HURRICANE WARNINGS AND ALERTS

A Brief Description of Hurricanes, Hurricane Warnings, and Hurricane Safety Precautions for Gulf and Atlantic Coast Areas

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Hurricanes are large revolving storms accompanied by violent destructive winds, heavy rains, and high waves and tides. Hurricanes originate in tropical ocean areas and usually move from low to higher latitudes with increasing speed, size and intensity.

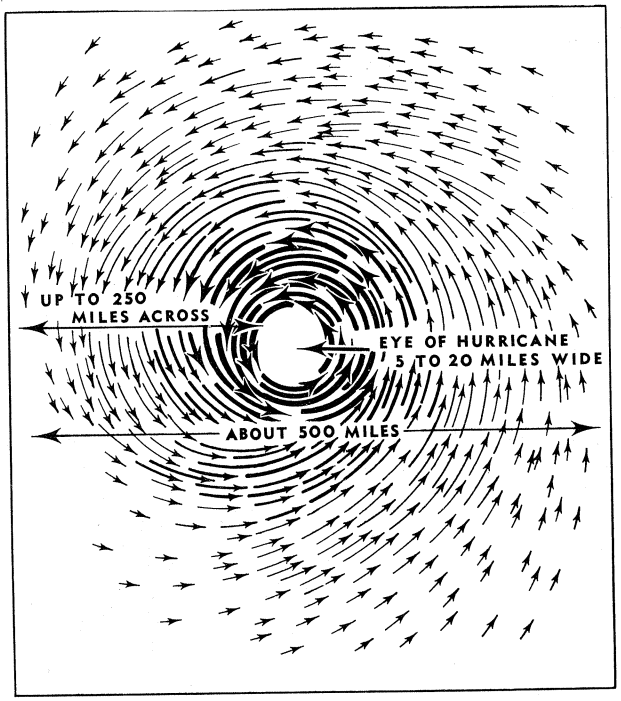

FIG. 1 - WIND PATTERN OF HURRICANE

The winds whirl counterclockwise (in the Northern Hemisphere) in the storm, with the highest speeds in a circular band beginning at the edge of the "eye" and extending out 20 to 30 miles or more. In this area velocities may reach 150 miles per hour with brief gusts to even higher speeds. At the center there often is a small, cloudless core from 5 to 20 miles across. This core is called the "eye," since the sky is sometimes clear or only partly cloudy and the winds are usually very light. The area of destructive winds along the path of a hurricane may be from 25 to 500 miles wide. As the storm develops and moves forward, it may traverse a path several thousand miles long, as measured from its birthplace in the Caribbean or Tropical Atlantic until it moves inland over the continent, or blows out into the North Atlantic.

While the revolving winds are blowing at great speed around the center, the entire storm may move forward very slowly and sometimes even remain stationary for a short time. This is especially true while the hurricane is in the tropics, where the forward speed is usually 15 miles per hour or less. After the hurricane sweeps into a northward path, the forward speed usually in-

