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Impact of a scale-aware cumulus parameterization in an operational NWP system modeling system

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To better understand the behavior of convective schemes across the grey zone, we carried out one-month (July of 2013) realtime-like experiment with an operational NWP system modeling system which includes the ADAS data assimilation scheme and WRF forecast model. The Grell-Freitas cumulus parameterization scheme, which is a scale-aware convective parameterization scheme and has been developed to better handle the transition in behavior of the sub-grid scale convective processes through the grey zone, was used in different resolution (15km, 9km and 3km) model set-up. Subjective and quantitative evaluations of the forecasts were conducted and the skills of the different experimental forecasts relatively to existing forecasting guidance were compared. A summary of the preliminary findings about the proportion of resolved vs unresolved physical processes in the gray zone will be presented along with a discussion of the potential operational impacts of the cumulus parameterization.