



Space-time Structure of Temperature Variability

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The spatial and temporal scales of temperature variability are closely linked. Whereas fast variations such as weather are regional, temperature anomalies on glacial-interglacial cycles appear to be globally coherent. It has been argued that the increase in spatial scales continues across all time scales, but up to now, the space-time structure of variations beyond the decadal scale has mostly remained unexplored. Here, we show first attempts to estimate and interpret the spatial extent of temperature changes at up to millennial time-scales, using instrumental observations, paleoclimate archives and climate model simulations. We further discuss the potential to separate externally forced climate signals from internal variability, by their respective and potentially different space-time structure.