Initial Results from the International Halocarbon in Air Comparison Experiment (IHALACE)

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Chlorofluorocarbons and other halocarbons contribute to stratospheric ozone loss and can have large global warming potentials. Measurements of halocarbons and related compounds are being conducted by a number of groups in order to assess sources and sinks and to help verify the effectiveness of international treaties, such as the Montreal Protocol on Substances that Deplete the Ozone Layer. Many of these measurements are reported on independent calibration scales. Formal, well-established relationships between all major calibration scales have not been determined. Comparisons to date have been limited to bilateral experiments, exchange of data from co-located sampling sites, and a few limited round robin experiments. There is no formal international program for comparison or data quality management such as that for carbon dioxide. The International Halocarbon in Air Comparison Experiment (IHALACE), sponsored by NASA, World Meteorological Organization/Global Atmospheric Watch (WMO/GAW), and NOAA, involved the circulation of air samples in stainless steel cylinders among twenty one laboratories in nine countries from 2004-2007. Although the primary focus was on CFCs and related compounds, other trace gases, such as Nitrous Oxide (N_2O) and Sulfur Hexafluoride (SF_6) were also included. Preliminary IHALACE results will be presented.

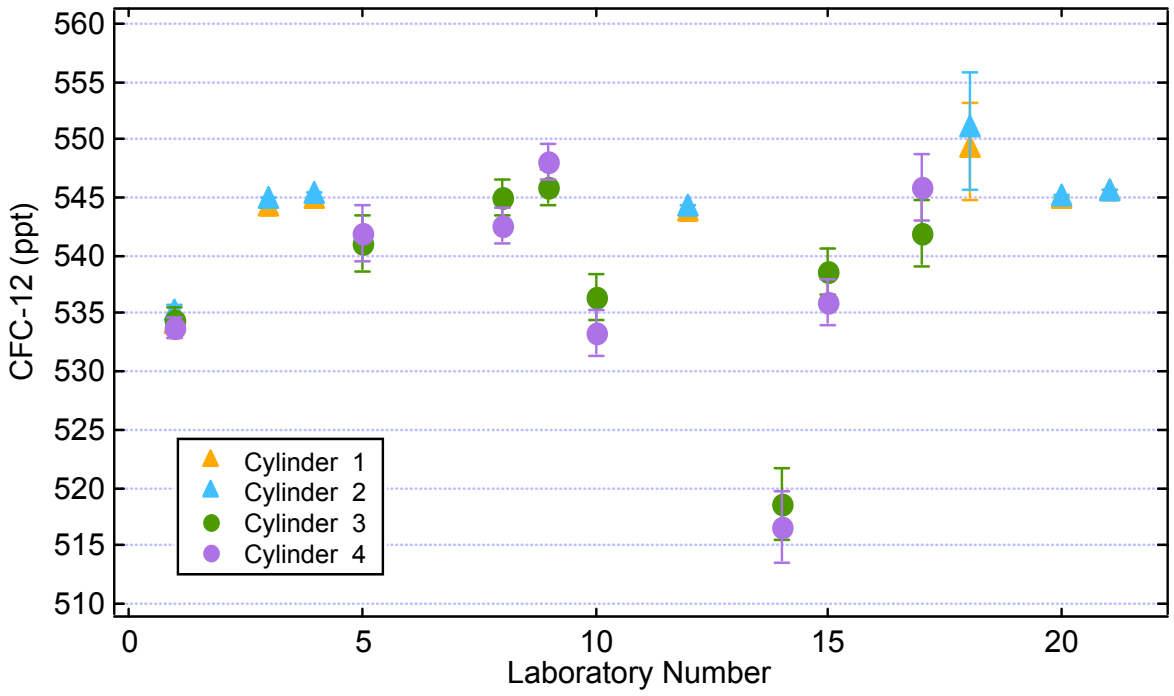

Figure 1. CFC-12 results reported from fourteen laboratories. Each laboratory received two cylinders containing background tropospheric air, hence two results were reported for each laboratory. NOAA ESRL served as the coordinating lab and analyzed all four cylinders.