

Halocarbon Intercomparison Workshop

On 4 February, 2008, thirty-five scientists from seven nations countries gathered in London at the Novartis Institute to discuss the need for an international effort that would ensure traceability of marine measurements of short-lived, volatile halocarbons to a common calibration scale. The need for this workshop was driven by the recognition that, although many measurements of these gases have been made in the atmosphere and ocean, they cannot always be relied upon to draw distinctions in regional or temporal trends beyond those ascribing nearly order-of-magnitude differences. Most studies in the past have focused on local phenomena or have relied on the results from single expeditions. Efforts to put these results together into a common data base could be to naught, in that, without ensuring common calibration scales, the combined data would likely yield incorrect information owing mainly to differences in calibration. Efforts to model the air-sea flux, transport, and transformation of these compounds depends upon appropriate intercalibration.

The role of these short-lived halocarbons in atmospheric chemistry has become increasingly recognized in recent years as scientists understand more clearly both stratospheric ozone depletion and tropospheric oxidation. The first of these issues affects the amount of erythemal radiation striking the earth and the second influences the ability of the atmosphere to cleanse itself. Ultimately, both are human health issues.

The schedule was aimed at determining the scope of the scientific need, identifying which compounds should be targeted for the greatest scientific benefit, identifying opportunities for beginning calibration and comparison efforts, and prescribing a way forward for improving the comparability of measurements.

Discussions included the need for global, yet comparable, halocarbon datasets, the scientific importance of these observations, the lack of understanding of the variability of these compounds due to the measurement uncertainties, methods and potential intercalibration techniques, and the needs of the modeling community expressed in terms of the detection limitations of the instrumentation.

The participants decided that several approaches could be taken to begin comparisons as soon as possible, while developing a longer-term calibration scale. This would ensure that measurements become coordinated quickly and with some sense of agreement with regard to calibration, while time is taken to develop a more permanent scale.

Future directions include: an analysis of long-term calibration techniques, distribution and sharing of equipment amongst members of the community, identification of resources to support observational and intercalibration efforts, and the development of an article to be developed for the peer-reviewed literature that outlines the scientific rationale and goals of the group

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