

Bagyo aka Typhoon

Technically, they are called tropical cyclones. The phenomena is the same, whether it occurs in the Atlantic, Pacific or Indian Oceans. Depending on the location, the terminology used is hurricane, typhoon or cyclone respectively. Filipinos call it *bagyo*, supposedly after the city of Baguio. But the city is at an elevation of almost a mile and in the middle of the northern Luzon mountains, so it is curious if such etymology were true. We'll save that question for another day. For this essay, I will use typhoon, since I'll be referring to the Philippines.

Typhoons are a part of life in the Philippines. We just witnessed what has been described as the strongest tropical cyclone of the year (perhaps ever), typhoon Yolanda, which made landfall on the island of Samar before dawn on Friday Nov. 8, local time. It was packing winds of 195 mph, making it a category 5 or super typhoon. You can spend many hours reading about typhoons in the internet, but the Encyclopedia Britannica provides the most concise, readable and understandable description. Forget Wikipedia, someone is trying to impress somebody. There are lots of equations and a reference to "atmospheric Carnot heat engine."

Yolanda left an aftermath of death and devastation not seen in the Philippines, accustomed as it is to being whipsawed by natural disasters. Remember the Mt. Pinatubo eruption in 1991? It was followed immediately by a typhoon Yunya, unleashing mudflows of ash and rocks, called lahar. Undoubtedly, there will be renewed calls for remedies to global warming. After all, typhoons are energized when the surface of the ocean becomes warmer. When the surface temperature reaches 80 F down to depths of 150 ft., watch out. By contrast, the Pacific waters off southern California rarely rises to 70 F. That's all the science we're getting into. Check out the Britannica if you really want to delve deeper. But the frequency if not the ferocity of typhoons in the Philippines is quite predictable.

I've been doing a lot of reading on the Manila Galleon (MG) trade. Remember that the MG's sailed between 1565 and 1815, at a time when knowledge of ocean currents and weather patterns were just beginning to emerge. But the Spaniards knew enough about the monsoon and typhoons so that the departure times from either Acapulco or Manila were scheduled to avoid the worst of them. There was even a royal edict dictating the departure date. Most typhoons occur during the third quarter but the worst are in the fourth quarter. The western trip took 2 to 3 months, departing Acapulco no later than early April so they could reach Manila by June. The trip east to Acapulco was twice as long, departing Manila in June or early July. Sometimes a typhoon would arrive early, and the galleon would have no recourse except to seek shelter. At times the damage to the galleon would be such that the ship would return to the Cavite shipyards in Manila Bay for repairs. Normally the galleon would arrive in Acapulco in January or even February.

Records of horrendous typhoons abound. During the return of American forces to the island of Leyte, in October 1944, to start the liberation of the Philippines, several typhoons developed during the midst of combat operations. Someone from the crew of the USS West Virginia wrote about encountering a typhoon on Oct. 14. There is a picture of the battleship New Jersey in the midst of a typhoon on Nov. 8. (I could find no references to the names of these typhoons. I guess the U.S. Navy was too busy fighting a war to worry about naming them.) The strongest one

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occurred on Dec. 17, 1944. First called Typhoon Cobra, it became better known as Halsey's Typhoon, after Admiral William "Bull" Halsey. It was the subject of a 2007 book, appropriately called "Halsey's Typhoon," by Bob Drury and Tom Clavin. Halsey's Third fleet received more damage from nature and Typhoon Cobra than from the Japanese, which by then included the *kamikazes*. Three destroyers capsized and sunk. More than 100 carrier based planes were destroyed or lost overboard. Less than a year later, Admiral Halsey's fleet again ran into Typhoon Connie in June 1945. But Connie was a lot less catastrophic than Cobra. From the damage, Cobra undoubtedly was at least a category 4 typhoon, with winds up to 155 mph.

Douglas V. Hoyt has written "A Chronology of Notable Weather Events," which contain more than 900 references to typhoons. Majority of these either "struck the Philippines (sic)," in Hoyt's own words, or specifically named the typhoon. It seems that more typhoons hit the Philippines than the rest of Asia combined. As an aside, remember *kamikaze*, the divine wind that destroyed the Mongol fleet of Kublai Khan in the late 13th century? That was a typhoon, notably listed by Hoyt, which saved Japan from the Mongol invasion.

It was the Jesuits friars who first constructed meteorological observatories across the Philippines during the Spanish era. In 1668, a Jesuit by the name of F. Alzina vividly described what occurred during the typhoons. Among his words were "these occur very often and we suffer so much." Jesuit Fr. Miguel Selga catalogued typhoons from the first recorded instance. This became the basis for the Philippine Weather Bureau "Catalogue of Typhoons, 1348 - 1934" published in 1935. Four Spanish researchers, Ricardo García-Herrera, Pedro Ribera, Emiliano Hernández and Luis Gimeno, wrote a paper about Philippine Typhoons 1566 - 1900 using Fr. Selga's data. A total of 652 typhoons were listed, which seems like a small number relative to more than 300 years of observation. Earlier measurements were probably incomplete. But from the late 19th century to the present, the numbers have been very consistent.

The Philippine National Statistics Coordination Board reports that from 1948 to 2007, an average of 19 "tropical cyclones" enter the Philippines annually. The highest number has been 32 and it has never been less than 11. Note that the NSCB uses the standard convention of TC as having winds of at least 38 mph, equivalent to a gale. A typhoon or hurricane has minimum winds of 74 mph. About half of TC's become full fledged typhoons. Hoyt's compilation indicated some years when two or even three typhoons struck in the same month. By comparison, the U.S. Hurricane Research Division of the NOAA reports that "close to seven hurricanes every four years (~1.75 per year) strike the United States."

It seems the Philippines cannot escape the clutches of typhoons. One Filipino writer calls nature sadistic, subjecting the country to continual typhoons and other disasters. We can only hope that some of the deliberate environmental damage done to the country can be reversed or mitigated. This would at least minimize typhoon damage. In the meantime, take comfort from a comment posted on the CNN website: "*Time to get to the know the hardy Filipino people... unbelievably resilient, long suffering, good natured, über friendly, loyal, ingenious, and a bunch of survivors. At the end of the day the Filipinos will just shake off the dirt from their clothes and thongs and go*

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about their business... and SMILE. They do not complain much, they will bear as long as they can. Maybe this is why they were given the 'privilege' of bearing the burden of the strongest typhoon ever recorded. The indomitable human spirit at its finest."

I just wish Filipinos weren't given such privilege too often.

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