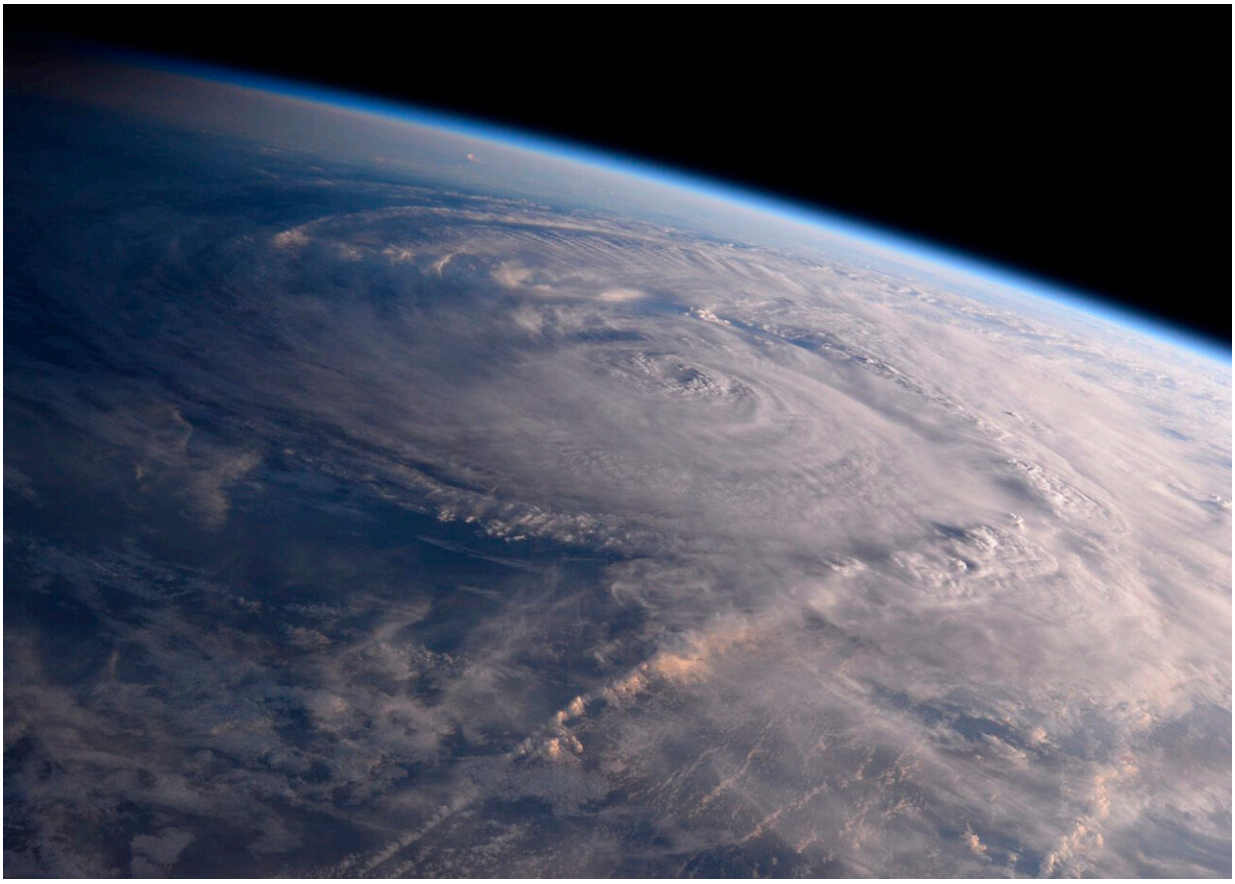
Experts: Everything points to another busy hurricane season

May 31 2022, by Seth Borenstein



This photo made available by NASA shows Hurricane Harvey over Texas on Saturday, Aug. 26, 2017, seen from the International Space Station. Studies show that climate change are making hurricanes wetter, because warm air can hold more moisture, and are making the strongest storms a bit stronger. Storms also may be stalling more, allowing them to drop more rain over the same place, like in 2017's Harvey. They are also rapidly intensifying more often, experts say. Credit: Randy Bresnik/NASA via AP, File

