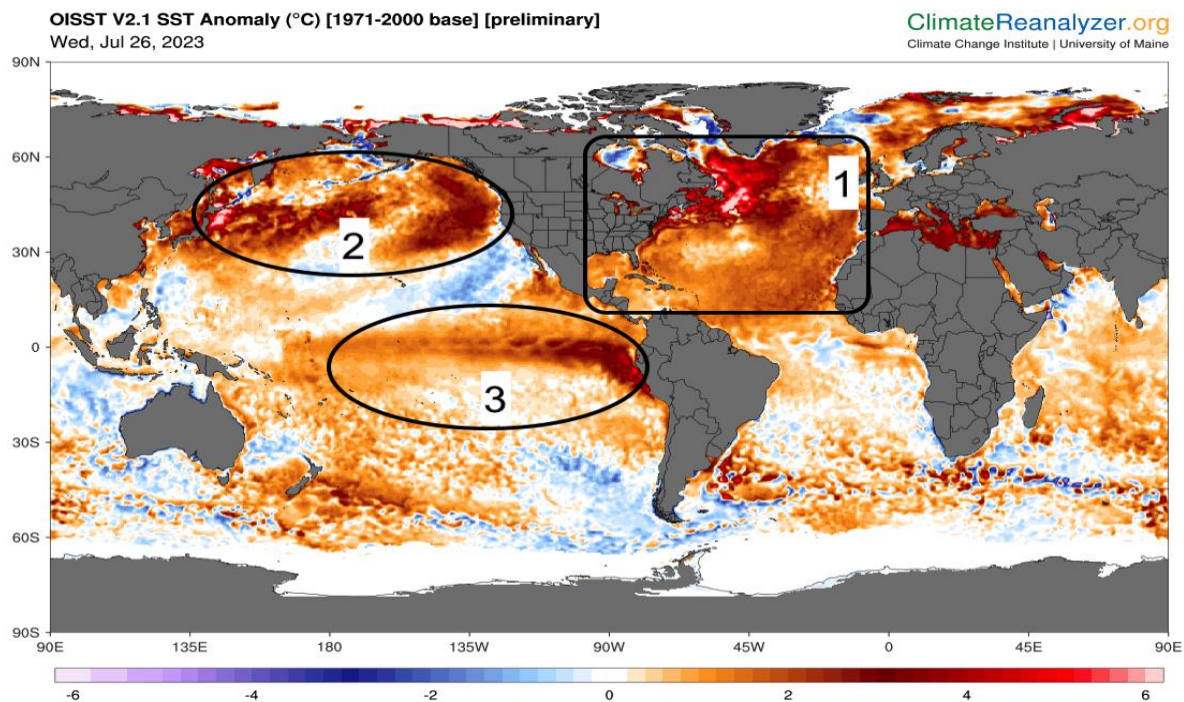


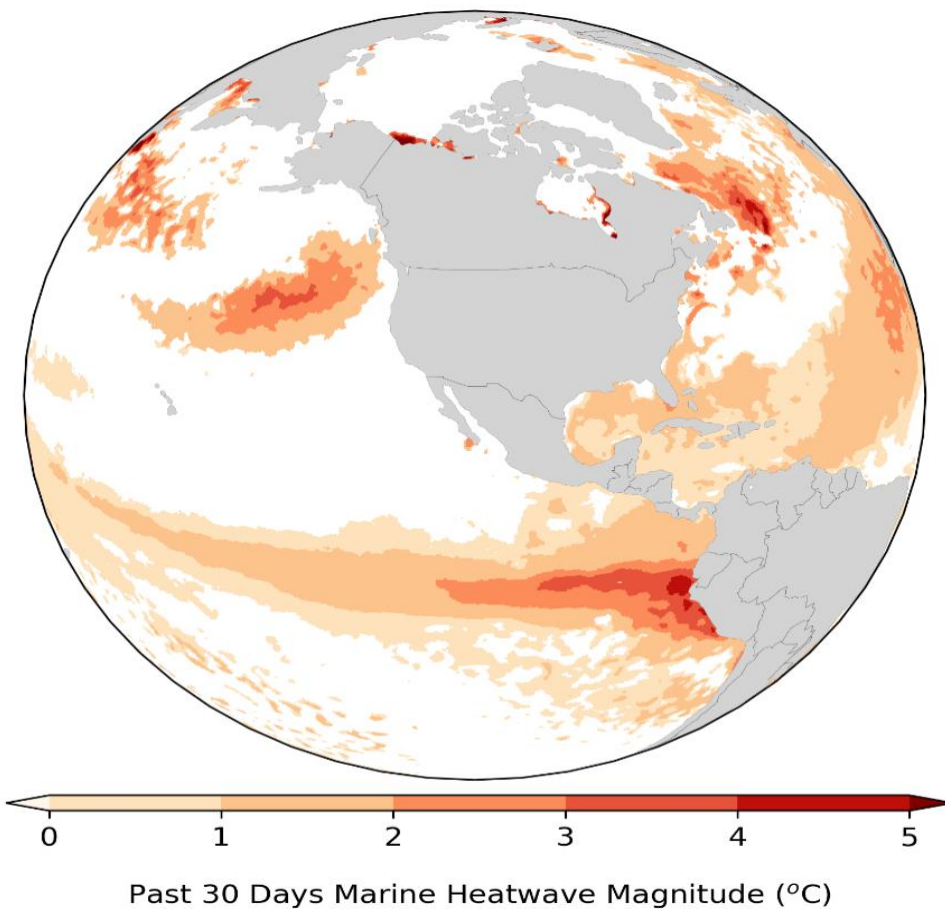
Marine Heat: Record Warmth Across The Oceans

