

# ATLANTIC BASIN HURRICANE FORECAST



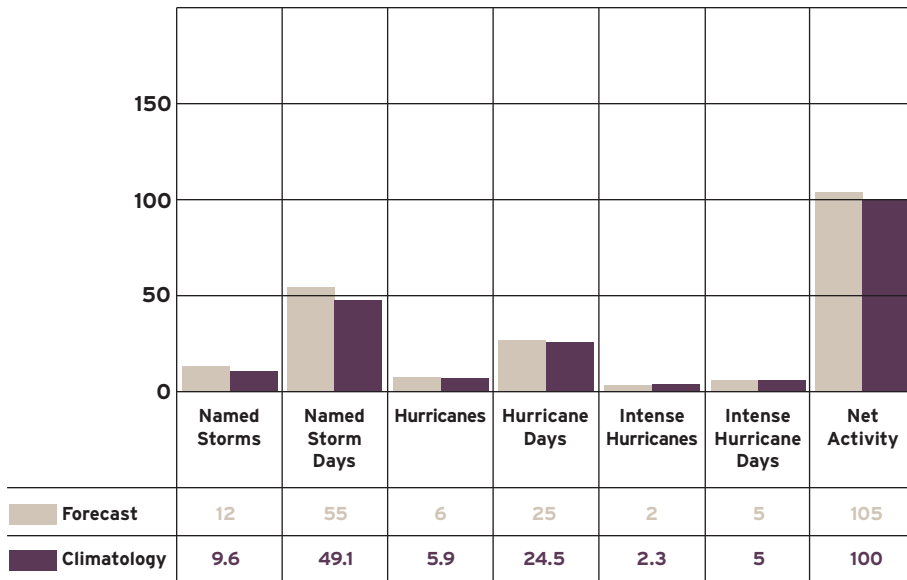
## NO HURRICANE IS AVERAGE

An average Atlantic hurricane season is forecast for 2009, although anyone who has lived through one can tell you that the experience of a hurricane is anything but average. The Colorado State University (CSU) Tropical Meteorology Project team led by Dr. William Gray offers the following estimates for the 2009 hurricane season, which officially begins June 1 and ends November 30.

### TROPICAL CYCLONE SEASONAL FORECAST FOR 2009

	Prediction for 2009	Average
<b>Named Storms (NS)</b>	<b>12</b>	<b>9.6</b>
<b>Named Storm Days (NSD)</b>	<b>55</b>	<b>49.1</b>
<b>Hurricanes (H)</b>	<b>6</b>	<b>5.9</b>
<b>Hurricane Days (HD)</b>	<b>25</b>	<b>24.5</b>
<b>Intense Hurricanes (IH)</b>	<b>2</b>	<b>2.3</b>
<b>Intense Hurricane Days (IHD)</b>	<b>5</b>	<b>5.0</b>
<b>Net Tropical Cyclone Activity (NTC)</b>	<b>105%</b>	<b>100%</b>

## YEAR 2009 HURRICANE PREDICTION (FORECAST VS. CLIMATOLOGY)



This forecast, based on data gathered through March 2009, reflects weak La Niña conditions and anomalous cooling of sea surface temperatures in the tropical Atlantic. Cooler waters are less conducive to hurricanes.

## LANDFALL PREDICTIONS

Here are the August probabilities for at least one major (category 3-4-5) hurricane to make landfall.

- Entire U.S. coastline – 54% (average is 32%)
- U.S. East Coast including Florida peninsula – 32% (average is 31%)
- Gulf Coast from the Florida Panhandle westward to Brownsville, TX – 31% (average is 30%)
- Average major hurricane landfall risk in the Caribbean



## BEFORE THE STORM

- Review/update business continuity/disaster recovery plan.
- Review procedures with emergency organization or emergency response team to ensure all positions are filled and all members are properly trained.
- Check general condition of the building, specifically the roof covering, roof flashing and roof drains. Make all necessary repairs.
- Order emergency supplies such as plywood for windows, mops, brooms, tarpaulins for key equipment, sandbags, etc.
- Identify key equipment, stock and supplies, and vital records that will need to be relocated or moved.
- Have materials available to secure outside and/or roof-mounted equipment such as cranes, signs, trailers and HVAC equipment.
- Monitor commercial TV, radio and/or internet websites to keep abreast of weather conditions and issuance of watches and/or warnings.
- Test all generators, emergency lighting, UPS equipment and sump pumps to ensure proper operation.

