



## **Explicitly resolved mesoscale motions in high resolution global simulations**

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NASA's GEOS-5 Atmospheric General Circulation Model has been run globally at upto  $0.25 \times 0.33$  degree resolution for both climate and forecasting applications. High-resolution experiments with GEOS-5 have probed sensitivities to convective, micro-physical, and PBL parameterizations. In particular, we have found strong sensitivity at various time and spatial scales to the assumed relaxation time for parameterized atmospheric convection. For example, at the mesoscale, simulations of hurricane spin-up and intensity are seen to improve markedly when a longer convective relaxation time, i.e., weaker adjustment, is used. We will present a survey and analysis of explicitly resolved mesoscale motion in GEOS-5  $0.25 \times 0.33$  simulations ranging from hurricanes to explicitly resolved gravity waves. Where appropriate we will examine the sensitivity of these motions to changes in parameterized physics.