

In The Eye of The Storm

Late August brought with it an unimaginable storm to the Texas coast as Hurricane Harvey barreled onshore as a Category 4 storm, with maximum sustained winds at 209 km/hour. It marked the first time a Category 4 storm made landfall in Texas in over 50 years according to [The Weather Channel](#). The ferocious storm forced evacuations and drove fears of life-threatening flooding. Torrents of rainfall had [meteorologists](#) in the U.S. warning of catastrophic conditions.

In just two days, the Greater Houston area dealt with a deluge, close to [30 inches or 762 mm of rain](#). With more rain forecast in the coming days, storm totals could reach as high as 50 inches or over 1,200 mm. The historic rains from Harvey led to [FEMA](#) declaring it the worst possible storm in the state's history.

Close to the equator where the wind is calm and heat and humidity abound, is where you'll find the perfect breeding ground for tropical disturbances to develop. When winds collide in this area of warm ocean waters towering thunderclouds can billow up overhead, casting a shadow over the summer sky.

From one to many, clusters of thunderstorms feed off these warm waters. Eventually this swirl of rising and sinking air, can form a tropical cyclone. If the right conditions prevail, it can become a tropical depression, tropical storm or even hurricane. These storms of the sea have the power to cause wide-scale destruction and devastation as they churn their way across the open waters of the Atlantic. Every year forecasters keep their eyes on the ocean, and on satellites, looking for signs of an intense tropical season.

The Atlantic hurricane season runs from [June 1st to November 30th](#), when water temperatures are at their peak; even though storms have the potential to develop in any month.

Island and coastal communities suffer the greatest impacts from these storms as they roll onshore, bringing violent winds and flooding rainfall. In 2005, two of the most disastrous storms moved across the Gulf of Mexico when Hurricanes Katrina and Rita hit, leaving a path of destruction in their wake. Katrina, which peaked at [Category 5 status](#), the strongest hurricane on the [Saffir Simpson Scale](#), made landfall in south-eastern Louisiana as a category three storm. Winds whipped up trees and rooftops, sustained at close to 200km/hour at their peak. Katrina also toppled levees leaving [80 percent of New Orleans](#) flooded under the weight of water. In total close to [2,000 people](#) died.

Sitting squarely in a storm's path, away from the shoreline, are thousands of oil and gas platforms that line the [Gulf of Mexico](#). This region which produces just over [1.5 million barrels](#) of oil per day is also home to "[17 percent of U.S. oil](#) and natural gas production occurs in the gulf with almost half of all refining and over half of all natural gas processing" and it is growing. According data supplied by the [U.S. Energy Information Administration](#), oil production is continuing to grow with another seven projects expected to come online by the end of 2018.

"Preparations for offshore rigs in advance of a hurricane include preparing the well with appropriate barriers in place to prevent any type of discharge to the sea, removing non-essential personnel from the rig, and then moving the rig, if dynamically positioned, to a safe location away from the storm's path," according to Lars Herbst, Director Bureau of Safety and Environmental Enforcement (BSEE), Gulf of Mexico Region.

Prior to Katrina, all workers were successfully evacuated from offshore platforms. However, some of the structures themselves did not fare as fortunate. Of the approximately [4,000 oil and gas](#) platforms in the Gulf of Mexico, a [handful](#) were severely damaged or destroyed. Before Katrina, oil and

gas platforms were designed to withstand a 100-year storm in mind. After Katrina, regulations changed.

“The standards for the design of offshore platforms changed following Hurricanes Ivan, Katrina and Rita in 2004-2005. Specifically, the environmental criteria by which offshore platforms are designed were updated to account for the higher forces associated with these storms,” according to Herbst.

This includes new clamps that are capable of withstanding millions of pounds of pressure and raising platform heights so that the damaging surge from these destructive storms pass underneath the decks. [The Times Paycayune](#) reported that the American Petroleum Institute raised platform heights to 91 feet following Katrina and Rita.

Research from [NOAA](#) has indicated that an increase in the temperature of ocean waters, the sea surface temperature (SST), could equal a stormier Atlantic and provide more fuel for hurricanes to maintain their intensity as they move further north into previously cooler waters. The science agency also concluded that, “it is likely that climate warming will cause hurricanes in the coming century to be more intense globally and to have higher rainfall rates than present-day hurricanes.”

While the damage from Harvey has yet to be tallied, if [NOAA's predictions](#) are correct, an above average season could mean more storms like Harvey lashing coastlines in the months ahead. An update in August by the government agency predicted the potential for up to 19 named storms and 9 hurricanes before the ocean cools and quiets down later in the fall.