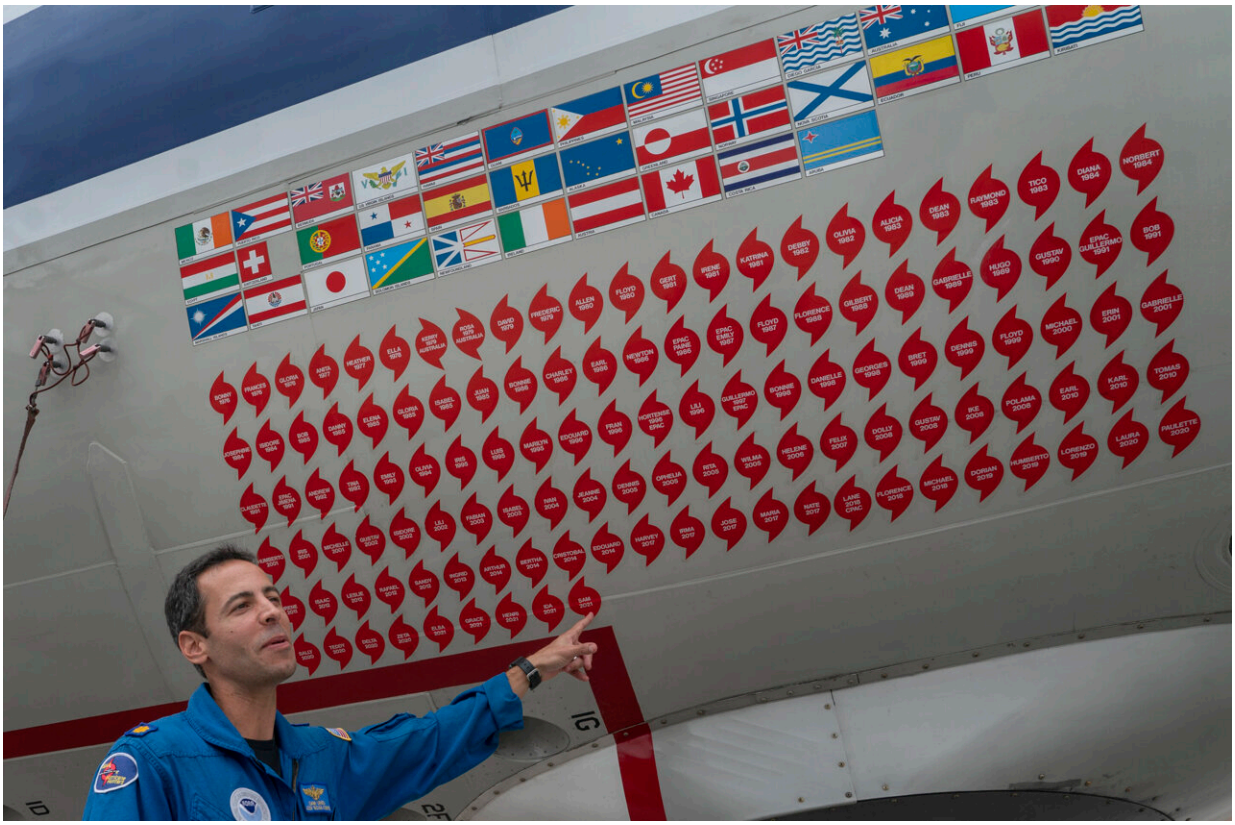
Batten down the hatches for another nasty hurricane season.

Nearly every natural force and a bunch of human-caused ones—more than just climate change—have turned the last several Atlantic hurricane seasons into deadly and expensive whoppers. The season that starts Wednesday looks like another note in a record-breaking refrain because all those ingredients for disaster are still going strong, experts warn.

They say these factors point to but don't quite promise more trouble ahead: the natural climate event La Nina, human-caused climate change, warmer ocean waters, the Gulf of Mexico's deep hot Loop Current, increased storminess in Africa, cleaner skies, a multi-decade active storm cycle and massive development of property along the coast.

"It's everything and the kitchen sink," Colorado State University hurricane researcher Phil Klotzbach said.

In the past two years, forecasters ran out of names for storms. It's been a costly rogue's gallery of major hurricanes—with winds of at least 111 mph (179 kph)—striking land in the past five years: Harvey, Irma, Maria, Florence, Michael, Dorian, Humberto, Laura, Teddy, Delta, Zeta, Eta, Iota, Grace and Ida.

