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## Quasi-Equilibria of the Rotunno-Emanuel Tropical Cyclone Model

By Winston C. Chao

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Long-term integrations using the Rotunno-Emanuel (RE) model demonstrate that given sufficient elapsed time the weak initial vortex specified by RE can also lead to tropical cyclogenesis, albeit at a slower growth rate. Thus the RE notion of the finite-amplitude nature of tropical cyclogenesis is valid only if the period of examination is limited to the first eight days. These results also show that, if initial vortex as specified by RE is used, prior to cyclogenesis the model state does not resemble the observed pre-genesis disturbances in the sense that there is no precipitation in the center of the disturbance. Another experiment using the same model but with the initial vortex replaced by a disturbance with a different structure shows that a state resembling the observed pre-genesis disturbances can be simulated and this state can lead to spontaneous cyclogenesis, a rapid transition between two quasi-equilibria. This spontaneous cyclogenesis is associated with the generation of a new convective region at large radius and its subsequent contraction, which reminds one of the observed eye-wall replacement, but the distinction from the latter is obvious...



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