

## Effects of Convective Momentum Transport on the Cyclones Intensity: A Case Study

**Authors :** José Davi Oliveira De Moura, Chou Sin Chan

**Abstract :** In this study, the effect of convective momentum transport (CMT) on the life of cyclone systems and their organization is analyzed. A case of strong precipitation, in the southeast of Brazil, was simulated using Eta model with two kinds of convective parameterization: Kain-Fritsch without CMT and Kain-fritsch with CMT. Reanalysis data from CFSR were used to compare Eta model simulations. The Wind, mean sea level pressure, rain and temperature are included in analysis. The rain was evaluated by Equitable Threat Score (ETS) and Bias Index; the simulations were compared among themselves to detect the influence of CMT displacement on the systems. The result shows that CMT process decreases the intensity of meso cyclones (higher pressure values on nuclei) and change the positions and production of rain. The decrease of intensity in meso cyclones should be caused by the dissolution of momentum from lower levels from up levels. The rain production and rain distribution were altered because the displacement of the larger systems scales was changed. In addition, the inclusion of CMT process is very important to improve the simulation of life time of meteorological systems.

**Keywords :** convection, Kain-Fritsch, momentum, parameterization

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