Hurricanes and Ocean Temperature

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Temperature and salinity dominate the stratification of ocean waters, putting warm water with less salt in upper layers and cold water with more salt in lower layers. When a hurricane passes through, these layers are mixed up. Our project was focused on the effects that hurricanes have on ocean water temperature. The purpose of our project was to determine if and how much a hurricane changes the temperature of the ocean surface water and if the amount of temperature change correlates to the strength of the hurricane. We predicted that a hurricane would cause a decrease in the surface water temperature and that there would be a more significant change in temperature for stronger storms. We learned that hurricanes are the earth's natural way of releasing heat and light tension in the surface water, and that some change in temperature due to average strength hurricanes can be beneficial to marine life. We used data on individual hurricanes to find their strength levels and accessed data from buoys in the hurricanes' paths that collected surface temperature of the water hourly. We analyzed the data and were able to determine, based on statistical analysis, the change in surface temperature of the water as a hurricane passed through, and its relation to the strength of the hurricane. Our findings showed that there is a significant decrease in the ocean surface water temperature from before to after the storm. In addition, our multivariable linear regression model showed that there is a moderate correlation between the decrease in temperature and strength of the storm when other extraneous variables are accounted for.

Awards Won: