GAW World Calibration Centre (WCC) for Methane
and
Quality Assurance/Science Activity Centre (QA/SAC)
in Asia and the South-West Pacific

Methane Reference Gas Intercomparison for the South-West Pacific from 2013 to 2014
Technical Details on Laboratory Measurements

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

1. Information on contributors

(1) Contributors: L.P. Steele, R.L. Langenfelds, P.B. Krummel, and R. Gregory

(2) Organization: Centre for Australian Weather and Climate Research / CSIRO Marine and Atmospheric Research, Aspendale, Victoria, Australia

2. Information on instrument

(1) Analytical method: Gas Chromatography (FID)

(2) Manufacturer: CARLE (now EG&G)

(3) Model: Series 400

3. Information on sampling

(1) Sampling volume: 2 ml

(2) Carrier gas: Helium (ultra high purity)

(3) Flow rate: 40 ml/min

(4) Temperature of the oven: 65 ^{o}C

4. Information on the main column

(1) Diameter: 1/8" O.D.

(2) Length: 3.5 feet

(3) Material: Stainless steel

5. Information on column packings

(1) Trade name: Molecular Sieve 5A

(2) Mesh: 80/100

6. Information on standard gas

(1) Number of standard gases: 30+

(2) Mole fraction of standard gases: 300-1850 ppb CH_4-in-air

(3) Scale: NOAA04 CH_4 Scale

7. Other information (references, papers, literatures, etc.)

Francey, R.J., L.P. Steele, R.L. Langenfelds, M.P. Lucarelli, C.E. Allison, D.J. Beardsmore, S.A. Coram, N. Derek, F.R. deSilva, D.M. Etheridge, P.J. Fraser, R.J. Henry, B. Turner, E.D. Welch, D.A. Spencer and L.N. Cooper. Global Atmospheric Sampling Laboratory

(GASLAB): supporting and extending the Cape Grim trace gas programs. Baseline Atmospheric Program (Australia) 1993, edited by R.J.Francey, A.L.Dick and N.Derek, Bureau of Meteorology and CSIRO Division of Atmospheric Research, Melbourne, 8-29, Australia, 1996.

Langenfelds, R.L., R.J. Francey, B.C. Pak, L.P. Steele, J. Lloyd, C.M. Trudinger and C.E. Allison, Interannual growth rate variations of atmospheric CO_2 and its $\delta^{13}C$, H_2, CH_4 and CO between 1992 and 1999 linked to biomass burning, Global Biogeochem. Cycles, 16(3), 1048, doi:10.1029/2001GB001466, 2002.

Steele, L.P., R.L. Langenfelds, M.P. Lucarelli, P.J. Fraser, L.N. Cooper, D.A. Spencer, S. Chea and K. Broadhurst. Atmospheric methane, carbon dioxide, carbon monoxide, hydrogen and nitrous oxide from Cape Grim flask air samples analysed by gas chromatography. Baseline Atmospheric Program (Australia) 1994-95, edited by R.J.Francey, A.L.Dick and N.Derek, Bureau of Meteorology and CSIRO Division of Atmospheric Research, Melbourne, Australia, 107-110, 1996.