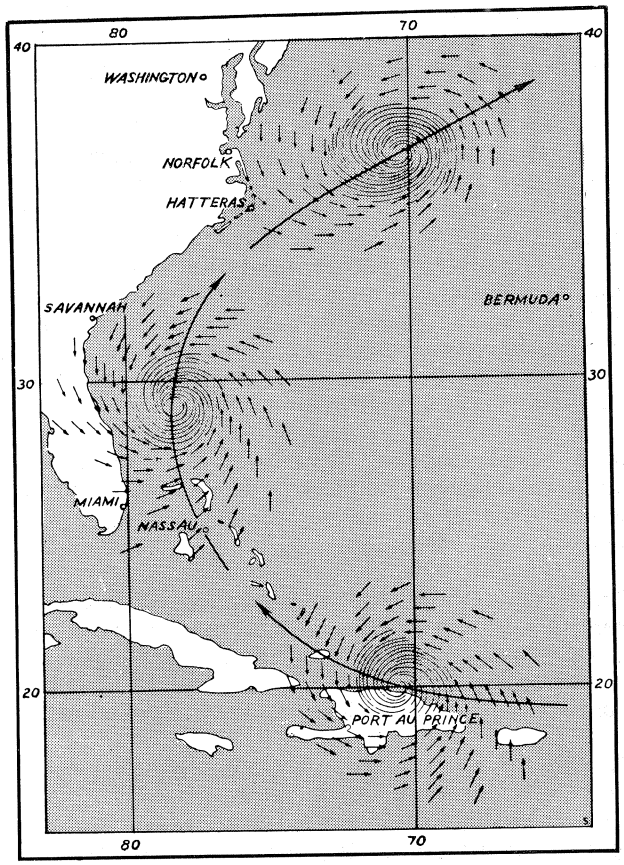

FIG. 2 - TYPICAL HURRICANE PATH

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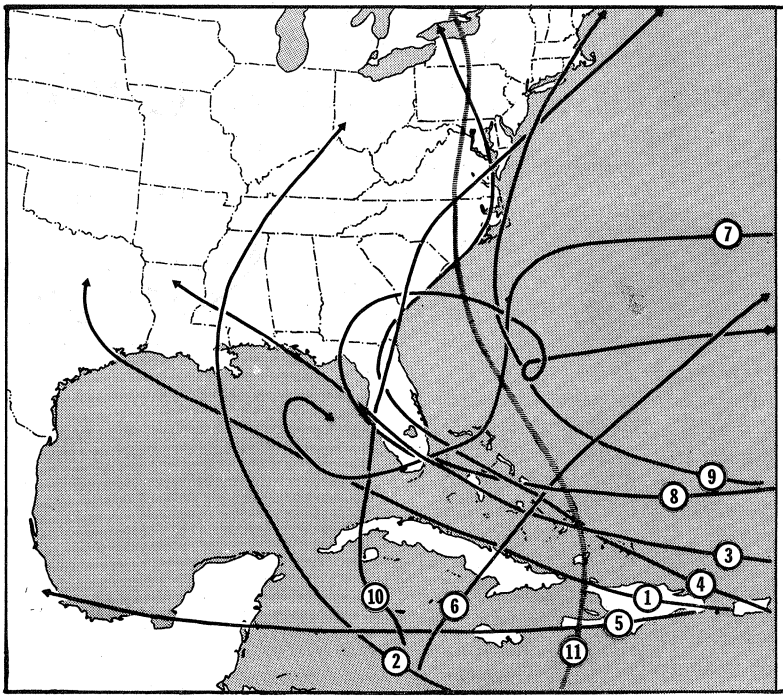

1. The Galveston Hurricane killed 6,000 there, September 1900.
2. In September 1915, left one house standing out of a hundred in a Louisiana town.
3. Winds reached 132 m.p.h. at Miami, September 1926.
4. Tremendous violence at Puerto Rico, Nassau, Guadeloupe, and Lake Okeechobee in Florida where 1,836 were killed, September 1928.
5. Struck Puerto Rico in September 1932, leaving 250,000 people homeless.
6. Storm tide drowned 2,500 at Santa Cruz del Sur, Cuba, November 1932.
7. Completely different track through Bahamas and Florida, October 1935.
8. Winds struck Miami at 123 m.p.h., October 1941.
9. September 1944, 100 m.p.h. winds in New York City. Great destruction in New England.
10. Winds at Havana reached 163 m.p.h., October
11. Hurricane "Hazel," October 1954, the last of a two-month series of unusual severity.

FIG. 3 - HURRICANES THAT MADE HISTORY

creases and in extreme cases may reach 50 miles an hour or more.

The winds of a hurricane can do great damage. While they do not have the force of a tornado, they topple trees, bowl over houses, tear down power lines, and even blow trains off their tracks. The greatest loss of life during hurricanes, however, is caused by drowning. As the storm moves forward, it often piles up huge waves which cut off or completely cover low-lying beaches and islands. The ocean level may rise 6 feet or more in less than 30 minutes. Small boats are flung high on beaches. Giant waves pound and smash shore buildings, roads, and bridges, and may wash away long standing sand dunes.

Most hurricanes are accompanied by torrential rains which cause additional damage by flooding and destroying crops, washing out roads and bridges, and flooding low-lying communities.

The modern forecast system of the U. S. Weather Bureau with its rapid and widespread broadcast of warnings, and the prompt evacuations handled by police, Red Cross, Civil Defense, and Coast Guard have reduced loss of life tremendously.

The Weather Bureau is responsible for issuing hurricane warnings. Forecast offices at San Juan, Miami, New Orleans, Washington, and Boston set up special watch during the hurricane season. The weather services of other governments in the Caribbean and West Indies cooperate by making extra weather observations. Ships at sea send more frequent weather reports by radio. Specially equipped Air Force and Navy airplanes patrol suspicious areas to locate developing storms and to track their movements.

