

Development of CWRF for regional weather and climate predictions: An application for North American CORDEX

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The CWRF has been developed on the basis of the Weather Research and Forecasting model by incorporating numerous improvements that are crucial to climate scales, including interactions between land-atmosphere-ocean, convection-microphysics and cloud-aerosol-radiation, and system consistency throughout all process modules. The CWRF improvements have been accomplished through iterative, extensive model improvements, sensitivity experiments, and rigorous evaluations over the past 8 years. As a result, the CWRF has demonstrated greater capability and better performance in simulating the U.S. regional climate than the existing CMM5 and the original WRF. The present study provides a general model description, major numerical advances, and basic skill evaluation over North America. CWRF applications for CORDEX will be demonstrated over U.S. (North American Domain) and China (East Asia domain). This poster acts as the anchor that links the CWRF as the core of the regional Earth System model, key components of which are detailed in other 5 posters: air quality (C42), terrestrial hydrology and water quality (C43), agriculture and ecosystem (C10), seasonal-interannual climate prediction (C25), and model parameterization development (C28). For a poster in Session C27: Regional Climate Downscaling and the CORDEX Program (Conveners: F. Giorgi, C. Jones). * Corresponding author address: Dr. Xin-Zhong Liang, Earth System Science Interdisciplinary Center, University of Maryland, 5825 University Research Court (Suite 4001) College Park, MD 20740. E-mail: xliang@umd.edu, Phone: 301-405-6300.