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Orographic Effects on the Evolution of African Easterly Wave-Mesoscale Convective Systems Across Africa JAMES SPINKS, WILSON JONES, YUH-LANG LIN, North Carolina A&T State University, GUOQING TANG, North Carolina State University — Effects of northern African mountains on the evolution of the Pre-Tropical Storm Debby (2006) African easterly wave-mesoscale convective system (AEW-MCS) are studied using a mesoscale numerical model. Specifically, we test the hypothesis, as proposed by previous studies, that moisture and vertical velocity played a major role in the generation and maintenance of the MCS convective cycles. With the mountains in central and western North Africa removed or the moisture reduced, we found that the embedded MCS is weakened and the convective cycles less apparent. Effects of PBL are also found to play a major role in modulating the AEW-MCS system. Both orographic and PBL effects are essential in the proper development and propagation of the AEW and its subsequent disturbances. This work is mainly supported by UCAR SOARS Program and partially supported by a grant from the National Oceanic and Atmospheric Administration, Educational Partnership Program under the cooperative agreement NA06OAR4810187.

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