

Seasonal and spatial heterogeneity of recent sea surface temperature trends in the Caribbean Sea and southeast Gulf of Mexico

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Recent changes in ocean temperature have impacted marine ecosystem function globally. Nevertheless, the responses have depended upon the rate of change of temperature and the season when the changes occur, which are spatially variable. A rigorous statistical analysis of sea surface temperature observations over 25 years was used to examine spatial variability in overall and seasonal temperature trends within the wider Caribbean. The basin has experienced high spatial variability in rates of change of temperature. Most of the warming has been due to increases in summer rather than winter temperatures. However, warming was faster in winter in the Loop Current area and the south-eastern Caribbean, where the annual temperature ranges have contracted. Waters off Florida, Cuba and the Bahamas had a tendency towards cooling in winter, increasing the amplitude of annual temperature ranges. These detailed patterns can be used to elucidate ecological responses to climatic change in the region.

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