

THE GEO-SAMPLER

Somewhere between Helene and Milton, we began to wonder about hurricanes. Who names them? What's the deal with the categories? Does 2024 seem more hurricane-y than other years? Is it just coincidental that all this year's hot air happens to correspond with a presidential election? So, as we're known to do, we dove into all things hurricane-like and you are the lucky beneficiary.

LIKE A HURRICANE.

Let's start at the very beginning. What exactly IS a hurricane? According to the National Oceanic and Atmospheric Administration—or NOAA, aka the experts—a hurricane is a type of storm called a tropical cyclone, which forms over tropical or subtropical waters. Tropical cyclones with maximum sustained surface winds of less than 39 miles per hour (mph) are called tropical depressions. Those with maximum sustained winds of 39 mph or higher are called tropical storms. When a storm's maximum sustained winds reach 74 mph, it achieves hurricane status.

Hurricanes originate in the Atlantic basin, which includes the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico, the eastern North Pacific Ocean, and, less frequently, the central North Pacific Ocean. And yes, there is a "hurricane season," which starts on June 1 and ends November 30, though hurricanes either don't have, or pay attention to calendars, so they can, and have, occurred outside this window. The NOAA's National Hurricane Center (NHC) tracks and predicts these massive storm systems which occur, on average, 12 times in a year.

Categorize this

The Saffir-Simpson hurricane wind scale (SSHWS) classifies hurricanes into five categories distinguished by the intensities of their sustained winds. Hence, the addition of the W to its name, since this measuring system was formerly known as the Saffir-Simpson hurricane scale, or

SSHS, until the W got a leading role.

Before we get into the categories, let's take a moment to recognize Saffir and Simpson. In 1969, engineer Herbert Saffir was commissioned by the United Nations to study low-cost housing in hurricane-prone areas. In 1971, while conducting the study, he realized there was no simple scale for describing the likely effects of a hurricane. By using subjective damage-based scales for earthquake intensity like the Modified Mercalli intensity scale or MSK-64 intensity scale and the objective numerical gradation method of the Richter scale as models, he proposed a simplified 1-5 grading scale as a guide for areas that do not have hurricane building codes. The grades were based on two main factors: objective wind gust speeds sustaining for 2-3 seconds at an elevation of 9.2 meters, and subjective levels of structural damage.

Saffir gave the proposed scale to the NHC for their use, where Robert Simpson, its director and a meteorologist, changed the terminology from "grade" to "category," organized them by sustained wind speeds of one minute duration, and added storm surge height ranges; then he added barometric pressure ranges later on. In 1975, the Saffir-Simpson Scale was first published publicly. FYI, the NHC eliminated pressure and storm surge ranges from the categories in 2009, transforming it into a pure wind scale. Thus, the scale reverted more to like what Saffir was going for all along.

"How is it that we put a man on the moon before we figured out it would be a good idea to put wheels on luggage?"



You Name It

Murphy's Law: "If anything can go wrong, it will."

Howe's Law: "Every man has a scheme that will not work."

Etorre's Observation: "The other line moves faster."

Maier's Law: "If the facts do not conform to the theory, they must be disposed of."

Lieberman's Law: "Everybody lies, but it doesn't matter because nobody listens."

Green's Law of Debate: "Anything is possible if you don't know what you're talking about."

Hanlon's Razor: "Never attribute to malice that which is adequately explained by stupidity."

Finster's Law: "A closed mouth gathers no feet."

First rule of financial literacy: "When your outgo exceeds your income, your upkeep becomes your downfall."

Hoare's Law of Large Problems: "Inside every large problem is a small problem struggling to get out."

Conway's Law: "In any organization there will always be one person who knows what is going on. This person should be fired."

Muir's Law: "When we try to pick out anything by itself, we find it hitched to everything else in the universe."

Glyme's Formula for Success: "The secret of success is sincerity. Once you can fake that, you've got it made."

SAFFIR-SIMPSON HURRICANE WIND SCALE		
CATEGORY	WIND (mph)	DAMAGE
5	≥157	Catastrophic
4	130-156	Catastrophic
3	111-129	Devastating
2	96-110	Extensive
1	74-95	Some
Tropical Storm	39-73	—
Tropical Depression	≤38	—



NQA-1
COMPLIANT

As of October 28, the strongest hurricane of the 2024 season was Milton, which clocked in as a Category 5 hurricane with 180 mph winds. Hurricane Beryl, which made landfall in June, was the other Category 5 storm of the season, registering winds of 165 mph. Interestingly, this was the earliest Category 5 hurricane in recorded history.

