Data set name: NOAAFlasks_MLO

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1.0 Data Set Description

Introduction: This file contains measurements of trace gases from flasks collected at the Mauna Loa Observatory in Hawaii by NOAA during the period of TI3GER campaign. These samples are regularly collected as part of NOAA's ongoing monitoring of atmospheric composition at this site. Most flasks were analyzed on two separate instruments operated by GML's Halocarbon and Atmospheric Trace Species Division and the Carbon Cycle Greenhouse Gas Division.

Data Version: see .itc file

Data Status: see .itc file

Time period covered: from 30 March 2022 to 30 April 2022.

Physical Location: on MLO trace gas sampling tower (see .itc file for more info)

Data Frequency: variable

Data Source: n/a

Data set restrictions: none other than scientific courtesy of notification of the PI when the data is used.

2.0 Instrument Description

Trace gases are measured on a gas chromatograph with mass spectrometric detection. For additional details contact the PI and see paper at: DOI:10.1029/93GL00753. CO2, CH4, N2O, SF6, H2, and CO are measured by a multi-detection system operated by the Carbon Cycle Division of NOAA (see: https://gml.noaa.gov/ccgg/). Accuracy varies with compound as does precision. Data for choro compounds are reported even though they are below the detection limit

3.0 Data Collection and Processing

Samples collected every other day at approximately 15:20 UTC were pressurized to 40 psia in two simultaneously filled glass flasks with an automated sampling apparatus. Samples collected throughout the day on the 13$^{th}$ to 14$^{th}$ of April were automatically sampled in individual glass flasks. Flasks collected weekly but later in the day (20:00-23:00 UTC) were filled to 40 psia into two electropolished stainless steel flasks. Results reported from glass flasks are from a single aliquot, while for the weekly-sampled stainless steel flasks the reported result is from the average of two aliquots of air from the flask.

Results obtained from the analysis of each flask are found for each compound in the .itc file. Results are reported as dry-air mole fractions except for 1,1-dichloroethane, which is reported as a ratio to a reference scale and is not a dry-air mole fraction. Flasks are often collected simultaneously, and in these cases the time stamp associated with the two flasks is assigned a difference of 0.5 seconds.
No derived parameters are included in the .itc results file.

4.0 Data Format

Data are in the standard .itc format. See file for detailed information.

## 5.0 Data Remarks

Data are of a similar quality as other ongoing data collected and reported by NOAA/GML, with very few missing or anomalous results. Note that results for chloroiodo methan and di-iodo methane are reported even though all results were below the instrument detection limit. Precision associated with the reported analysis can be estimated from the differences reported for simultaneously-filled flasks.

## 6.0 References

Montzka, S.A., R.C. Myers, J.H. Butler, J.W. Elkins, and S.O. Cummings, Global tropospheric distribution and calibration scale of HCFC-22, Geophys Res. Lett., 20, 703-706, 1993. (DOI:10.1029/93GL00753)

## 7.0 Appendix

Keywords:
Atmospheric chemistry/carbon and hydrocarbons compounds
Atmospheric chemistry/halcoarbons and halogens
Atmospheric chemistry/sulfur compounds
Atmospheric chemistry/trace gases/trace species