



Convective Transport of Trace Gases in the Maritime Continent

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Passage of air through the Tropical Tropopause Layer (TTL) is the major route for troposphere to stratosphere transport. The UK CAST (Co-ordinated Airborne Studies in the Tropics) campaign took place in the West Pacific in January/February 2014. The field campaign was based mainly in Guam (13.5°N, 144.8°E) and had three components: CAST with the NERC FAAM BAe-146 research aircraft; the NASA ATTREX project based around the Global Hawk; the NCAR-led CONTRAST campaign based around the Gulfstream V (HIAPER) aircraft. Together, these aircraft were able to make detailed measurements of atmospheric structure and composition from the ocean surface to 20 km. The CAST team also made ground-based and ozonesonde measurements at the ARM site on Manus Island in Papua New Guinea during February 2014, and halocarbon measurements were made at several West Pacific sites.

I will present an overview of the CAST campaign along with the results of high resolution global Unified Model studies and NAME (Numerical Atmospheric-dispersion Modelling Environment) trajectory calculations to look at the transport of air into the TTL in convective systems over the Maritime continent and West Pacific. I will focus on the transport of air from in and around the boundary layer and will assess the possible importance of natural and anthropogenic emissions for TTL composition.