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## Complex networks approach for detecting tropical basin interactions

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Interaction between the tropical Pacific, Atlantic, and Indian Ocean basins is increasingly recognized as a key factor in understanding climate variability on interannual to decadal timescales. Most of the studies deal with the connection between pair of basins and less attention has been paid to analyze the degree of collective interaction among the three tropical oceans and its variability along time. In this study, we consider a complex network perspective to analyze the collective connectivity among the three tropical basins. To do so, we first construct a climate network considering as network' nodes the indices that represent the variability of the SST over the tropical Pacific, the tropical north Atlantic, the equatorial Atlantic and the tropical Indian Ocean. Then, we focus on detecting periods of maximum degree of collective connectivity (synchronization periods) using the mean network distance definition. Results show that the degree of collective connectivity among the three tropical oceans present a large multi-decadal variability and that during the observed period there were two synchronization periods: one developed over the period (1900-1935) and the other from 1975 to present. A period center in the 1950's is characterized by being the three basins uncoupled. Using this information, an analysis of background conditions in the ocean and the atmosphere has been conducted in order to elucidate causes for this change in connectivity.