

Intense Southwest Florida Hurricane Strikes over the Past 1 Thousand Years

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Research suggests a rise in sea surface temperatures caused by anthropogenic climate change has led to an increase in the intensity of hurricanes over the last 40 years. This interpretation has, however, been challenged on the basis that the observational hurricane record is too short (160 years) and unreliable to reveal long-term trends in hurricane activity. Paleotempestology, a research area that uses geological proxy techniques to reconstruct hurricane frequency and strength over millennia, can address these limitations. Being a relatively new field, paleotempestology studies are confined to a few geographical locations; to date no records exist for the Southwest (SW) Florida region, a significant hurricane target zone. This study presents the first continuous hurricane record for the SW Florida region that extends back well beyond the historic observational record. Sediment cores used in this study were collected from back-barrier lagoons and proxies such as grain size, calcium carbonate, organic carbon, and micro-fossils were used to identify preserved hurricane events. Hurricane overwash layers show clear active, versus inactive periods, of hurricane activity over the past few millennia. Correlations with published paleo-sea surface temperature (SST) studies indicate a strong connection between SSTs and past SW Florida hurricane activity.