



Evaluation of NWP Cloud Properties using A-Train Satellite Observations

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The goal of this study is to present results from our ongoing research that is focused on developing satellite diagnostic tools for the evaluation of NWP model forecasts of cloud macro properties (e.g., cloud type height, cloud type, horizontal and vertical structure, location, etc.) using high resolution A-Train (e.g., CloudSat, CALIPSO, MODIS, etc.) and other satellite observations. The satellite diagnostic tools have been incorporated into the NCAR Model Evaluation Toolkit (MET). The tools have the capability of ingesting A-Train satellite observations into a framework for comparisons with model products and other satellite datasets. We are currently applying the MET tool to provide assessment of forecasted cloud properties ranging from large scale stratiform systems to deep convective storms. We are evaluating the capability of NWP models to predict clouds for a variety of conditions (complex terrain, land/water, and seasonal dependency). The outcome of the analysis is to provide feedback to model developers in an effort to improve NWP models capabilities to forecast representative cloud features. We recently applied the satellite diagnostics tools to winter time forecasting experiment that was conducted in the US. The presentation will give a summary of the wintertime experiment and provide an overview of the satellite diagnostic methods developed in MET. We will also highlight some of the results obtained from our cloud climatology-NWP evaluation analysis.