

The influence of SSTs on global and regional temperature extremes from observations & models

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Global sea surface temperature (SST) are known to impact seasonal climate anomalies but less is known about their impact on extremes. Here we look at the SST patterns associated with the El Niño-Southern Oscillation (ENSO) and examine their impact on extreme maximum temperatures in both observations and model simulations. Results show very strong statistically significant opposite responses from La Niña to El Niño. Extreme maximum temperatures are statistically significantly cooler during strong La Niña events than strong El Niño events over Australia. Several versions of the NCAR Community Climate System Model are then used to investigate whether state of the art models can reproduce some of the significant responses that have been observed. The fidelity of the ENSO simulation appears to be crucial for simulating the extreme maximum temperature relationships with global SSTs.