Hundreds of organic species are emitted into the atmosphere mostly from biogenic processes. The rapid breakdown by reactions with OH radicals prevents most of them from reaching the stratosphere. Hence, the omnipresent layer of OH in the troposphere shields the stratosphere from these emissions and is particularly relevant for those species that do not photolyse efficiently. The dominant source of OH in clean tropical air are reactions involving ozone. Hence the OH concentration is closely coupled to ozone abundances. Biogenic halogenated species play an important role in the stratospheric ozone chemistry and potential climate change induced changes in their abundance and tropospheric breakdown provide an ozone climate feedback mechanism.

The Western Pacific warm pool is key for troposphere to stratosphere exchange. Measurements from the south east edge of the warm pool showed extremely low ozone concentrations in the marine boundary layer and at tropopause level (Kley et al., Science, 1996; Solomon et al., GRL, 2005) but still significant amounts of ozone in the free troposphere, where most of the oxidation of biogenic species occurs.

We report measurements of 14 ozonesondes launched during the Transbrom ship cruise through the center of the Western Pacific warm pool in October 2009. During a 2500km portion of the ship track between 10S and 15N we found ozone concentrations below the detection limit of the sondes throughout the troposphere. The reasons for these observations, their implications for OH concentrations and consequences for the tropospheric lifetimes of biogenic species in that key geographical area will be discussed.