



# Earth



J. B. BODA



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# Hurricane Florence vs Typhoon Mangkhut

People walk through a flooded neighborhood after heavy rains brought on by Hurricane Florence on September 19th, 2018, in Lumberton, North Carolina | Source - *Getty Images*

Hurricane Florence's made landfall at 11:15 UTC (7:15 a.m. local time) on Friday, September 14, near Wrightsville Beach, North Carolina, as a Category 1 hurricane with 90 miles per hour (144 kilometers per hour) wind speed.

Typhoon Mangkhut (locally known as Typhoon Ompong) made landfall at 2 a.m. Saturday local time (18:00 UTC, Friday, September 14) near Baggao, Luzon Island, the largest and most populous island of the Philippines.

According to Japan Meteorological Agency (JMA) and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the Maximum sustained wind speeds at landfall were 133 miles per hour (214 kilometers per hour), equivalent of a Category 4 hurricane on the Saffir-Simpson Hurricane Wind Scale (SSHWS); but, the Joint Typhoon Warning Center (JTWC), USA reported 166 miles per hour (268 kilometres per hour), equivalent to a Category 5 major hurricane on the SSHWS.

According to historical storm data, the western Pacific Ocean has two-and-a-half times more storms that reach the minimum hurricane strength of 74 miles per hour (119 kilometres per hour). It has three-and-a-half times more storms that reach major hurricane strength of 111 miles per hour (178 kilometres per hour), and three times more accumulated energy out of those hurricanes.

So far this year there have been 23 named storms in the western Pacific and 10 in the Atlantic, both regions more than 30 per cent busier than average years. Hurricanes and typhoons are the same type of storm; both are tropical cyclones, but those that occur in the Pacific west of the International Date Line are called typhoons.

The water in the western Pacific is warmer, and warm water fuels storms. There are also only a few pieces of land to get in the way and weaken them compared to the USA.

## Comparison of Events

High winds from Florence covered an area roughly 300 miles (480 kilometers) wide, the band of rain-clouds swirling around Mangkhut spanned 560 miles (896 kilometers).

Storm Surge of Florence was up to 10 feet while the Storm Surge for Mangkhut was up to 23 feet.

Because of Florence's slow movement between 3 – 6 miles per hour (5-10 kilometers per hour) after making landfall, it caused excessive rainfall over a wide area generating flooding. According to preliminary reports from the National Weather Service, 35.93 inches fell in Elizabethtown, North Carolina, breaking the record set by Hurricane Floyd in 1999, and more than 30 inches of rain fell on Swansboro, North Carolina. Many other locations received more than 20 inches. While, the losses from Mangkhut should be mainly due to speedy wind.



A boat lays smashed against a car garage along the Neuse River, Sept. 15, 2018, in New Bern, North Carolina | *Source - abc.com*



A damaged factory due to Typhoon Mangkhut in Zhuhai, Guangdong Province, China | *Source - Getty Images*

## Hurricane Florence

Initial estimates for economic and insured losses are as below:

### ***Economic Loss:***

According to Moody's, losses could be in range of US\$ 17 billion to US\$ 22 billion.

### ***Insured Loss:***

AIR Worldwide: US\$ 1.7 - US\$ 4.6 Billion

CoreLogic (formerly EQECAT): US\$ 3 - 5 Billion

Karen Clark & Company: Around US\$ 2.5 Billion

RMS: US\$ 2.8 - US\$ 5 billion

Modelling companies anticipate that the main impact will be from rainfall induced flooding, however storm surge will be a component of the insurance and reinsurance market loss.

### ***Typhoon Mangkhut***

***Insured Losses:*** Around US\$ 1 billion (Hong Kong) mainly due to property, auto, hotel damage, and business interruption (BI).

Loss numbers from China, Macau, and Philippines are awaited.

Insured losses in Philippines likely to be low as this is a sparsely populated and very rural part of the Philippines, but there is concern about the wider economic impact of the storm as corn and rice crops were destroyed in this important agricultural region.

Reference: NHC, NOAA, JTWC, JMA, PAGASA, CNBC, Daily Mail



Damaged Homes and rice and corn fields by typhoon Mangkhut in Alcala, Philippines |

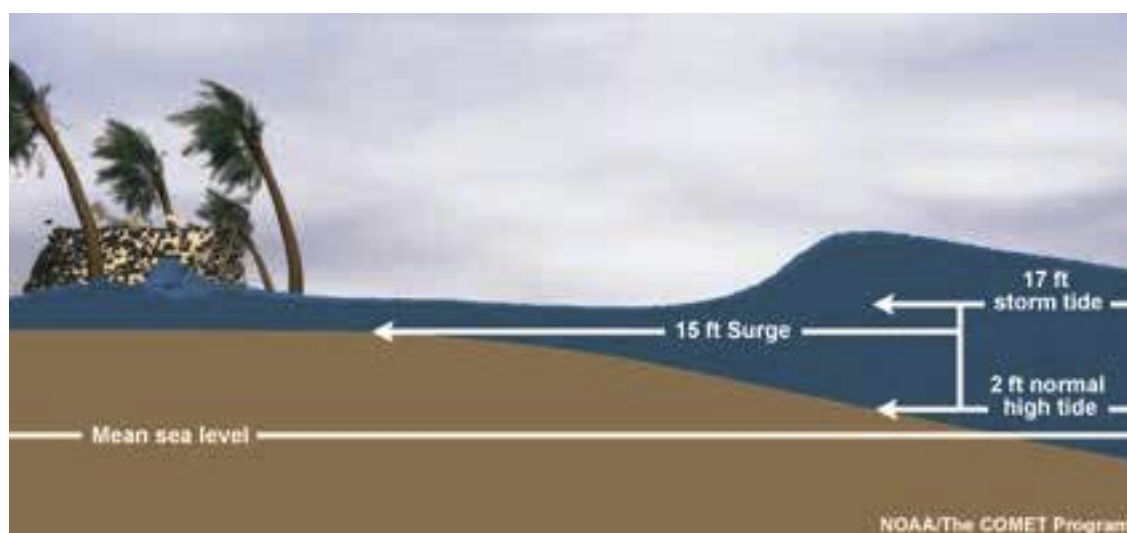
Source - Getty Images

## Saffir-Simpson Hurricane Wind Scale (SSHWS)

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 miles per hour 119-153 km/h	<b>Very dangerous winds will produce some damage:</b> Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 miles per hour 154-177 kilometers per hour	<b>Extremely dangerous winds will cause extensive damage:</b> Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 miles per hour 178-208 kilometers per hour	<b>Devastating damage will occur:</b> Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 miles per hour 209-251 kilometers per hour	<b>Catastrophic damage will occur:</b> Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 miles per hour or higher 252 kilometers per hour or higher	<b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

## Storm Surge

Storm surge is the rise in seawater level caused solely by a storm, over and above the predicted astronomical tide.



Source - NOAA, USA

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