



Changing seasonality in global sea surface temperature

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Climate variability often involves not only long-term changes in the mean but also variations in the amplitude and phase of the seasonal cycle. Specific methodologies are therefore required for the separation of variability in the seasonal pattern from variability in the mean. Autoregressive decomposition is a model-based approach for time series decomposition that allows to isolate time-varying periodic components along with corresponding uncertainties. This method is applied to investigate the variability of the seasonal cycle of sea surface temperature from January 1900 to December 2006 from the extended reconstructed sea surface temperature (ERSST) version 3 dataset. Although the phase of the annual cycle of sea surface temperature is fairly stable, the amplitude exhibits interdecadal variability that can be described, for some locations, by a statistically significant trend.