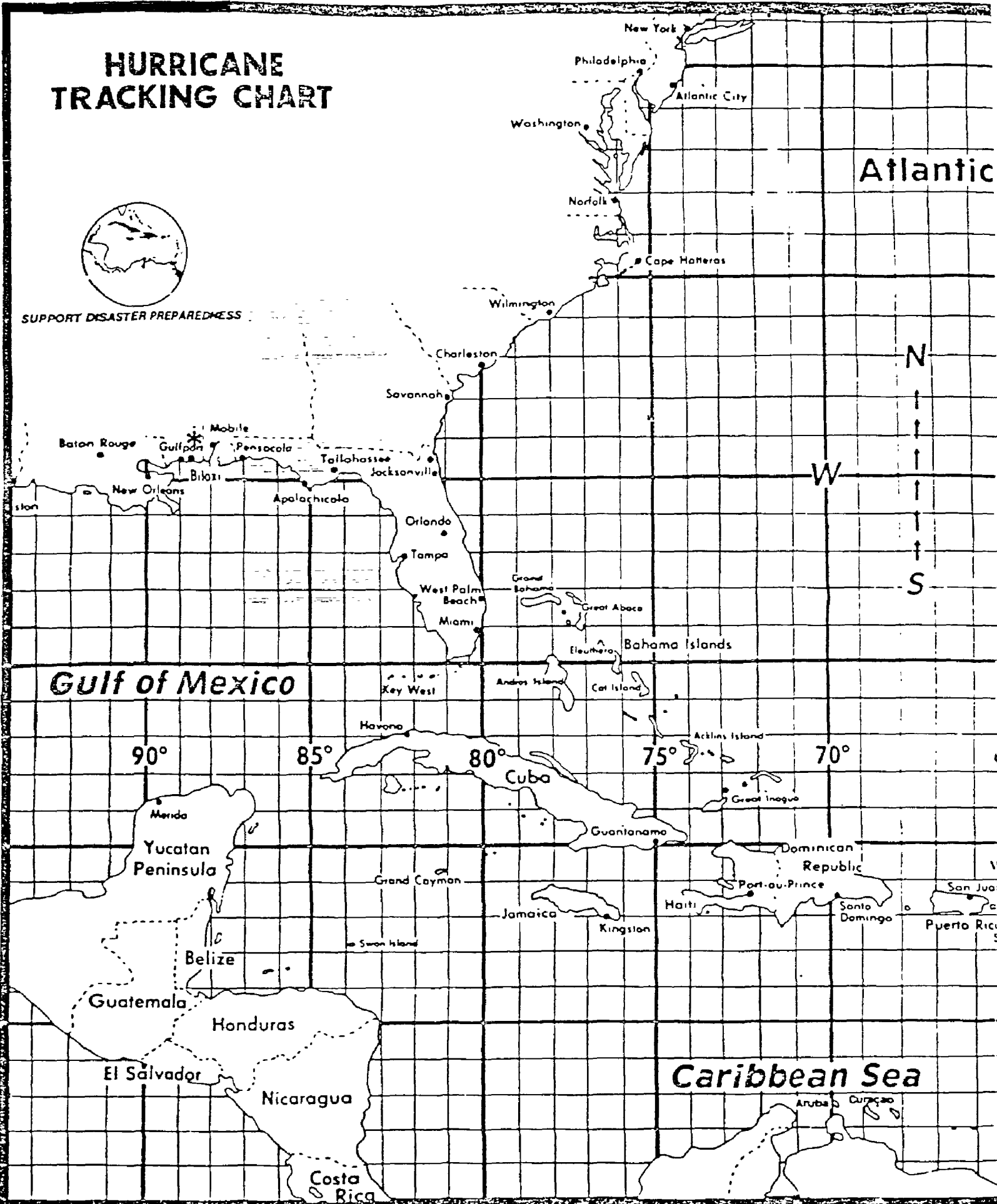
GENERAL ITEMS

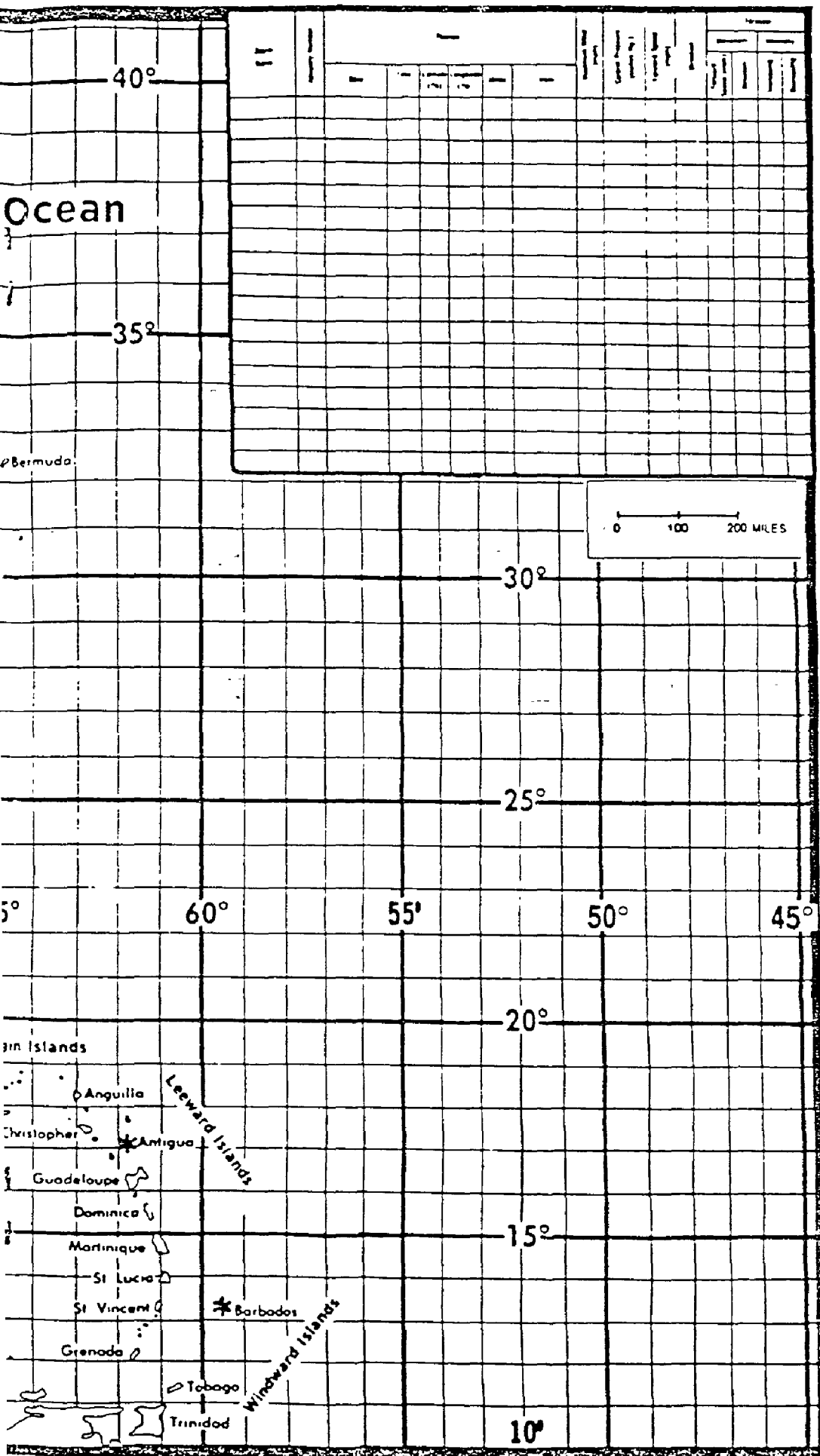
Hurricane tracking chart pencils, scissors, knife, manual can and bottle opener, shovel, machete, flashlight with batteries, plastic eating and drinking utensils, cooking utensils, sewing kit, wind-proof lighter, matches, small portable cooking unit, charcoal, battery operated radio, candles, lanterns, preferably battery operated, garbage bags, plastic bags.

HURRICANE TRACKING CHART



SUPPORT DISASTER PREPAREDNESS





How to Track A Hurricane

Advisories are numbered consecutively for each storm, and describe the present and forecast position and intensity of the storm. Tropical cyclone advisories are issued at six-hour intervals — at midnight, 6 a.m., noon, and 6 p.m., Eastern Daylight Time. Bulletins provide additional information. Each message gives the name, eye position, intensity, and forecast movement of the tropical cyclone.

Hurricane eye positions are given by latitude (for example, 13.2 degrees North) and longitude (for example, 57.8 degrees West), to the nearest one-tenth of one degree. When the storm moves within range of the radar fence eye position may also be given as statute miles and compass direction from a specified point.

When you receive a tropical cyclone advisory, note the advisory number, eye position, intensity, and forecast direction of movement. Then mark the eye position on the tracking chart. Because hurricanes change direction very quickly, you should concentrate more on where the storm will go than where it has been.