

# **Seasonal and inter-annual differences in TTL cirrus cloud distributions and qualities between the ATTREX III (Feb-March 2014) and POSIDON (October 2016) time periods, as observed by instruments on CALIPSO**

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Abstract:

We compare and contrast Western Pacific cirrus cloud geometric and optical properties as observed by the CALIPSO lidar and IR radiometer during the ATTREX III and POSIDON time periods. While the ATTREX III and POSIDON aircraft field missions both took place from Guam in the Western Pacific, there were striking differences between the amount, geographical distribution and properties of cirrus clouds and aerosols in the Tropical TTL. In addition to cloud amount and location, we present geometric properties, including cloud top height, transparent cloud and aerosol layer thickness and 532 nm backscatter centroid. We also find and present differences in the distribution of cirrus cloud optical and microphysical properties between the two missions, as detected from space.