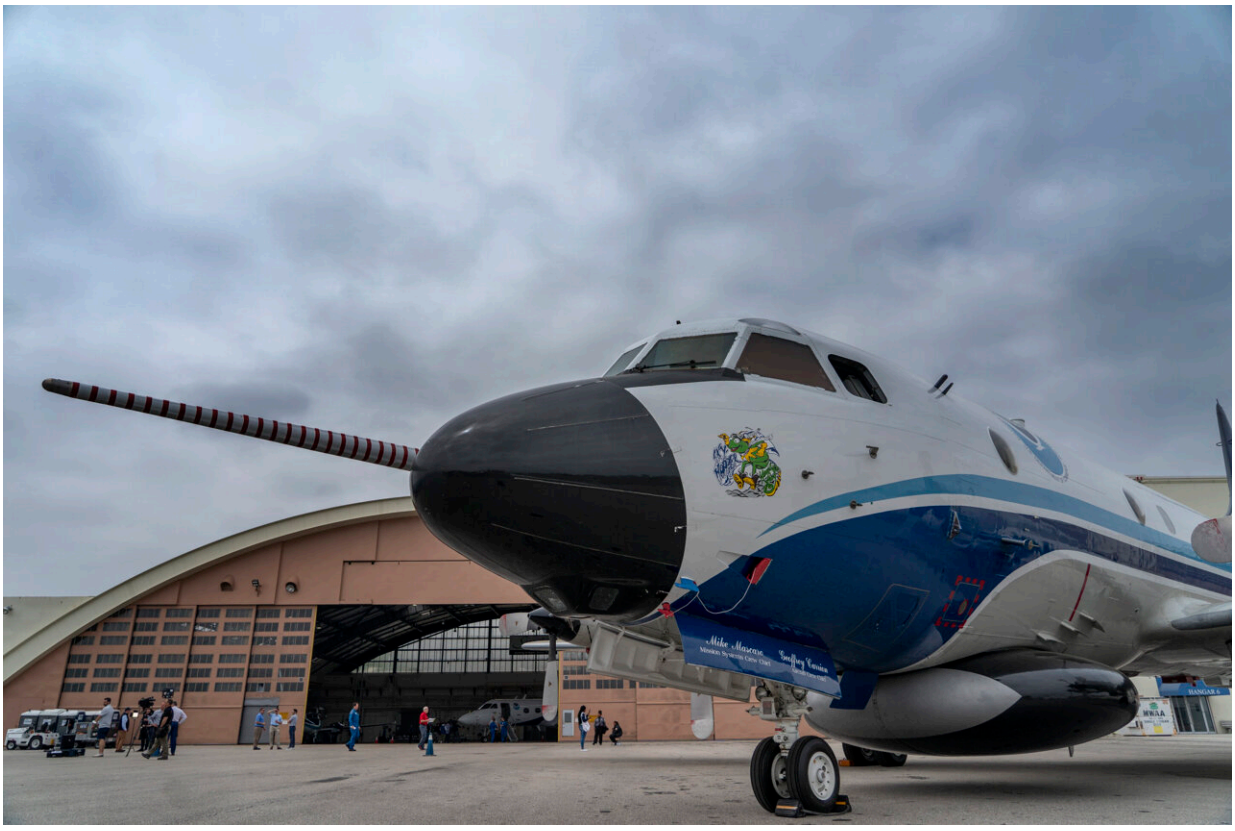


Lt. Commander Sam Urato, a P-3 pilot of National Oceanic and Atmospheric Administration, points to decals on the fuselage of the Lockheed WP-3D Orion 'hurricane hunter' aircraft representing the hurricanes it has penetrated during a hurricane awareness tour at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Hurricane season starts Wednesday, June 1, 2022, and it's looking busy because every factor out there is pointing to another nasty year in the Atlantic. Credit: AP Photo/Gemunu Amarasinghe

"That's the pattern that we've been locked into. And what a statistic to think about: From 2017 to 2021, more Category four and five (hurricanes) made U.S. landfall than from 1963 to 2016," National Hurricane Center Director Ken Graham said in an Associated Press interview in front of two hurricane-hunter planes that fly into the storms.

Graham, echoing most experts and every pre-season forecast, said "we've got another busy one" coming. Last year, the Atlantic set a record for six above average hurricane seasons in a row, smashing the old record of three in a row, and forecasters predict a seventh.

The only contrary sign is that for the first time since 2014, a storm didn't form before the official June 1 start of the hurricane season, but forecasters are watching the Eastern Pacific's record-setting Hurricane Agatha that looks likely to cross over land and reform as Alex in the Gulf of Mexico later this week.



National Oceanic and Atmospheric Administration's WP-3D Orion hurricane hunter aircraft, affectionately named after muppet character "Kermit the Frog" stands on the tarmac at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. While studies point to an increasing number of the strongest

storms because of human-caused climate change, scientists still disagree over what global warming means for the overall frequency of all storms. Credit: AP Photo/Gemunu Amarasinghe