When we look at a simple “snapshot” in terms of ocean sea surface temperatures, our eyes immediately are attracted to the oranges and reds that expand from the Pacific to the Atlantic, and then some. Several temperature records have occurred and continue to challenge them like across the Atlantic basin for instance given how anomalously warm it has been.



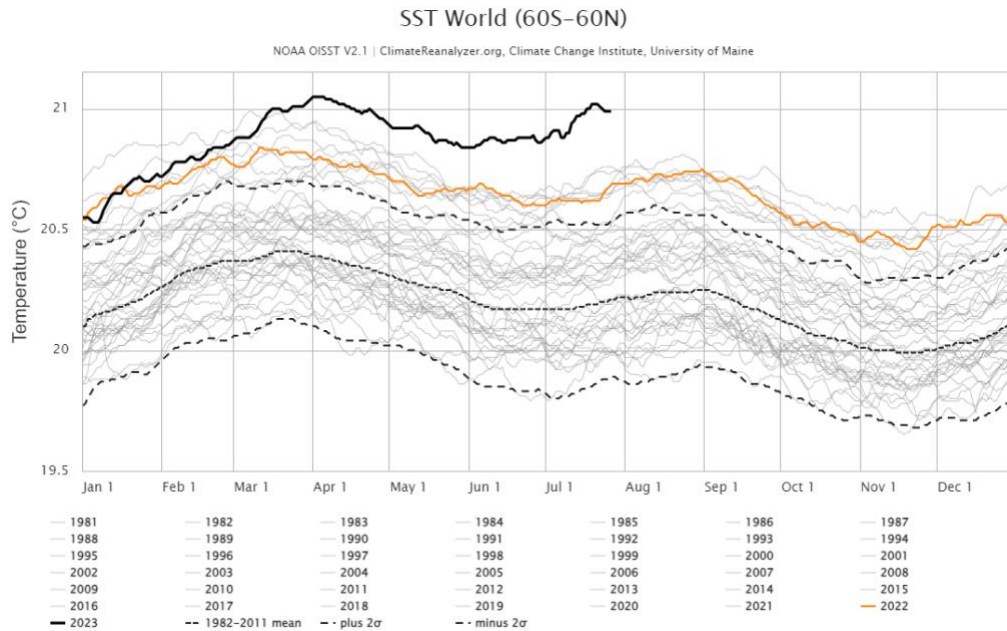
In fact, what are known as marine heat waves (a period of anomalously warm ocean sea surface temperatures that persist for a while that involves its duration and intensity), the amount of warmth we’re seeing continues to alarm scientists. According to [the National Oceanographic and](#)

[Atmospheric Administration](#) (NOAA), just over 40% of the globe's oceans are currently experiencing marine heat waves, and this is the highest they've seen statistically since 1991. We can see across the globe below of where we're currently seeing these marine heat waves, which unsurprisingly aligns nicely with the first image above.

