

Convective Schemes and Resolution Impacts on Seasonal Precipitation Forecasts

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An investigation is carried out to determine whether there is a useful seasonal precipitation forecast over the globe from a recently updated version of the Florida State University Global Spectral Model (FSUGSM). The model is equipped with six different state-of-the-art cumulus parameterization schemes. The model's performance on seasonal quantitative forecasts of precipitation is first assessed by changing the convective schemes for each experiment. The higher resolution impacts are next investigated by increasing the model's horizontal resolution from T63 to T170 and finally T255. The predicted rainfall amounts are evaluated with respect to the TRMM satellite estimates. Results are analyzed spatially and temporally from the deterministic and probabilistic viewpoints. An improved seasonal forecast of precipitation is clearly exhibited by the FSUGSM. Overall skill scores from different schemes demonstrate similar features. However, it will be shown that there are advantages and disadvantages in each of those schemes. The impact of higher resolution forecasts turns out to be significant not only in forecast skill, but also in resolving the location and timing of mesoscale precipitation systems.