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Relative sensitivity to moist physics in regional climates

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It is well known that model results can be highly sensitive to parameterization of moist processes, but the sensitivity has seldom been compared across climate regimes. Here we test sensitivity to convective parameterization and grid-resolved microphysics in regional climate simulations using MM5. Results show that different regions have different optimal schemes, so that it is not possible to choose a single scheme that optimizes performance across the entire domain. These differences can be interpreted in light of the characteristic climate regime of each region (e.g., summer dry versus winter dry). An adaptive strategy is proposed in order to partially reconcile these discrepancies in model performance.