



The role of the ocean sub-surface in modulating Hurricane intensity

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The prediction of North Atlantic hurricane activity months in advance is of great potential societal significance. The ocean temperature, both in terms of North Atlantic averages or/and tropical averages and the heat content of the upper ocean, demonstrated to be the most reliable predictor. To investigate the relationship between the temperature of the Atlantic Ocean and the tropical cyclone activity in terms of Accumulated Cyclone Energy, we leverage on observed 1980-2015 tropical cyclone record and high horizontal (1/4 degree) and temporal (daily) resolution ocean reanalysis. The CMCC ocean reanalysis give the possibility to evaluate heat mass and momentum fluxes not only at the ocean surface but also in the sub-surface of the ocean. The applied lag analysis shows that the time evolution of the sub-surface temperature profile, provides a reliable information for the forecast of the September Accumulated Cyclone Energy since two months in advance.

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