Geophysical Research Abstracts
Vol. 15, EGU2013-8481, 2013
EGU General Assembly 2013

The first regular measurements of ozone and carbon monoxide in the Pacific UTLS taken by IAGOS

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We present the features seen in the first six months of data collected over the Pacific by IAGOS (In-service Aircraft for a Global Observing System) equipped aircraft. IAGOS is the continuation and development of the well known MOZAIC (Measurement of Ozone and Water Vapour on Airbus in-service Aircraft) project where scientific instruments were carried on commercially operated A340 aircraft to make measurements of chemical species in the atmosphere. Here, we show data from an aircraft operated by China Airlines on routes from Taipei to Vancouver, which provided the first trans-Pacific measurements of ozone and carbon monoxide by IAGOS equipped aircraft. We describe the chemical composition of the extratropical UTLS across the Pacific basin in the northern hemisphere. The observed concentrations of ozone span a range from 18 to 500ppbv indicating sources in the marine boundary layer and lowermost stratosphere. Concentrations of carbon monoxide > 400ppbv are observed in the UTLS suggesting that plumes of pollution have been exported from Eurasia and crossed the Pacific Ocean. These extreme concentrations of ozone and CO were rarely recorded in 8 years of MOZAIC observations over the Atlantic.