Willis Technical Advisory Bulletin

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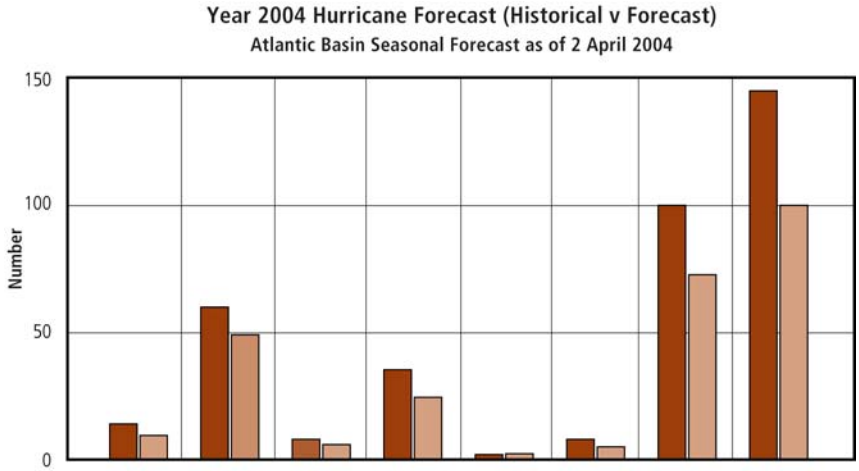
May 2004 – Atlantic Basin Hurricane Season: Predictions

With the Atlantic basin hurricane season upon us, this Willis Technical Advisory Bulletin offers the 2004 forecast plus preparation guidelines and a rundown of the five hurricane categories.

In this issue:

2004 Atlantic Basin Hurricane Forecast

Seasonal hurricane forecasts are issued by the Tropical Meteorology Research Group led by Dr. William Gray of the Department of Atmospheric Science, Colorado State University (CSU). In addition, CSU research is used to assist the National Oceanic and Atmospheric Administration (NOAA) with its forecasting. The CSU hurricane forecast team anticipates an above-average number of Atlantic basin tropical cyclones and an above-average probability of US hurricane landfall. The recent upturn in Atlantic basin hurricane activity which began in 1995 is expected to continue in 2004.



	Named Storms	Named Storm Days	Hurricanes	Hurricane Days	Intense Hurricanes	Intense Hurricane Days	Hurricane Destruction Potential	Net Tropical Cyclone Activity
Forecast	14	60	8	35	3	8	100	145
Historical	9.6	49.1	5.9	24.5	2.3	5	72.2	100

Information obtained through March 2004 indicates that the 2004 Atlantic hurricane season will be an active one. The forecast team estimates that 2004 will have eight hurricanes (historical is 5.9), 14 named storms (historical is 9.6), 60 named storm days (historical is 49), 35 hurricane days (historical is 24.5), three intense (category 3, 4 or 5) hurricanes (historical is 2.3), eight intense hurricane days (historical is 5.0) and a Hurricane Destruction Potential (HDP) of 100 (historical is 71). We expect Atlantic basin Net Tropical Cyclone (NTC) activity in 2004 to be about 145 percent of the long-term average. The probability of US major hurricane landfall is estimated to be 40 percent above the long-period average. This early April forecast is based on a newly devised extended range statistical forecast procedure which utilizes 52 years of past global reanalysis data.

Landfall Predictions

Here are probabilities for at least one major (category 3, 4 or 5) hurricane landfall on each of the following coastal areas:

1) Entire US coastline: 71 percent (average for last century is 52 percent)
2) US East Coast including the Florida Peninsula: 52 percent (average for last century is 31 percent)
3) Gulf Coast from the Florida Panhandle westward to Brownsville: 40 percent (average for last century is 30 percent)
4) Expected above-average major hurricane landfall risk in the Caribbean

Forthcoming Update Forecasts of 2004 Hurricane Activity

Dr. Gray will be issuing seasonal updates of the 2004 Atlantic basin hurricane activity forecast on Friday, May 28 (to coincide with the official start of the 2004 hurricane season on June1); Friday, August 6; Friday, September 3; and Friday, October 1. The August, September and October forecasts will include separate forecasts for August-only, September-only and October-only Atlantic basin TC activity. Verification and discussion of all 2004 forecasts will be issued in late 2004. All of these forecasts will be available at the team's web address: http://tropical.atmos.colostate.edu/forecasts/.

The Saffir-Simpson Hurricane Scale

Category One Hurricane

Winds 74-95 mph. Storm surge generally four to five feet above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage. Hurricanes Allison of 1995, Danny of 1997 and Claudette of 2003 were Category One hurricanes at peak intensity.

Category Two Hurricane

Winds 96-110 mph. Storm surge generally six to eight feet above normal. Some roofing material, door and window damage to buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs and piers. Coastal and low-lying escape routes flood two to four hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings. Hurricane Bertha of 1996 was a Category Two hurricane when it hit the North Carolina coast, while Hurricane Isabel of 2003 was a Category Two hurricane when it passed through North Carolina.

Category Three Hurricane

Winds 111-130 mph. Storm surge generally nine to 12 feet above normal. Some structural damage to small residences and utility buildings with a minor amount of curtain wall[1] failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water three to five hours before arrival of the hurricane center. Flooding near the coast destroys smaller structures with larger structures damaged by battering of floating debris. Terrain continuously lower than five feet above mean sea level may be flooded inland eight miles or more. Evacuation of low-lying residences within several blocks of the shoreline may be required. Hurricanes Fran of 1996 and Fabian of 2003 were Category Three hurricanes at landfall in North Carolina and Bermuda, respectively.

Category Four Hurricane

Winds 131-155 mph. Storm surge generally 13 to 18 feet above normal. More extensive curtain wall failures with some complete roof structure failures on small residences. Shrubs, trees and signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water three to five hours before arrival of the hurricane center. Major damage to lower floors of structures near the shore. Terrain lower than 10 feet above sea level may be flooded, requiring massive evacuation of residential areas as far inland as six miles. Hurricane Luis of 1995 was a Category Four hurricane while moving over the Leeward Islands. Hurricanes Felix and Opal of 1995 also reached Category Four status at peak intensity.

Category Five Hurricane

Winds greater than 155 mph. Storm surge generally greater than 18 feet above normal. Complete roof failure on many

residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water three to five hours before arrival of the hurricane center. Major damage to lower floors of all structures located less than 15 feet above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within five to 10 miles of the shoreline may be required. Hurricane Gilbert of 1988 was a Category Five hurricane at peak intensity and is the strongest Atlantic tropical cyclone of record. Hurricane Andrew was a Category Five hurricane when it struck South Florida in August of 1992.[2]

[1]An exterior non-bearing wall between columns, sometimes containing windows or all glass.
[2]Hurricane Andrew was re-classified as a Category Five hurricane on August 21, 2002 by the National Oceanic and Atmospheric Administration (NOAA).

For more information on loss control guidelines for specific natural perils, or any property risk control issue, contact your local Willis representative; Joe Stavish, PE, North America Property Risk Control Practice Leader, at 800 862 1441, stavish_jc@willis.com

The objective of our services is to assist management in its loss control effort. The comments and suggestions we have made are accordingly advisory and are based upon conditions observed and information available at the time of this report. While we have endeavored to research those unsafe acts or conditions which could contribute to an accident or loss, it cannot be assumed that we have detected every loss potential or hazard, not does this report assure compliance with any Federal, State or local code or law.