As soon as there are definite indications that a hurricane is forming, even though it is a thousand miles from the mainland, the storm is given a

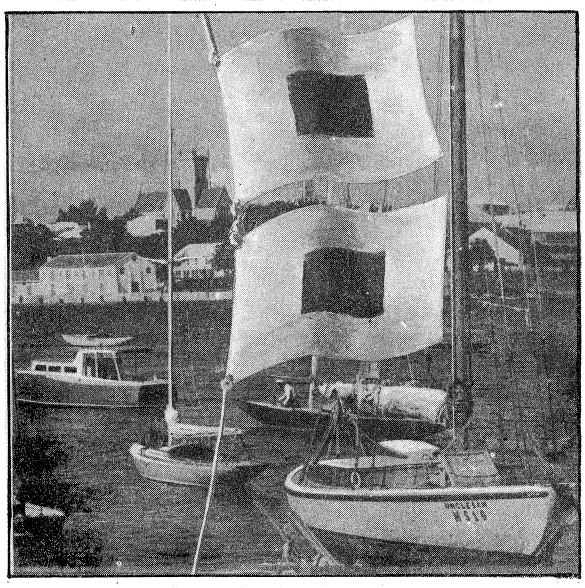

FIG. 4 - HURRICANE WARNING

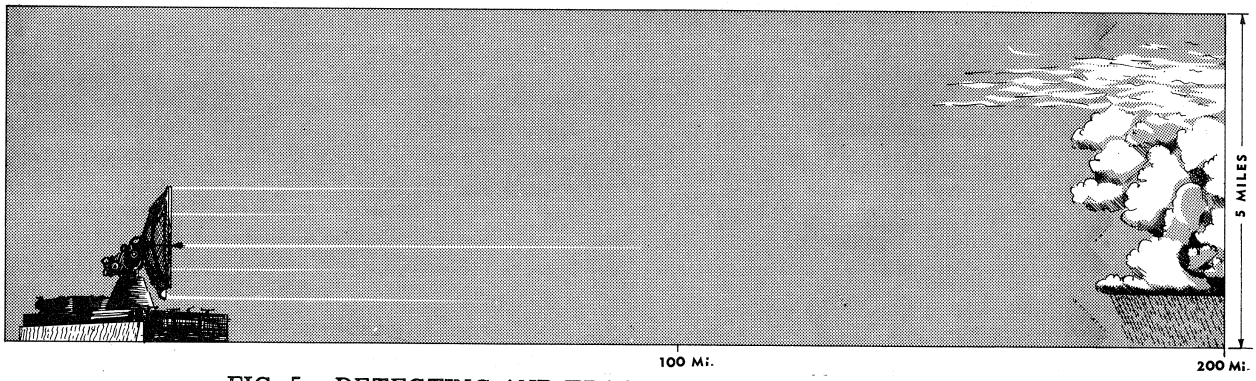

FIG. 5 - DETECTING AND TRACKING HURRICANES BY RADAR

name and the Weather Bureau begins issuing "advisories." The advisories are issued frequently throughout the day and night telling where the storm is, what strength it has, and in what direction it is moving.

These messages are radioed to ships at sea so that they can steer clear of the storm, and to small isolated islands in the storm's path so they too can take precautions. Radio, television, and newspapers spread the word to all on the mainland.

If the storm moves toward the coast, small craft are warned to stay in port. When the hurricane reaches a position so that hurricane winds may endanger a portion of the mainland within 36 hours, that part of the coast is put on the "alert." This means that there is no immediate danger, but that everyone should stand by for further reports and be ready to take precautionary action if necessary. As the storm moves closer, "storm warnings" may be issued for some coastal sections to warn all concerned that winds and tides will be dangerous, and that preliminary precautions should be taken. As soon as the forecaster determines that a section of the coast will feel the full effects of the storm, he issues a "hurricane warning." This warning means that all precautions should be taken immediately against the full force of the storm.

Weather Bureau advisories, alerts, storm warnings, and hurricane warnings are issued as numbered messages every six hours, or oftener if needed. In addition, "bulletins" for press, radio, and television are issued every hour or so to keep the public informed of the progress of the storm when it is near the mainland. The page which follows discusses some of the most important precautions that should be taken by residents of hurricane areas when such a storm is in progress.