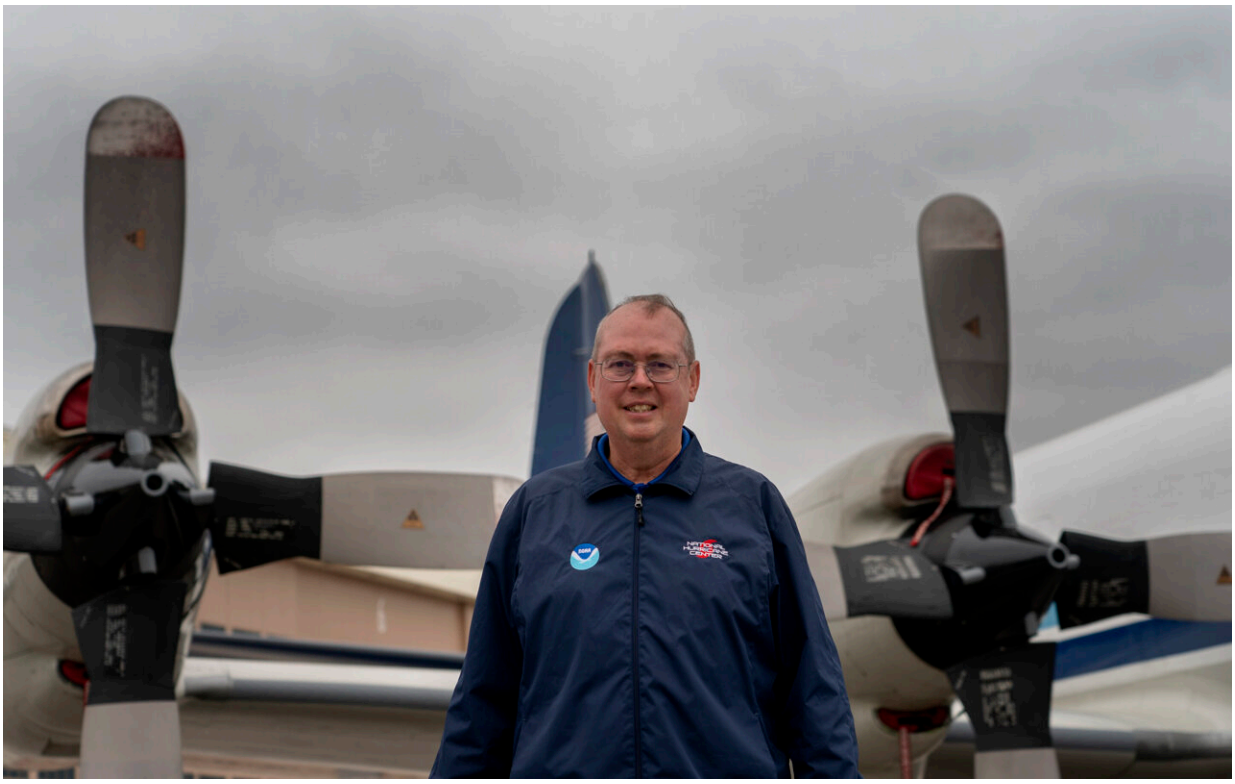
Here's what may make the Atlantic chaotic this season:

LA NINA

One of the biggest influences on Atlantic hurricane seasons occurs half a world away in the temporarily cooling waters of the equatorial Pacific, the natural cyclical phenomenon called La Nina, the more dangerous for the United States flip side to El Nino.

La Nina alters weather across the world, including making hurricane development in the Atlantic more likely. It starts with the Sahel region of Africa, where the seeds of the many of the strongest mid-season hurricanes, called Cape Verde storms, form. That often dry region is wet and stormy in La Nina and that helps with early formation.

One weather feature that can decapitate storms or prevent them from forming in the first place is high cross winds called shear. But La Nina pretty much deadens shear, which is "a huge factor" for more storm activity, University of Albany hurricane researcher Kristen Corbosiero said.



National Hurricane Center Director Ken Graham poses for a portrait in front of WP-3D Orion "hurricane hunter" aircraft during a hurricane awareness tour at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Graham, echoing every expert and every pre-season hurricane forecast, says “we’ve got another busy one” coming for 2022. In 2021, the Atlantic set a record for six above average hurricane seasons in a row, smashing the old record of three in a row, and forecasters predict a seventh. Credit: AP Photo/Gemunu Amarasinghe