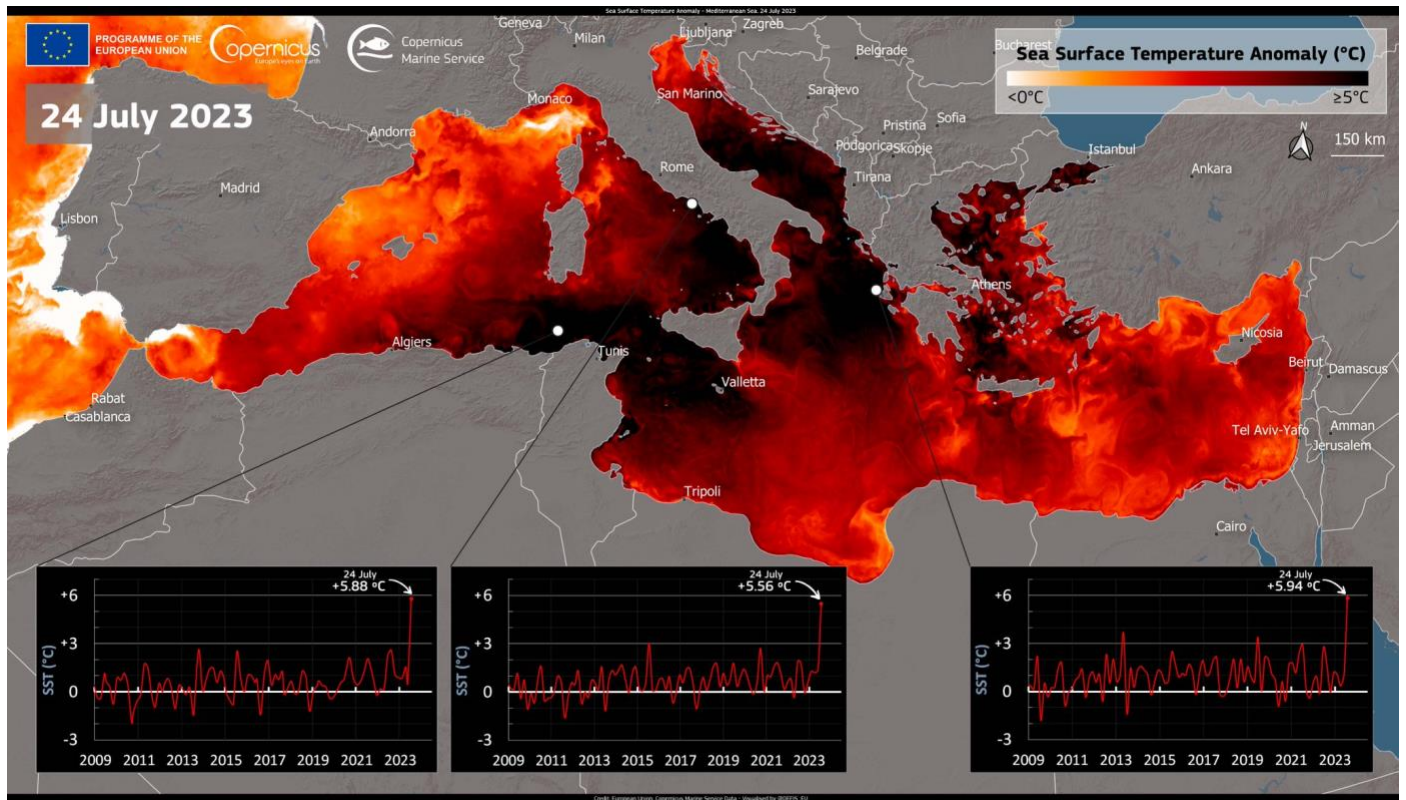


Let's put into perspective just how warm the oceans are. According to [climatereanalyzer.org](#), the graphic below shows sea surface temperatures that expand both the northern and southern hemisphere dating back to 1981. That bold black line you see all the way toward the top is 2023. Notice how glaringly far it's from the rest of the dataset of all the years, and not just that, but

