Investigating large-scale atmospheric phenomena using complex networks and nonlinear time series analysis tools

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Climate networks defined on a regular grid of geographic locations (nodes) covering the Earth's surface, built from the analysis of statistical interdependencies of climate time series, can provide useful insights on large-scale patterns of climate variability. In this talk, I will discuss networks constructed from surface air temperature time series, using various data analysis methods including Hilbert analysis, mutual information, Granger causality and transfer entropy.

Reference:

H. A. Dijkstra, E. Hernandez-Garcia, C. Masoller and M. Barreiro, “Networks in Climate”, Cambridge University Press 2019, ISBN 9781316275757. Doi:10.1017/9781316275757