



# Bittersweet Typhoon Mangkhut

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*The greatest reason behind the increase of typhoons might be global warming caused by anthropogenic greenhouse gases.*





September 18, 2018:  
After Typhoon  
Mangkhut blew  
through China, several  
cities suffered varying  
degrees of damage.  
VCG

**T**yphoon Mangkhut, reportedly one of the most intense storms in the history of Guangdong Province, landed on the coast of Taishan in Jiangmen City with a speed of 45 meters per second at 5 p.m. local time on September 16, 2018. During the storm's three-day journey through China, nearly three million people in Guangdong, Hainan, Hunan and Guizhou provinces and Guangxi

Zhuang Autonomous Region were affected by Mangkhut. Five people died, one went missing and 1.6 million people were evacuated.

Compared to Typhoon Hato in 2017 which had similar wind velocity, casualties and property losses caused by Mangkhut were considerably lower, an encouraging development for typhoon prevention, disaster reduction and future relief efforts.

### Mobilizing All of Society

Most typhoons tend to land in early morning, but Mangkhut landed in the afternoon, directly affecting production and life. As a result, for the first time since the establishment of a warning signal system in 2000, the Guangdong meteorological department issued typhoon warning signals in all cities and counties of the province and announced the suspension of schools, businesses,

markets and production, involving the largest range and number of people in the history of Guangdong Province.

When Mangkhut was still swelling in the Pacific Ocean area, the media were reporting on the power of the typhoon, and the public received emergency and disaster-prevention text messages. In less-developed and remote mountainous areas, broadcasting trucks circulated the information, and members of village committees went door-to-door to warn villagers. At Hengshan fishing harbor in Wencun Town, Guangdong's Taishan City, more than 100 fishing boat crew members were reluctant to disembark. They were finally persuaded just four hours before the landing of Mangkhut.

"When the Central Meteorological Observatory makes a

September 17, 2018: Near the Wanbo Center in Guangzhou, a couple of parents fasten their child in a buggy and drag it in the heavy rain and wind. Mangkhut brought continuous precipitation to Guangdong Province. VCG







September 18, 2018: Soon after the typhoon, a worker cleans up a fallen tree caused by Mangkhut in Gaoming District, Foshan City, Guangdong Province. VCG

typhoon warning, the areas expected to be affected start to prepare countermeasures according to the predicted path and intensity of the typhoon,” explained Zhao Hui, professor of oceanography and meteorology at Guangdong Ocean University. “After the typhoon lands, maintenance teams at all levels (such as workers responsible for emergency repair of power grids and water pipes), armed police officers and soldiers, firefighters and other personnel are all on high alert.”

In addition to the rainstorm warning, the observatory also issued a warning about potential landslides and flooding, cautioning some high-risk areas to watch for secondary

disasters caused by the rainstorm. So when Mangkhut delivered heavy rains to Guangzhou, capital of Guangdong Province, local people were prepared, and everything was under control.

“Long before the typhoon landed, we knew that Mangkhut would bring heavy rains,” remarked Qian Qifeng, a senior engineer at the Central Meteorological Observatory, adding that residual clouds often result in precipitation, causing some typhoons to make another run.

### **Stronger and More Frequent?**

In 2018, most of the public started feeling that typhoons were becoming more frequent. “This



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September 16, 2018:  
Damaged windows of a  
One Harbourfront office  
tower following Typhoon  
Mangkhut in Hong Kong.  
VCG

year's monsoon season was stronger compared to previous years," admitted Qian Qifeng. "Indeed, typhoons are striking more frequently. As of September 18, 2018, ten typhoons had made landfall in China."

As early as 2005, experts including American professor Peter John Webster from the School of Earth and Atmospheric Science at Georgia Institute of Technology noted in *Science* magazine that the number of typhoons had increased by 80 percent in 30 years. In 2015, the U.S. Environmental Protection Agency announced that the power dissipation index of Atlantic hurricanes had risen significantly over the past three decades. Despite the

controversy among meteorologists over future trends in the number of hurricanes and typhoons, most scholars agree that the damage caused by typhoons (such as floods and windstorms) will increase. The Intergovernmental Panel on Climate Change (IPCC) believes that global warming has contributed to rising seawater temperatures and sea levels, which has provided favorable conditions for typhoons to rage. The vast majority of experts in climate science agree that the greatest reason behind the increase of typhoons is global warming caused by anthropogenic greenhouse gases.

Zhao Ang, director of Rock Environment and Energy Institute,

explained: "The fundamental cause of typhoons still puzzles meteorologists. After more than 60 years of research, consensus has been reached on the necessary conditions for formation, but all of the necessary conditions are still unknown. This creates difficulties in forecasting typhoons. The most advanced computer can be used to predict the track of a typhoon relatively accurately, but the intensity of typhoon will be greatly affected by local warm currents and is thus difficult to predict."

The IPCC issued a new report in Incheon, South Korea, on October 8, according to which it will be near impossible to keep global warming within 1.5 degrees Celsius due to ongoing industrialization. Warming of the earth more than 1.5 or even 2 degrees Celsius will likely lead to dire consequences. Given the accumulated carbon emissions, the report warns, "At the current rate, global warming could reach 1.5 degrees Celsius sometime between 2030 and 2052."

As Mangkhut approached, alert messages sent to residents in Guangdong Province specifically urged people to "have reverence for the power of nature." The phrase is not only meant to inspire disaster prevention, but also to consolidate everyday kindness towards nature. 