

## Projected changes in the seasonal cycle of tropical cyclones

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Global climate models project robust changes to the timing and strength of the seasonal cycle of tropical SST and precipitation due to increasing greenhouse gases. Nearly all models project tropical SST and precipitation to reach their annual maxima and minima later in the year and feature an increased annual range, indicating enhanced summer values relative to winter. Using the CMIP5 models and the GFDL global High Resolution Atmospheric Model (HIRAM), we test whether these seasonal changes also occur for tropical cyclones and their associated environmental indices. We find an increase in the amplitude of the seasonal cycle of potential intensity and genesis potential index in nearly all ocean basins, indicating an increase in summer relative to winter. Changes in the phase of the seasonal cycle are more complicated but suggest a delay in the annual cycle of potential intensity and genesis potential index in the Eastern Pacific and parts of the North Atlantic. We will also present results showing the seasonal response for the downscaled tropical cyclone tracks. While the findings are preliminary, these results suggest a change in the timing and strength of environmental conditions which favor a delay and strengthening of hurricane seasons by the end of the 21st century.