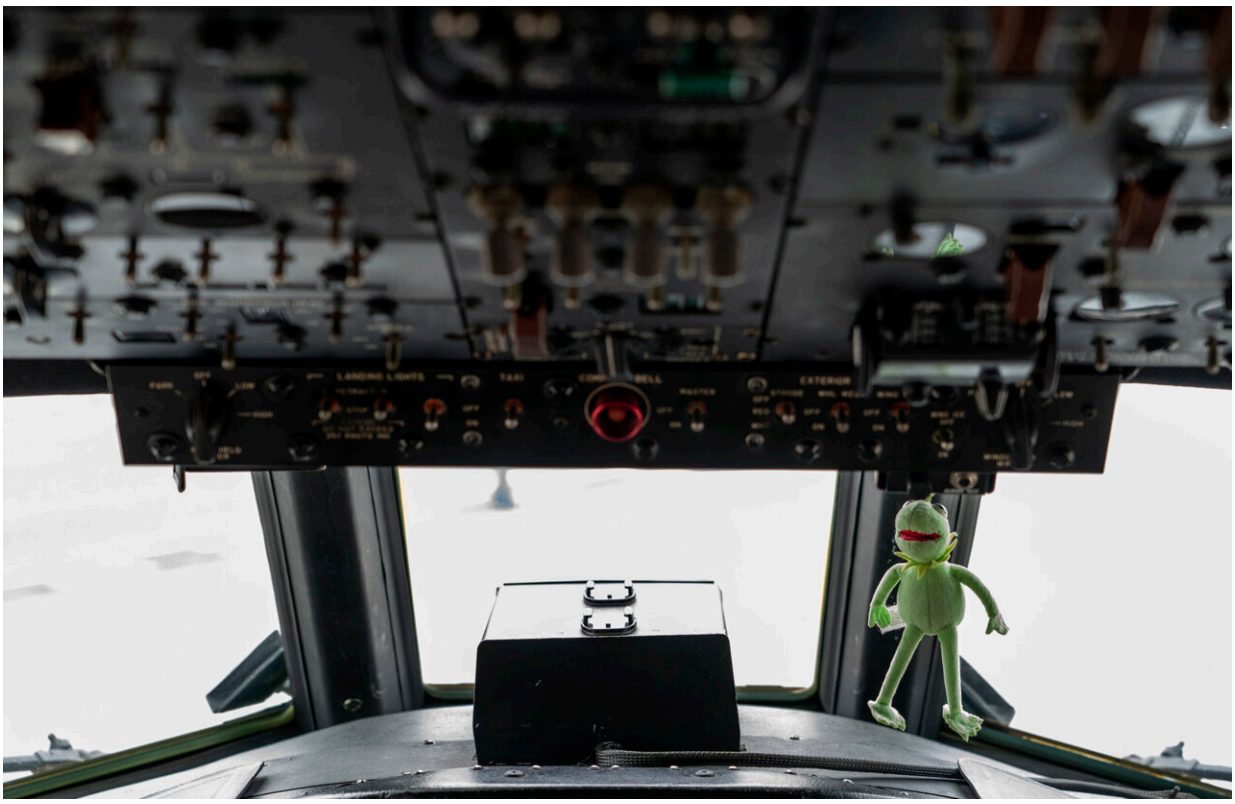
CLIMATE CHANGE

Studies show that climate change is making hurricanes wetter, because warm air can hold more moisture, and are making the strongest storms a bit stronger. Storms also may be stalling more, allowing them to drop more rain over the same place, like in 2017's Harvey, where more than 50 inches (127 centimeters) fell in one spot. They are also rapidly

intensifying more often, experts say.

While studies point to an increasing number of the strongest storms because of human-caused climate change, scientists still disagree over what global warming means for the overall frequency of all storms. Some scientists see a slight decrease because of fewer weaker storms, but others, such as MIT hurricane researcher Kerry Emanuel, see an overall increase in the total number of storms.

A study by Emanuel found a general increase in Atlantic storm s over 150 years, with some exceptions. That increase is too large to be directly linked to climate change, Emanuel said, "but it could be indirectly related to climate change" especially if global warming is changing ocean circulation speeds as suspected.



National Oceanic and Atmospheric Administration's WP-3D Orion hurricane hunter aircraft, affectionately named after muppet character "Kermit the Frog" has a soft-toy of Kermit attached in its cockpit during a hurricane awareness tour at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Credit: AP Photo/Gemunu Amarasinghe

