Earl's path along northeast is not well-worn

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Graphic shows the location and projected path of Hurricane Earl as of 2 p.m. EDT, Thursday.

Pushed by an ill-timed trough of low pressure, Hurricane Earl is heading uncomfortably close to an area relatively few hurricanes tend to go: the Northeast coastline.

And Earl may be foreshadowing more northerly big storms to come with global warming, two hurricane experts said Thursday.

Hurricanes have smacked the Northeast before - a fast moving whopper in 1938, Carol and Diane in the 1950s and Bob in 1991. But National

Hurricane Center records show they are generally once-in-a-generation events. In parts of the Northeast, hurricanes occur as infrequently as once every 35 years.

A Northeast hurricane that makes land "was one of my greatest concerns," former National Hurricane Center director Max Mayfield said Thursday. "It's a rare event for them and people are not used to responding to the hurricane threat."

In South Florida, New Orleans and the Outer Banks where hurricanes are regular events, people know to plan in advance and then follow those plans, Mayfield said. But in places not used to hurricanes, it is more chaotic, leading to horrendous and dangerous traffic jams during 1991's Bob, he said.

Earl is very unlikely to bring a repeat of that. It is not predicted to directly hit a city in the Northeast, but skirt close enough along the coast to be more a scare and an irritant than a major killer.

Still, Earl is different from most storms that venture north of Florida.

The Northeast is usually protected by a combination of prevailing winds, high pressure and geography.

Many hurricanes - especially the big ones that come west off the Cape Verde Islands in Africa - bend north. But most curve again to the east or northeast around the Bermuda high pressure system and head harmlessly out to sea.

They get called "fish storms" because that's practically all that notice the hurricanes.

Hurricane Danielle earlier this week did just that.

But sometimes a low pressure trough - a small storm system - comes along and the hurricane follows its lead, much like a bowling ball in a bowling alley gutter.

In Earl's case, the jetstream of upper air is moving west-to-east like it usually does and it is taking a run-of-the-mill low pressure trough with it, MIT meteorology professor Kerry Emanuel said.

The jetstream bends the trough south and then it meanders back north.

Earl hit the trough as the low pressure was shooting from the south to the north. So instead of curving to the northeast, Earl headed more north, coming near - but unlikely hitting - the Northeast.

"It's just a question of timing. It happens," Emanuel said.

Warm water, especially more than 80 degrees, fuels hurricanes. As a storm heads north, usually the water is cooler and the hurricane quickly runs out of steam.

But not this time. This summer, the water off the East Coast is about 2 to 3 degrees warmer than normal, allowing Earl to stay stronger longer, said Timothy Schott, tropical cyclone program director at the National Weather Service in Silver Spring, Md.

With global warming, water is likely to be warmer farther north than it is was for the past century.

Computer models show that warmer waters will mean more storms pushing north and staying north, said Florida International University professor Hugh Willoughby, who used to run the National Oceanic and Atmospheric Administration's hurricane research division.

However, the same changes in weather with global warming - most likely not too apparent till at least after 2030 - will also mean fewer Gulf of Mexico and Florida storms, Willoughby said. The changes would bring an increase in winds that dampen and prevent hurricanes.

Still, most of the northern storms will curve harmlessly away like Danielle did, said MIT's Emanuel. But more storms increases the chances that one of those will smack the Northeast like the Great New England Hurricane of 1938.

More information: Hurricanes by regions: http://bit.ly/b5S607