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Title: Nonlinear behavior of boreal summer ISO using multivariate ESOM analysis
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Abstract:

The intraseasonal oscillation (ISO) is one of the most significant signals in the tropical atmosphere. While the strong eastward propagating ISO called as MJO is pronounced in boreal winter, the boreal summer ISO (BSISO) is dominated by northward propagation in the Indian sector. Although the tropics are linear system, the BSISO have a complex structure due to the interaction with the Asian summer monsoon. To investigate nonlinear behavior of BSISO, we applied a new methodology called as ESOM. The ESOM is combined method between EOF and SOM analysis. The EOF filters out the uncertainties from higher-order modes while the SOM distinguish meaningful pattern from nonlinear and chaotic nature. By using PC time series instead of atmospheric fields, ESOM analysis reduces the computational time and make possible to multivariate approach. It is further noted that at least 5 PCs should be included for consistency of patterns and percent variance.
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