Evaluation of the multiple-model CORDEX-Africa hindcast experiment using the RCMES

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Recent progress in the studies on the global climate change have concluded with a high confidence level that the observed increasing trends in the global-mean surface air temperatures since the middle of the 20th century is triggered by the increase in the anthropogenic atmospheric greenhouse-gas (GHF) concentrations (IPCC Assessment Reports 1995, 2007). In the presence of the anthropogenic climate change, assessing regional impacts of the climate change and mitigating any adverse impacts have become an important concern. This has been a difficult task; the most serious difficulty comes from the uncertainties in projecting future regional climate. The Coordinated Regional Climate Downscaling Experiment (CORDEX) has organized a suite of regional climate projection experiments in which multiple RCMs and GCMs are incorporated in order to assess the uncertainties originating from model errors. Thirty-year-long regional climate hindcast results for the (CORDEX)-Africa region from 11 regional climate models (RCMs) are analyzed using the JPL Regional Climate Model Evaluation System (RCMES) through a joint effort of the investigators from UCLA, JPL, and the CORDEX-Africa team. The analysis is focused on evaluating the hindcast results of the participating regional climate models against observed data. The model evaluation will be presented in terms of widely-used statistical metrics including biases, RMSE, PDF characterizations and correlation coefficients, using the observed data and toolset in RCMES. The analysis will also evaluate the ensemble of the hindcasts from the participating regional climate models in preparation for the ensemble climate forecast experiment to follow the hindcast studies.