

Interannual variability of shallow convective organization over the tropical Atlantic

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Shallow clouds in the trade-wind regions exhibit a large range of mesoscale organizations. Using high-frequency geostationary satellite data and a clustering analysis, we characterize shallow convective organizations over the tropical Atlantic during winter. We analyze the diversity and the variability of mesoscale organizations at the interannual timescale, and investigate their correlation with large-scale environmental conditions such as temperature, humidity and atmospheric circulation. Then, using active remote sensing observations from the A-Train constellation of satellites, we investigate whether for given boundary conditions, different mesoscale organizations of shallow clouds are associated with differences in mean precipitation, cloudiness and radiation at the large-scale. The implications of these findings for climate will be discussed.