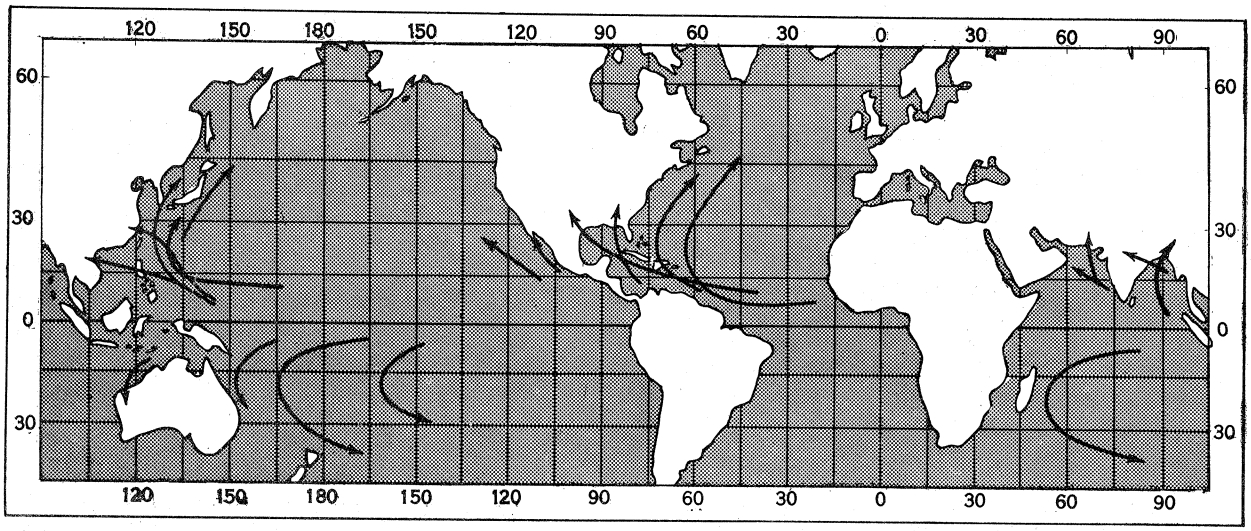

FIG. 6 - GENERAL PATTERN OF HURRICANES THROUGHOUT THE WORLD

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SAFETY PRECAUTIONS

For those not familiar with hurricanes the following safety precautions will be helpful as a guide to the action to be taken when warnings are issued of an approaching hurricane:

1. Keep your radio or television on and listen for latest Weather Bureau alerts, warnings, and advisories. If power fails, use your car radio.

2. Pay no attention to rumors.

3. Get away from low-lying beaches or other locations which may be swept by high tides or storm waves. If passage to high ground is over a road likely to be under water, leave early. Don't run the risk of being marooned.

4. Be alert for high water in areas where streams or rivers may flood after heavy rains.

5. If your house is out of danger from high tides and is well built then it is probably the best place to weather the storm.

6. Board up windows or put storm shutters in place. When you board up, use good lumber securely fastened. Makeshift boarding may do more damage than none at all. Have strong bracing for outside doors.

7. Get in extra food, especially things which can be eaten without cooking or with very little preparation. Remember that electric power may be off and you may be without refrigeration.

8. If emergency cooking facilities are necessary, be sure they are in working order.

9. Sterilize the bathtub, jugs, bottles, cooking utensils, and fill with drinking water, as city water service may be interrupted.

10. Have flashlights and/or other emergency lights in working condition and keep them handy.

11. Be sure to have gasoline in your car. If electric power is off, filling stations may not be able to operate pumps for several days.

12. Check on everything that might blow away or be torn loose. Garbage cans, garden tools, signs, porch furniture, awnings, and other objects become weapons of destruction in hurricane winds. Store them all inside if possible.

13. Be sure that a window or door can be opened on the lee side of the house . . . the side opposite the one facing the wind.

14. If the center 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 even greater violence.

15. Be calm. Your ability to meet emergencies will inspire and help others.

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SAFETY MEASURES

After passage of the hurricane, the following safety measures will prove valuable:

1. Seek medical care at Red Cross disaster stations or hospitals for persons injured during the storm.

2. Don't touch loose or dangling wires. Report such damage to the light and power company, or nearest police officer.

3. Report broken sewer or water mains to the water department.

4. Guard against spoiled food in mechanical refrigerators if power has been off any length of time.

5. Take down shutters and save the lumber. Store in a handy place for future use.

6. Unless you are qualified to render valuable emergency assistance, stay away from disaster areas where you may hamper first aid or rescue work.

7. Drive automobiles cautiously. Debris-filled streets are dangerous, so keep your eyes on the road. Along the coast soil may be washed from beneath the pavement, which may collapse under the weight of vehicles.

8. Be alert to prevent fires. Lowered water pressure makes fire-fighting difficult after storms.

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