Also as of October 28, the storms of this season have collectively caused at least 372 fatalities and more than \$190 billion in damage. Most of the fatalities resulted from Beryl and Helene, while most of the damage is due to Helene and Milton. This puts 2024's damage, so far, in second place, compared to 2017, where the costs exceeded \$294 billion. So yes, 2024 is more hurricane-y than usual.

What's in a name?

The World Meteorological Organization (WMO) is responsible for naming hurricanes. (So you can direct your outrage to them if your name is Milton, Beryl, or Helene.) Storms used to be named somewhat haphazardly. For example, an Atlantic storm that ripped the mast off a boat named Antje would become known as Antje's hurricane.

As science and technology advanced, storms were named more methodically as short, distinctive names aided in quicker, more accurate communication. From roughly 1953 to 1979, U.S. hurricanes and tropical storms were actually only named after women. It's not entirely clear why, but the maritime tradition of referring to the ocean as a woman may have played a factor.

Once these storms took on female names, weathermen began talking about them as if they were women. They used sexist clichés to describe their behavior—saying that this one was “temperamental,” or that another was “teasing” or “flirting” with a coastline. Understandably, female meteorologists weren't impressed. As a result, the U.S. adopted male and female names for hurricanes in 1979.

In 2021, the WMO established six lists of names to be used in rotation. In addition, a supplemental list was developed for use when a hurricane name is retired. The decision to withdraw or retire a name is reached by consensus (or majority vote) during the WMO Regional Association IV Hurricane Committee session that immediately follows the session in question, when a storm has achieved notoriety either for human casualties or damage caused. This is why we'll never see another Hurricane Katrina.

2024	2025	2026	2027	Supplemental
Alberto	Andrea	Arthur	Ana	Adria
Beryl	Barry	Bertha	Bill	Braylen
Chris	Chantal	Cristobal	Claudette	Caridad
Debby	Dexter	Dolly	Danny	Deshawn
Ernesto	Erin	Edouard	Elsa	Emery
Francine	Fernand	Fay	Fred	Foster
Gordon	Gabrielle	Gonzalo	Grace	Gemma
Helene	Humberto	Hanna	Henri	Heath
Isaac	Imelda	Isaias	Imani	Isla
Joyce	Jerry	Josephine	Julian	Jacobus
Kirk	Karen	Kyle	Kate	Kenzie
Leslie	Lorenzo	Leah	Larry	Lucio
Milton	Melissa	Marco	Mindy	Makayla
Nadine	Nestor	Nana	Nicholas	Nolan
Oscar	Olga	Omar	Odette	Orlanda
Patty	Pablo	Paulette	Peter	Pax
Rafael	Rebekah	Rene	Rose	Ronin
Sara	Sebastien	Sally	Sam	Sophie
Tony	Tanya	Teddy	Teresa	Tayshaun
Valerie	Van	Vicky	Victor	Viviana
William	Wendy	Wilfred	Wanda	Will

Anyhow, in case you're also reading “Popular Baby Names” in preparation for an upcoming bundle of joy in your family, you may also want to consider these lists. We think the name Geotechnics has a nice ring to it.

Thank you.

We are grateful for the people we've had the opportunity to work with over the past 40 years that entrust us with their geotechnical and geosynthetic testing and field services.

As much as our work centers on data and testing, it's really all about people. Our employees. Our partners. Our clients. Thank you!



Our four facilities serve projects across the country.	Pittsburgh – 544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • nmelaro@geotechnics.net or jpkline@geotechnics.net
	Raleigh – 2200 Westinghouse Boulevard • Raleigh, NC 27604 • Phone (919) 876-0405 • msmith@geotechnics.net
	Nashville – 13 Industrial Park Drive, Suite 500 • Hendersonville, TN 37075 • Phone (615) 590-7695 • dsmith@geotechnics.net
	St. Louis – 550 Axminister Drive • Fenton, MO 63026 • Phone (636) 600-0440 • dsmith@geotechnics.net