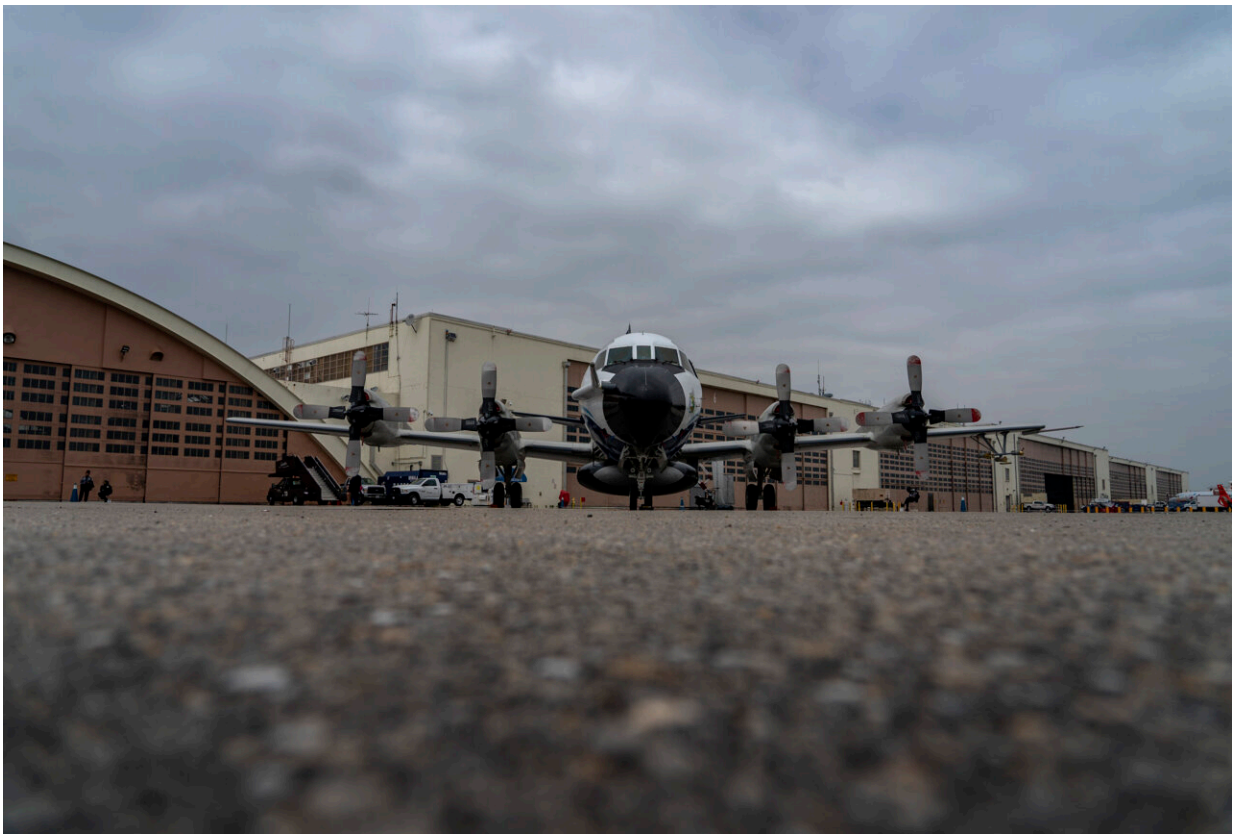
WARMER WATER

Warm water acts as fuel for hurricanes. Storms can't form until waters hit 79 degrees (26 degrees Celsius) and the deeper the warm water reaches, and the higher its temperature, the more the hurricane has to feed on.

And because of climate change and natural weather variables, the water in much of the Atlantic, Caribbean and Gulf of Mexico is warm and inviting for storms, University of Miami hurricane researcher Brian McNoldy said. In the key storm formation area, waters are about half a degree warmer (0.3 degrees Celsius) than last year at this time of year, according to National Oceanic and Atmospheric Administration hurricane seasonal forecaster Matthew Rosencrans.

LOOP CURRENT

In the Gulf of Mexico there's a normal phenomenon called the Loop Current, where warm water runs extremely deep. That's important because usually hurricanes bring up cold deep water when they go over warm water and that limits their strengthening. But the Loop Current often turbo-charges storms and it sheds eddies of warm deep water all over the Gulf for storm intensification.



National Oceanic and Atmospheric Administration's WP-3D Orion hurricane hunter aircraft stands on the tarmac at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Nearly every natural force and a bunch of human-caused ones - more than just climate change - have turned the last several Atlantic hurricane seasons into real expensive whoppers. The season that starts Wednesday, June 1, 2022, looks like another note in a record-breaking refrain because all those ingredients for disaster are still going strong, experts warn. Credit: AP Photo/Gemunu Amarasinghe

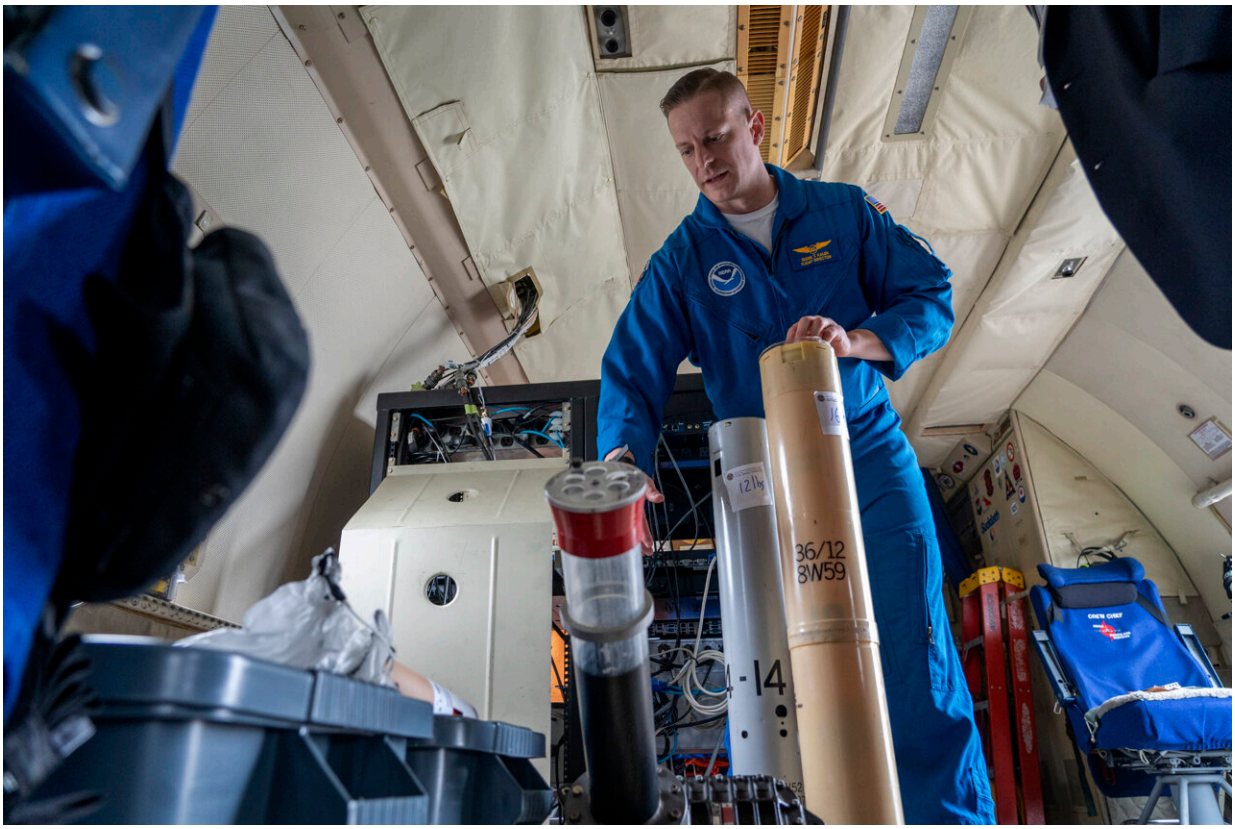
This year the loop current seems especially strong, northward and worrisome, Emanuel and other experts said. They compared it to the Loop Current that intensified Camille in 1969, Katrina in 2005 and Ida last year.