## IMPENDING STORM

- Implement business continuity/disaster recovery plan.
- Shut down operations in an orderly manner and in accordance with emergency shutdown procedures.
- Check all fire protection equipment such as sprinkler control valves and fire pumps.
- Fuel all fire pumps, generators, company vehicles, power equipment such as saws, etc.
- Install hurricane shutters or plywood over windows and doors.
- Cover computers, machinery and stock and supplies with tarpaulins.
- If possible, raise any equipment, finished goods or items off the floor.
- Secure outside and/or roof-mounted equipment such as cranes, signs, trailers and HVAC equipment.
- If necessary, turn off utilities to reduce the probability of a fire/explosion.
- Conduct final inspection of building and make emergency repairs.

## AFTER THE STORM

- Secure the facility.
- Survey for damage – take pictures of any damage to both the building(s) and its contents.
- Avoid loose or dangling power lines and report them to utility company, police or fire department.
- Before utilities are returned to service, check for gas leaks, look for electrical system damage, and check for sewage and water line damage.
- Begin salvage operations as soon as possible.
- Clean debris from roofs and property if safe to do so.
- Use telephone only for emergency calls.
- Use pre-established property conservation programs such as sprinkler impairment procedures and cutting and welding permits when repairs commence.
- Stay tuned to local radio for information.
- Critique pre- and post-storm actions to identify strengths and weaknesses and make necessary modifications to prepare for the next emergency.



# THE SAFFIR-SIMPSON HURRICANE SCALE

## CATEGORY ONE HURRICANE

Winds 74-95 mph. Storm surge generally 4-5 feet above normal. Central barometric pressure greater than 980 mb (28.94 inches). 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, minor pier damage, and some small craft in exposed anchorages torn from moorings. Hurricanes Lili of 2002 and Gaston of 2004 were Category One hurricanes at peak intensity. Equivalent on the Fujita Tornado Scale is F1.0 – F1.4.

## CATEGORY TWO HURRICANE

Winds 96-110 mph. Storm surge generally 6-8 feet above normal. Central barometric pressure 965-979 mb (28.50-28.91 inches). Some roofing material, door, and window damage of buildings. Significant 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 2-4 hours before arrival of the hurricane center. Extensive pier damage occurs, marinas are flooded. Small craft in unprotected anchorages break moorings. Evacuation of some shoreline residences and low-lying island areas are required. Hurricanes Frances of 2004 and Isabel of 2003 were Category Two hurricanes when they made landfall. Equivalent on the Fujita Tornado Scale is F1.5 – F1.9.

## CATEGORY THREE HURRICANE

Winds 111-130 mph. Storm surge generally 9-12 feet above normal. Central barometric pressure 945-964 mb (27.91-28.47 inches). Some structural damage to small residences and utility buildings with a minor amount of curtain wall 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 3-5 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 Jean and Ivan were Category Three hurricanes at landfall in 2004. Equivalent on the Fujita Tornado Scale is F2.0 – F2.4.

## CATEGORY FOUR HURRICANE

Winds 131-155 mph. Storm surge generally 13-18 feet above normal. Central barometric pressure 920-944 mb (27.17-27.88 inches). More extensive curtain wall failures with some complete roof structure failures on small residences. Shrubs, trees, and all 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 3-5 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. Hurricanes Charley of 2004 and Dennis of 2005 were Category Four hurricanes when they struck Florida and Cuba, respectively. Equivalent on the Fujita Tornado Scale is F2.5 – F2.9.

## CATEGORY FIVE HURRICANE

Winds greater than 155 mph. Storm surge generally greater than 18 feet above normal. Central barometric pressure less than 920 mb (27.17 inches). 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 3-5 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 5-10 miles of the shoreline may be required. Hurricanes Katrina and Wilma of 2005 were Category Five storms. Equivalent on the Fujita Tornado Scale is F3.0 or greater.

## CONTACTS

For more information, please contact your local Willis HRH representative or Joe Stavish, National Director, Property Risk Control Engineering, at 800 862 1441 ext. 4638, stavish\_jc@willis.com; or Dave Gluckman, Senior Risk Control Consultant, at 800 862 1441 ext. 4635, david.gluckman@willis.com.

