

Distribution and Interannual Variability of Tropical Cyclone Genesis over the Western North Pacific Simulated by a Regional Coupled Model—FROALS: Comparison with an Uncoupled Model

YAO Junchen^{1,2}, ZHOU Tianjun^{1,3}, and ZOU Liwei¹

1 *State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029*

2 *University of Chinese Academy of Sciences, Beijing 100049*

3 *Climate Change Research Center, Chinese Academy of Sciences, Beijing 10029*

The tropical cyclone genesis potential index (GPI) can reasonably reproduce the position and region of tropical cyclone genesis. It has been widely used as a metric to evaluate the performance of global climate models in simulating tropical cyclone genesis. In this study, the simulation of GPI over the western North Pacific (WNP) by a regional coupled model, FROALS (Flexible Regional Ocean–Atmosphere–Land System) developed by LASG (State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics)/IAP (Institute of Atmospheric Physics), was assessed and compared with a regional atmosphere model, RegCM3. The simulation bias is discussed by analyzing the five variables associated with GPI. The results show that FROALS can reproduce the spatial pattern and seasonal cycle of GPI in the WNP better than RegCM3. Compared with RegCM3, FROALS performs better in modeling the response to ENSO in the interannual variability of GPI in the WNP; this is due to the improved simulation of the intensity and interannual variability of the South China Sea monsoon trough.

Key words: Tropical cyclones, Genesis potential index (GPI), Regional coupled model FROALS, Western North Pacific (WNP)

References

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