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Trade-wind clouds can exhibit different patterns of mesoscale organization. These patterns were observed during the EUREC⁴A (Elucidating the role of cloud-circulation coupling in climate) field campaign that took place in Jan-Feb 2020 over the western tropical Atlantic near Barbados: while the HALO aircraft was observing clouds from above and was characterizing the large-scale environment with dropsondes, the ATR-42 research aircraft was flying in the lower troposphere, characterizing clouds and turbulence with horizontal radar-lidar measurements and in-situ probes and sensors. By analyzing these data for different cloud patterns, we investigate the extent to which the cloud organization is imprinted in cloud-base properties and subcloud-layer heterogeneities. The implications of our findings for understanding the roots of the mesoscale organization of tradewind clouds will be discussed.