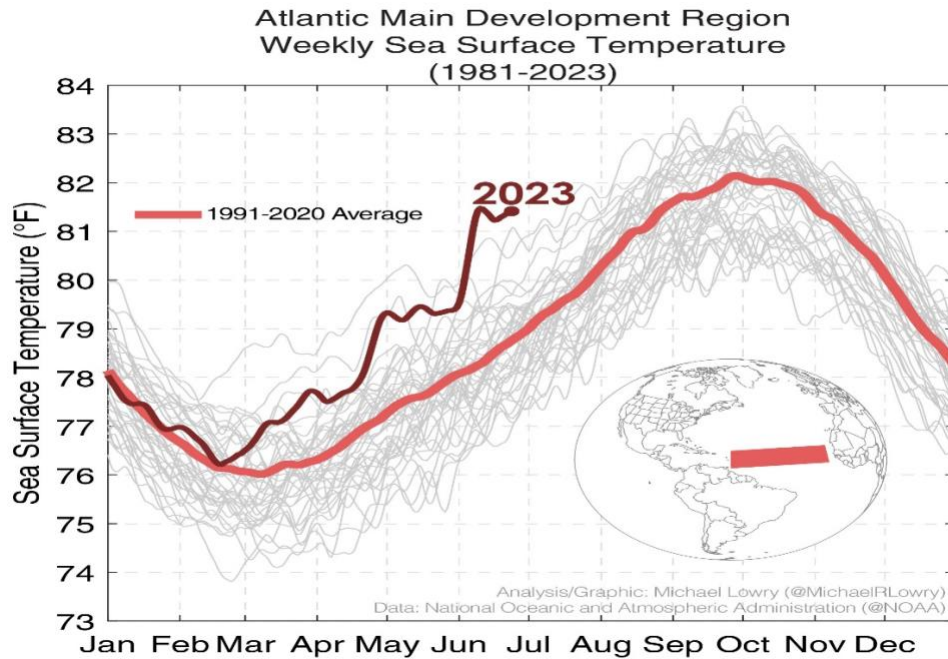
notice for how long it has been above normal! We're dealing with quite the unprecedented ocean warmth as an average.



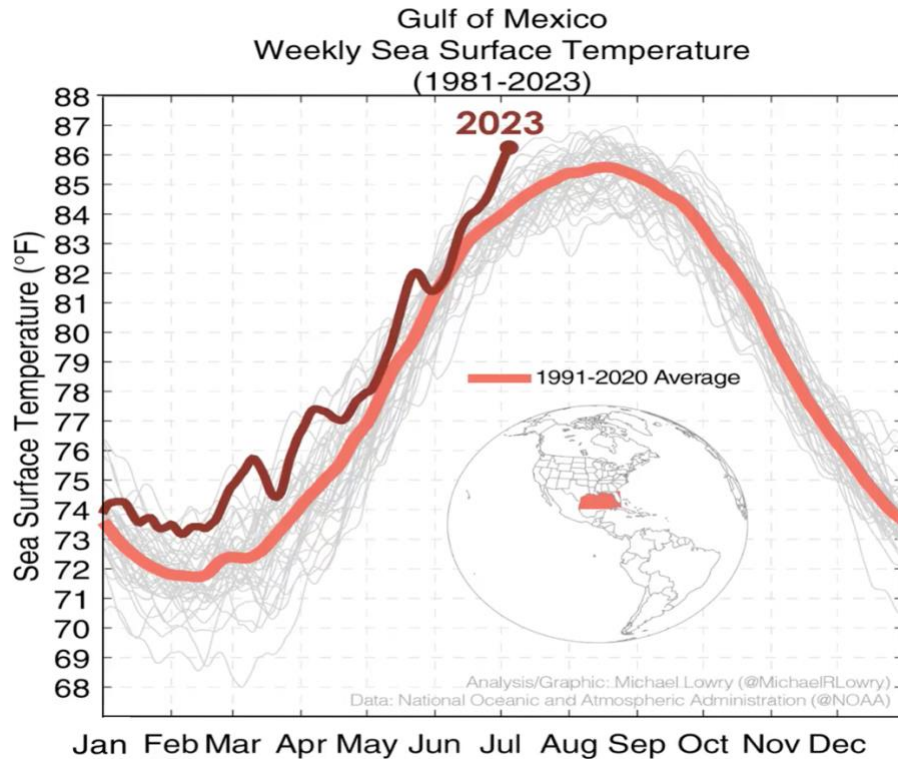
In the Atlantic, several records have transpired already as early as this past Spring. For example, the United Kingdom's Met Office in June stated that the North Atlantic saw the highest temperature of any May dating back to 1850. In fact, according to [Professor Stephen Belcher](#) – a Met Office chief scientist, the coastal waters around the UK were 1.6 degrees Celsius above the average for the period 1961 – 1990. If that isn't enough, data from the [Copernicus Marine Service](#) shows that the Mediterranean Sea just experienced the warmest three-week period on record during July as areas across this basin have maxed out on the legend below.



It doesn't stop there as you can see from the very first image above that shows an eye-popping "blowtorch" of warm water from Greenland to the tropics. A visually appealing and eye-catching graphic thanks to Hurricane Specialist Michael Lowry reveals just how mild the Main Development Region (the region of the Tropical Atlantic Ocean where we look for tropical cyclone development or implications) has been up to the present day. Here we stand with 2023 for this region sitting at record warmth for this time of year relative to 1981-2023 timespan.



