

IMPROVEMENTS IN THE CARBON DIOXIDE AND METHANE CONTINUOUS MEASUREMENT PROGRAMS AT IZAÑA GLOBAL GAW STATION (SPAIN) DURING 2007-2009

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Continuous in-situ measurements of atmospheric CO₂ and CH₄ have been carried out at Izaña Global GAW station (Tenerife, Spain) since 1984. In the present report, we briefly summarize some improvements done in those programs during 2007-2009. Firstly, we deal with the CO₂ program. In January 2007, we installed a new NDIR analyzer (Li-7000), which became our main CO₂ analyzer. The instrumental system is briefly described, additionally to the acquisition/control software and raw data processing numerical code, which have been developed by us. Some details are provided about the processes used to transfer the WMO scale to the atmospheric CO₂ measurements, together with the instrumental response function used, its determination and uncertainty. We perform an uncertainty propagation analysis, *obtaining a standard uncertainty of 0.035 ppm for the consistency of our atmospheric CO₂ measurements with the WMO-X2005 CO₂ scale*. Secondly, the CH₄ program is considered. The new numerical codes developed by us to integrate peak area and to process calibrations are very briefly described. Finally, our intercomparison activities are mentioned.

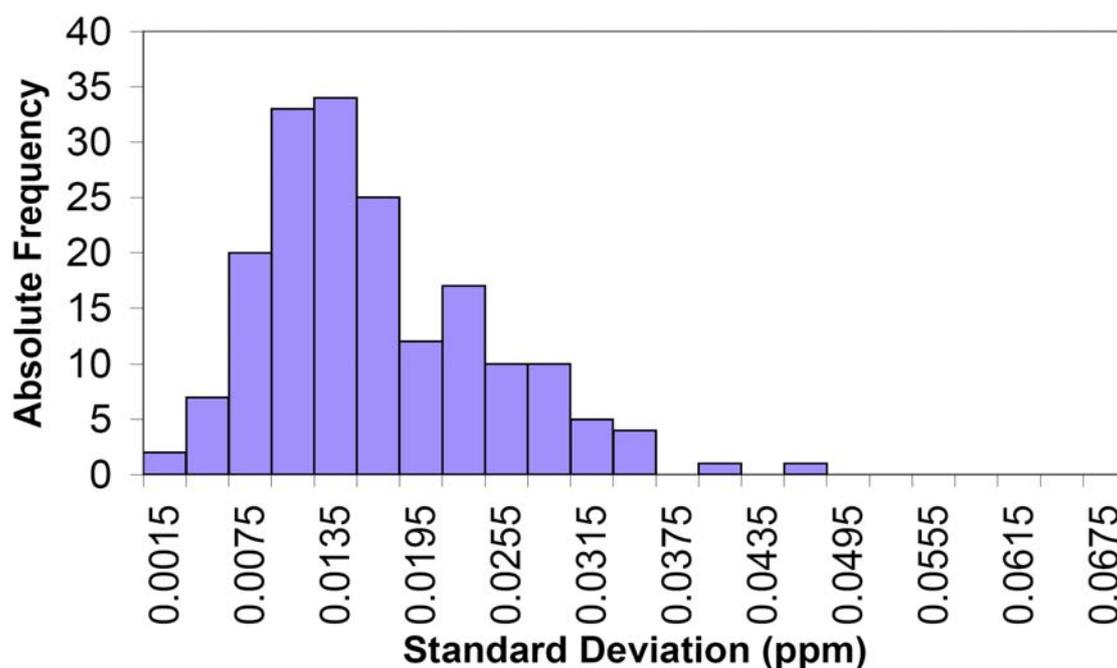


Figure 1. Histogram with the empirical standard deviations of the working standards, obtained during the calibrations of them against the laboratory standards, for the period February 2007 – April 2009 (median: 0.015 ppm; 68th percentile: 0.019 ppm).