

## **Reduced Caribbean Hurricane Activity during the Maunder Solar Minimum**

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Assessing the impact of future climate change on North Atlantic tropical cyclone (NATC) activity is of crucial societal importance, but the limited quantity and quality of observational records interferes with the skill of future NATC projections. In particular, NATC response to radiative forcing is poorly understood and creates the dominant source of uncertainty for 21<sup>st</sup> century projections. Here, we study NATC variability during the Maunder Minimum (MM; 1645–1715 CE), a period defined by the most severe reduction in solar irradiance in documented history. For this purpose, we combine a documentary time series of Spanish shipwrecks in the Caribbean (1495–1825 CE) with a tree-growth suppression chronology from the Florida Keys (1707–2010 CE). We find a 75% reduction in decadal-scale NATC activity during the MM that indicates modulation of the influence of reduced solar irradiance by the cumulative effect of cool North Atlantic sea surface temperatures, El Niño-like conditions, and negative phases of the Atlantic Multi-decadal Oscillation and the North Atlantic Oscillation. Our results emphasize the need to enhance our understanding of the response of these oceanic and atmospheric circulation patterns to radiative forcing and climate change in order to improve the skill of future NATC projections.