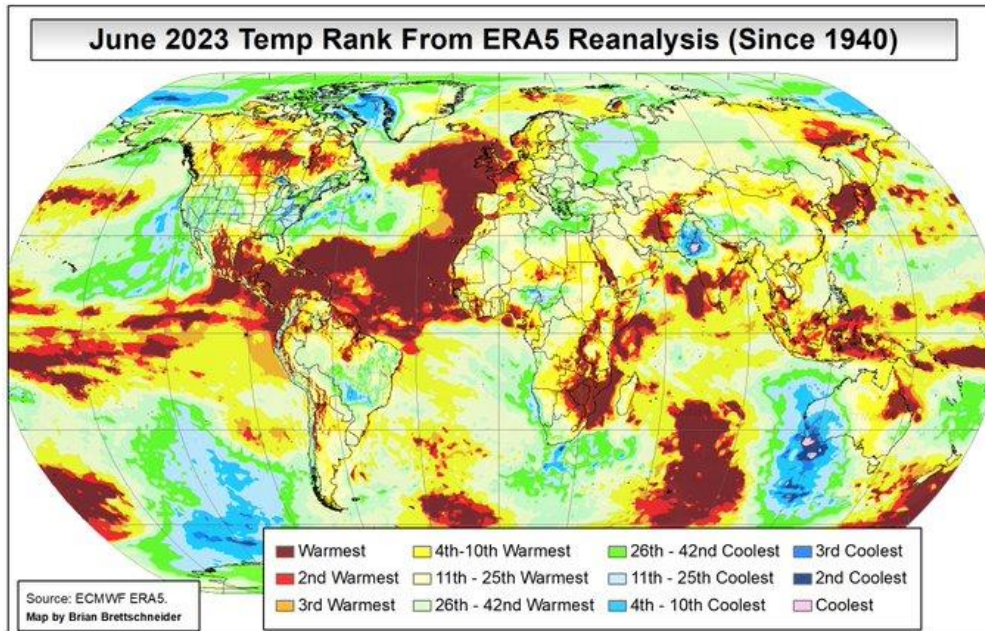
If that wasn't enough, let's check in on the Gulf of Mexico, which is blazingly warm. Currently, we're dealing with sea surface temperatures that are 2 to as much as 4 degrees Celsius above the 1991 – 2020 average. Below, we see just how record warm the “bath water” of the Gulf is when comparing the running average that also dates to 1981.



One of the main reasons as to why we've seen such record warm sea surface temperatures across the entire Atlantic basin is because of an unusually weak Bermuda high pressure system. Naturally, this forms every summer over the Atlantic, and plays a big role during hurricane season since it steers tropical cyclones along with influencing surface trade winds that blow across the water. Since it's been so weak, it lessens the ability to create evaporation of the surface of the water. Less evaporation means temperatures can warm rapidly, and this is exactly what has been the cause. Another factor in this record warmth has been the lack of Saharan dust from Africa. Dust allows for reflection of sunlight, so less dust means more solar radiation and the ability to "focus" more of the sun's energy into the ocean thereby increasing the temperature.

As we shift toward the Pacific, that entire warm region extending off South America along the Equator is our developing El Nino. In concert with the El Nino, we typically see the northern Pacific basin warm as well due to the big changes that the El Nino causes as these warm waters influence the large patterns. With weakening of trade winds across the Pacific, the very warm waters in the West Pacific slosh eastward, and all together we get a big sea surface temperature warming trend.

Below, a nice data graphic from a Senior Climatologist and Meteorologist, Brian Brettschneider, reveals rankings across the world. More specifically, this is meant to serve to quantify how record warm or cool an area is in terms of temperatures. Out across the North Pacific, along the Equator off South America (El Nino), and from the Caribbean up to the North Atlantic; what you see is unprecedented warmth dating back to 1940. Those strips of deep red in that graphic below happens to reflect the marine heat waves and super warm temperatures we're witnessing, putting into perspective the magnitude of the relentless warmth.



We're likely not done with continuing to see record warmth as we trek deeper into the summer season. In fact, according to [NOAA's predictions](#), marine heat wave coverage will increase to approximately around 50% by the time October comes around. This includes the entire Pacific from the north to the southwest, and eastern tropical region; the North Atlantic; Gulf of Mexico and Caribbean; and the Indian Ocean.

We'll see just how warm we get, or how long the heat sustains on the surface of the oceans, but we can expect more records to be challenged as we head through the rest of the summer since there's no sign of stopping!