

Meteorological Drivers of Cold Temperatures in the Western Pacific TTL

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During the recent October 2016 aircraft sampling mission of the Tropical Tropopause Layer (POSIDON -- Pacific Oxidants, Sulfur, Ice, Dehydration, and cONvection), western Pacific October TTL temperatures were anomalously cold due to a combination of La Nina conditions and a very stationary convective pattern. POSIDON also had more October Tropical Cyclones than typical, and tropical cyclones have substantial negative TTL temperatures associated with them.

This paper investigates how meteorology in the troposphere drives TTL temperatures, and how these temperatures, coupled with the circulation, produce TTL clouds. We will also compare October TTL cloud distributions in different years, examining the relationship of clouds to October temperature anomalies.