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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 evaluates 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 observations (e.g., CloudSat, CALIPSO, etc.). To quantify these attributes, we utilize the NCAR Model Evaluation Tools (MET), which has the capability of ingesting A-Train satellite observations into a framework for comparisons with model products and eventually other satellite datasets. We are currently applying the MET tool to a variety of case studies ranging from large synoptic systems to tropical storms. We are also evaluating the capability of NWP model 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 the NWP models ability to forecast representative cloud features. The presentation will give a summary of the diagnostic evaluation methods that are being used in MET and will also highlight some of the results obtained from analysis of several could regimes.