August 2023 **Environmental Message**

Sea Surface Temperature

Although many factors play into the formation of tropical Storms and hurricanes, one of the key factors is that Sea Surface Temperatures (SST) of 79 degrees Fahrenheit (F) or 26 degrees Celsius (C) or higher are required for tropical storm formation according to NASA researchers. Hurricanes are fueled by this top layer of warm water. Further investigation done by NASA found that while the number of tropical cyclones is higher from year to year, the number of the stronger category 4 and 5 storms is on the rise. Since 1995 there have been 17 above-average cyclone seasons in the North Atlantic considering number, wind speed and duration of each storm.

Further examination of cyclone related data found that extreme storms formed when SST's were above 82 degrees F (28 degrees C). The researchers also found a correlation that for every 1.8 degrees F (1 degree C) rise in SST's the number of extreme storms went up by 21 percent. Based on climate change models, by 2100 there could be an increase in extreme storms by 60 percent. Although climate models aren't perfect, results like these can serve as a guideline for those looking to prepare for the potential effects a changing climate may have.

As of August 1st 2023, (https://www.ospo.noaa.gov/data/sst/contour/global_small.fc.gif) the SST's in the North Atlantic where most cyclones form (off the coast of Africa or in the Gulf of Mexico) are at or above the 26 degrees C required for tropical cyclone formation and above the 28 C degrees for extreme storm formation. Although it has been a relatively slow start to the North Atlantic Hurricane season, the University of Colorado has updated their predictions from a near-normal hurricane season to one that will be above normal with 18 named storms with 9 hurricanes and 4 of those being major hurricanes. And with these predictions the probability of a US major hurricane landfall is estimated to be above average.

Sources: https://www.ospo.noaa.gov/data/sst/contour/global_small.fc.gif
https://tropical.colostate.edu/forecasting.html
https://climate.nasa.gov/explore/ask-nasa-climate/2956/how-climate-change-may-be-impacting-storms-over-earths-tropical-oceans/

Produced by the Utility Arborist Association Environmental Stewardship Committee and Asplundh:

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