On Monday the Loop Current was 1.8 degrees (1 degree Celsius) warmer than normal, McNoldy said.

CLEANER AIR

Traditional air pollution from factories and cars—the dirty air of smog and small particles—reflects sunlight and cools the atmosphere, scientists say. That cooling effect from air pollution probably helped decrease the number of storms in the 1970s and 1980s, which was a quiet period in the Atlantic.

But since Europe and the United States cleaned up much of their air pollution, the Atlantic has gotten stormier during hurricane season, while just the opposite is happening in Asia where air pollution is increasing, a new study said. Experts said the decrease in air pollution and increase in Atlantic storms is likely a permanent condition now.



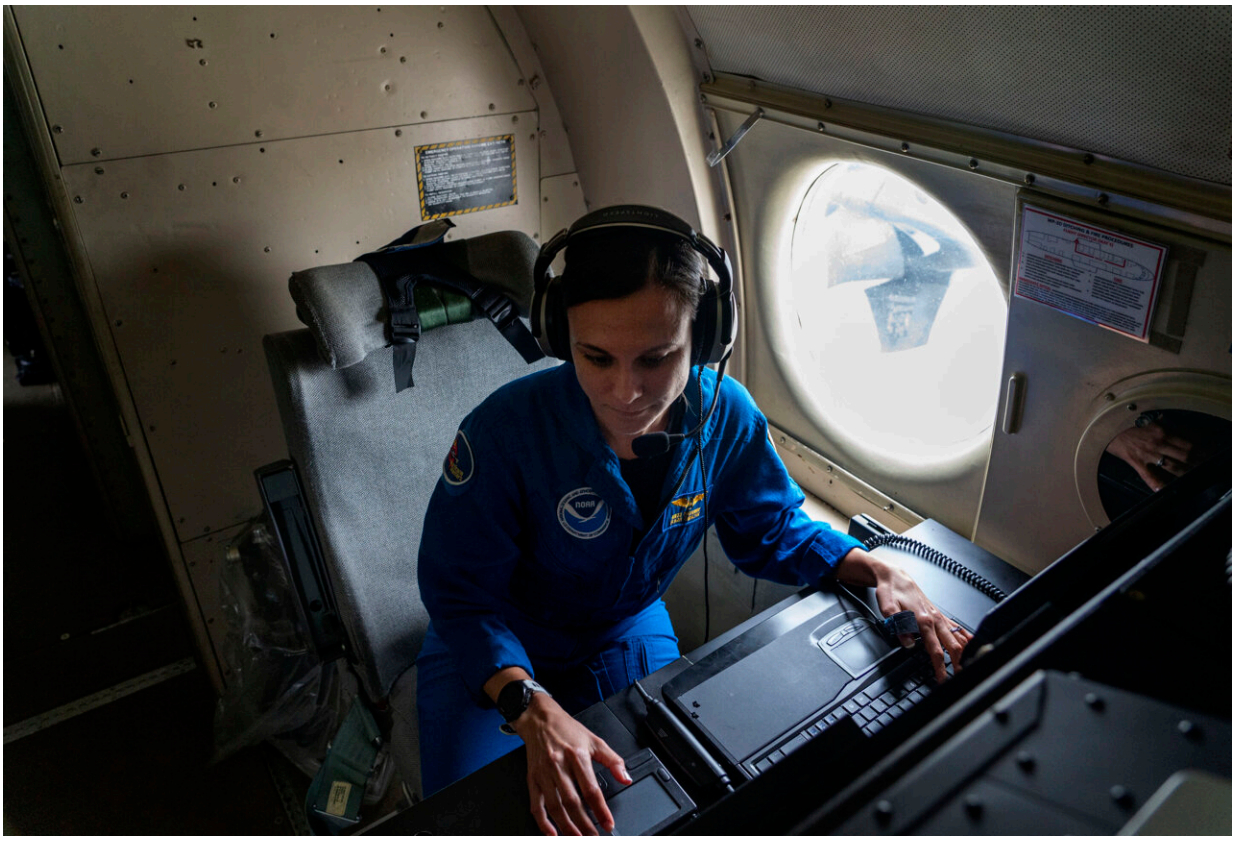
Quinn Kalen, Flight Director of National Oceanic and Atmospheric Administration's Gulfstream IV aircraft, explains the functions of WP-3D dropsonde during a hurricane awareness tour at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Dropsondes, small, tube-shaped sensors continuously transmit weather information like wind speed and pressure to help meteorologists determine a storm's strength and direction. Credit: AP Photo/Gemunu Amarasinghe

LONGER TERM CYCLES

Hurricane researchers have noticed over a century or so, an on-off type of cycle of storm activity with about 20 to 30 years of busy Atlantic hurricane seasons followed by 20 to 30 years of less activity. The current busy cycle started in 1995 and should theoretically be ending soon, but

scientists see no sign of that happening yet.

