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Multifractal based Complex Network of Coherency Spectrum (M-CNetCSpec) Application to Multi-dimensional Climate Data as a Hypersurface Morphology Analysis

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The complex network approach to data analysis and modeling is currently making big strides in bridging different fields in science, geosciences included. This work introduces a now completed novel method known as a Multifractal based Complex Network of Coherency Spectrum (M-CNetCSpec). The systematic method components is based on the three main components of a complex system namely, components, interactions and emergence. System components refers, interaction is concerned with the multi-scale and non-linear decomposition technique and re-assemblage into a single adjacency matrix while emergence is concerned with the outcome of the complex network measures and their interpretation. Currently, we have worked extensively with a large dataset from the Tropical Rainfall Measuring Mission (TRMM), having wide coverage and high spatio-temporal resolution. The new insight into the exiting network propagation and structures will be presented with this work.