



## **Comparison of parameterized convection in analyses and climate simulations**

**J. T. Bacmeister**, J. T. Bacmeister (1), P. Pegion (2), S. Schubert (3), and M. J. Suarez (3)

(1) University of Maryland, Baltimore County; (2) SAIC, (3) GMAO NASA GSFC

Atmospheric analyses do a good job of capturing a range of tropical circulation features that are not well represented in free-running climate simulations at similar resolution, e.g., tropical cyclones, Madden Julian Oscillation. In this presentation we examine the behavior of parameterized convection in the GEOS5 Data Assimilation system (DAS) and contrast it with that in free-running climate simulations using the GEOS5 global circulation model. Even in analysis mode there is clear evidence of problems in the performance of the model's convection scheme. These include an unrealistic amplitude distribution of precipitation over ocean and an unrealistic diurnal cycle of precipitation over land. Analysis tendencies from the DAS also suggest problems in the vertical distributions of convective heating and moistening. We argue that the improved performance of analyses in simulating some aspects of tropical meteorology is due to direct corrections by analysis tendencies rather than to the improved mean states seen by the model physics.