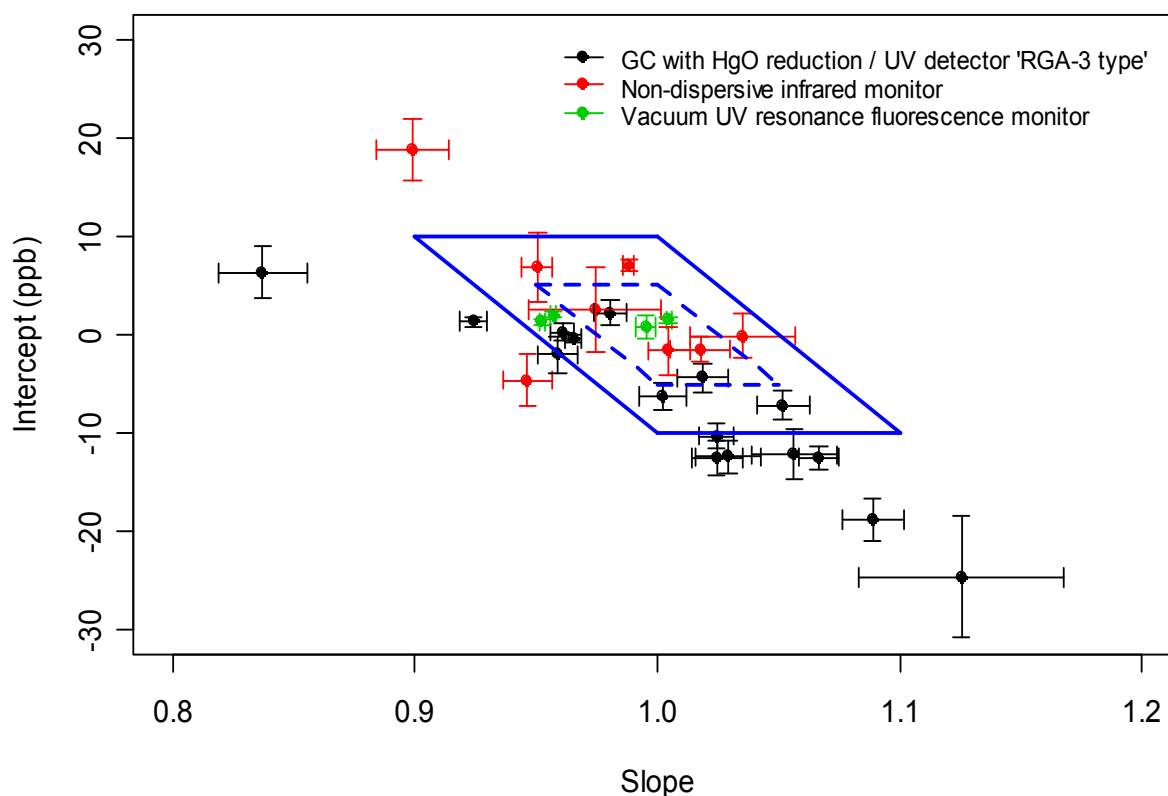


## The WMO-GAW World Calibration Centre for Surface Ozone, Carbon Monoxide and Methane: Activities during the Last 10 Years with a Focus on Carbon Monoxide

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Empa operates the World Calibration Centre for Surface Ozone, Carbon Monoxide and Methane (WCC-Empa) within the Global Atmosphere Watch (GAW) Program. WCC-Empa has the responsibility to ensure traceability of these measurements at GAW sites to the GAW references maintained by the Central Calibration Laboratories (CCL). A total of 41 audits (28 for carbon monoxide) at 18 different GAW stations were conducted since 1996. The figure below shows slope / intercept pairs of station analyzers vs. WCC-Empa traveling standards for carbon monoxide audits conducted since 1997 based on the NOAA ESRL WMO-2000 carbon monoxide calibration scale (1) for the WCC-Empa standards. Significant differences were observed for different measurements techniques, with a tendency of the GC/HgO instruments to negative intercept – positive slope combinations. These results will be discussed with respect to instrument calibration and calibration scale issues.



**Figure 1.** Plot of intercept versus slope for carbon monoxide audits conducted at Global GAW sites by WCC-Empa between 1997 and 2006 for different measurement techniques. The intercept / slope pairs are referenced against the WCC-Empa CO standard (calibrated traveling standard, WMO-2000 CO scale). The rhomboids displayed cover the range of slope-intercept combinations for a maximum of 5 ppb (dashed line) and 10 ppb (solid line) bias for the concentration range 0-200 ppb CO.

Reference: (1) Novelli et al., JGR, 108, 2003