

KEYNOTE: Atmospheric Chemical Composition, Climate, and Societal Implications

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Global atmospheric concentrations of greenhouse gases and aerosols are significantly under human control, affecting climate, ecosystems, and key atmospheric chemical processes. This talk discusses global and regional measurements in two major aircraft campaigns: HIAPER Pole-to-Pole Observations program (“HIPPO”, sponsored by NSF and NOAA) and CalNEX (sponsored by NOAA and CARB), and explores the synergy between ground-based, aircraft, and satellite measurements. All of these types of observations, made with exquisite quality control and constant improvements, are needed to disentangle the diverse influences on the global atmosphere. We explore some of the new information on the drivers of long-term changes in the global atmosphere that has emerged recently, emphasizing emissions and large-scale environmental change in the US and in tropical and arctic regions.



Figure 1. The equatorial Pacific Intertropical Convergence Zone (ITCZ).