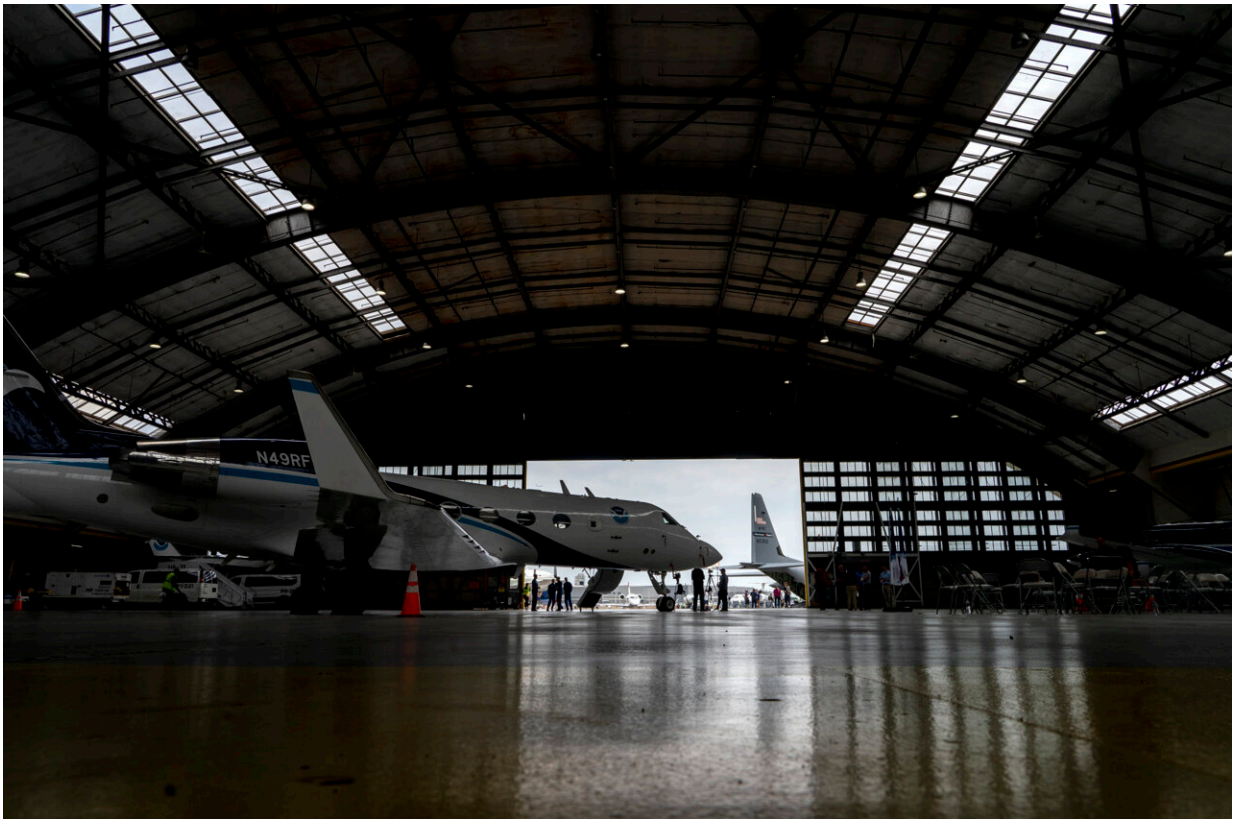
The theory behind the cycle has to do with ocean currents, salinity and other natural cycles on a global scale. But recently some scientists have started to doubt how big a factor, if any, the cycle may be and whether it was really air pollution and now climate change altering the cycle.



Nikki Hathaway, a meteorologist and Flight Director of National Oceanic and Atmospheric Administration's WP-3D Orion "hurricane hunter" aircraft, sits at her workstation in the plane during a hurricane awareness tour at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Credit: AP Photo/Gemunu Amarasinghe

DEVELOPMENT

On top of all those weather factors is the problem of humans. During the lull in storms in the 1970s and 1980s, air conditioning in the south became more prevalent and storms were in the back of the mind, so more people moved to and built in storm prone areas, said former NOAA hurricane scientist Jim Kossin, now of the risk firm The Climate Service.



National Oceanic and Atmospheric Administration's P3, and Gulfstream aircrafts are kept in a hanger at Washington National Airport, Arlington, Va., Tuesday, May 3, 2022. Credit: AP Photo/Gemunu Amarasinghe

But the storms came back when the pollution disappeared and as climate change worsened. Add in La Ninas, insurance that makes it easier to rebuild in dangerous areas, "and now we're paying the piper "with more and fiercer storms and more people and buildings at risk," Kossin said.

For at least the next five years, Kossin said, "we need to buckle up."