

# Interannual variations of tropical cyclone frequency over South China Sea

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This study attempts to investigate the interannual changes of tropical cyclone (TC) frequency over South China Sea (SCS) in the different seasons of summer (May-August) and winter (September-December) during 1977-2012. The spectral analysis indicate that during the summer, there is a periodicity of 4-8 years between 1993-2003 and an obvious interdecadal signal while during the winter the periodicity of 2-8 years is dominated between 1980 and 1992. The differences of characteristic between the summer and winter is related to the role of Indian Ocean. During the winter the subtropical Indian Ocean Dipole (IOD) around 20°S induces a cyclone circulation over the North Indian Ocean that leads to a upper-level divergence and low-level cyclone with updraft over SCS that is favorable for TC formation. The impact of subtropical IOD becomes weaker during the summer, however the colder sea surface temperature still can be found in the western part of Indian Ocean. Meanwhile western North Pacific warm pool also results in an ascending flow over the SCS and enhances MJO activity there that increases the numbers of SCS TCs.

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