

## **An update of comparisons of non-CO<sub>2</sub> trace gas measurements between AGAGE and NOAA at common sites**

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Three dimensional atmospheric model studies that estimate global and regional emissions of greenhouse and ozone depleting gases often require data from more than one network's group of stations. It is therefore important to be able to accurately merge atmospheric trace gas data sets from different laboratories and networks, which may use different calibration scales and different measurement techniques. To facilitate this, on-going comparisons of in situ data with independent flask and/or in situ data collected at common sites are useful as they are sensitive diagnostic tests of data quality for the laboratories involved, and they provide a basis for merging these data sets with confidence.

For the past 15+ years comparisons (now more than 400 individual comparisons) of non-CO<sub>2</sub> greenhouse gases (now totalling more than 45 species) have been carried out twice yearly and presented at meetings of Advanced Global Atmospheric Gases Experiment (AGAGE) scientists and Cooperating Networks. The majority of these comparisons are between AGAGE in situ (primarily using SIO calibration scales) and NOAA flask data from the Halocarbons and other Atmospheric Trace Species (HATS) and Carbon Cycle Greenhouse Gas (CCGG) groups at NOAA/ESRL. The six common measurement sites are: Cape Grim, Australia; Cape Matatula, American Samoa (includes some NOAA in situ data); Ragged Point, Barbados; Trinidad Head, USA; Mace Head, Ireland; and Zeppelin, Norway.

This presentation will give an update of the comparisons presented at GGMT-2015 (La Jolla, USA) summarising the methodology and resultant output, with detailed results from selected comparisons, including the results from the new N<sub>2</sub>O scales. A summary of the overall level of agreement, the so called 'scale conversion factors', between AGAGE and NOAA data/scales based on the comparisons from the field sites for a range of species will be given.