



## **Origin and magnitude of low latitude terrestrial precipitation and temperature anomalies during Heinrich events and deglaciation**

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Repetitive phases of increased pine at Lake Tulane, Florida have previously been related to strong stadials terminated by so-called Heinrich events. The climatic significance of these pine phases has been interpreted in different ways. Using a pollen-climate inference model, we quantified the climate changes and consistently found mean summer precipitation ( $P_{JJA}$ ) increases (0.5-0.9 mm/day) and mean November temperature increases (2.0-3.0°C) that are coeval with Heinrich events and the Younger Dryas. Comparison with marine sea surface temperature records point to a potential source for these heat and moisture anomalies in the Gulf of Mexico or the western tropical Atlantic. A climate model sensitivity analysis indicates that a positive heat anomaly in the Gulf of Mexico and equatorial Atlantic best approximates the pollen-inferred climate reconstructions from Lake Tulane during the Heinrich events and Younger Dryas. We explain the low latitude warming by an increased Loop Current facilitated by the persistence of the Atlantic Warm Pool during summer.