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Orographic Effects on the Evolution of AEW-MCSs Across Northern Africa JAMES SPINKS, WILSON JONES, YUH-LANG LIN, GUO-QING TANG, NC A&T State University — The pre-development period of Tropical Storm Debby (2006) initially formed over the Ethiopian Highlands (EH) region is studied in conjunction with the African easterly wave (AEW) disturbance and the embedded mesoscale convective systems (MCS). Based on infrared satellite imagery and numerically simulated results, several convective genesis and lysis periods are identified. With the mountains in central and western North Africa replaced by flat terrains, we found that the embedded MCS is weakened and the convective cycles less apparent. Similar effects are found with the reduced moisture content. It is found that the PBL effects and moisture availability are important for maintaining AEW-MCS system as it travels to the west and supporting sufficient moisture by allowing for surface moisture fluxes to affect these systems and aid in convective development. The AEW is slightly modulated by orography downstream from the EH region. Both the EH region and the PBL effects are essential in the proper development and propagation of the AEW and its subsequent disturbances.

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