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Formation of AEWs and MCSs over Eastern Africa and its Implication to Tropical Cyclogenesis over Eastern Atlantic Ocean GUOQING TANG, YUH-LANG LIN, JAMES SPINKS, WILSON JONES, NC A&T State University — The formation of African easterly waves (AEWs) and mesoscale convective systems (MCSs) in eastern North Africa and its impacts on the tropical cyclogenesis over the eastern Atlantic Ocean is studied. Based on numerical simulations using WRF model, the AEWs during the hurricane season may be generated by the orography and shear zone established by the Somali jet and anticyclonic circulation associated with the Asian monsoon to the north of the Ethiopian Highlands (EH) and Red Sea. The WRF is employed to simulate the pre-hurricane AEW-MCS system of Tropical Storm Debby (2006) near the EH. Finer-resolution numerical simulations demonstrate that the vortex generated on the lee and MCS over the mountain eventually merge and become an AEW-MCS system serving as a precursor of tropical cyclone. The larger-scale environments conducive to the formation of the AEW-MCS system are also investigated.

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