ABSTRACT

TITLE: Classification of clouds and deep convection from GEOS-5 using satellite observations

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With the increased resolution of global atmospheric models and the push toward global cloud resolving models, the resemblance of model output to satellite observations has become strikingly similar. As we progress with our adaptation of the Goddard Earth Observing System Model, Version 5 (GEOS-5) as a high resolution cloud system resolving model, evaluation of cloud properties and deep convection require in-depth analysis beyond a visual comparison. Outgoing long-wave radiation (OLR) provides a sufficient comparison with infrared (IR) satellite imagery to isolate areas of deep convection. We have adopted a binning technique to generate a series of histograms for OLR which classify the presence and fraction of clear sky versus deep convection in the tropics that can be compared with a similar analyses of IR imagery from composite Geostationary Operational Environmental Satellite (GOES) observations. We will present initial results that have been used to evaluate the amount of deep convective parameterization required within the model as we move toward cloud system resolving resolutions of 10- to 1-km globally.