



A comparative study of warm season precipitation occurrence over Africa, Australia, East Asia, Europe and the United States

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Recent studies related to warm season precipitation occurrence have revealed complex spatial and diurnal patterns. These studies have employed high resolution datasets from radar and/or geostationary satellites, in the latter case using infrared brightness temperature as a proxy for precipitation occurrence.

Occurrence patterns associated with local air mass convection, sea and land breezes, mesoscale convective systems, and longer-lived propagating “episodes” are prominent among the phenomena observed or inferred. Regional attributes of the diurnal cycle are consistent with the influences of topography, solenoidal circulations and low level jets, all in a background of transient synoptic disturbances.

We review occurrence patterns within and among the five continents studied and we offer plausible explanations for the major features observed. Combined local and remote forcings appear to yield complex net diurnal cycles, which vary considerably on a regional scale.