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Global warming and natural variability

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Since the fifties, the global warming observed in the global temperature data is almost linear. However there exist time intervals for which there is no augmentation of the temperature. Here, we apply a wavelet-based time-frequency analysis method on several signals (namely HadCRUT, CRUTEM, HadSST and GISS) to show that these events result from the natural variability of the climate. This method is called Wavelet-Induced Mode Exctraction (WIME) [1,2] and aims at extracting AM-FM components which compose the signal. It is inspired by the well-known Empirical Mode Decomposition (EMD [3,4]) and attempts to solve some of its drawbacks. We also provide statistical tests to validate the observations concerning the mode extracted from the temperature data.

References

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