



## **The effect of horizontal resolution on simulation quality in the Community Atmospheric Model, CAM5.1**

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We present an analysis of version 5.1 of the Community Atmospheric Model (CAM5.1) at a high horizontal resolution. Intercomparison of this global model at approximately 0.25, 1 and 2 degrees is presented for extreme daily precipitation as well as for a suite of seasonal mean fields. In general, extreme precipitation amounts are larger in high resolution than in lower resolution configurations. In many but not all locations and/or seasons, extreme daily precipitation rates in the high-resolution configuration are higher and more realistic. The high-resolution configuration produces tropical cyclones up to category 5 on the Saffir-Simpson scale and a comparison to observations reveals both realistic and unrealistic model behavior. In the absence of extensive model tuning at high-resolution, simulation of many of the mean fields analyzed in this study is degraded compared to the tuned lower resolution public released version of the model.