



**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**

**National Institute of Water & Atmospheric Research Ltd. (NIWA)**

*1. Information on contributors*

- (1) Contributors: Gordon Brailsford and Rowena Moss
- (2) Organization: National Institute of Water & Atmospheric Research Ltd., New Zealand

*2. Information on instrument*

- (1) Analytical method: Gas Chromatography (FID)
- (2) Manufacturer: Hewlett Packard
- (3) Model: 5890 series II

*3. Information on sampling*

- (1) Sampling volume: 3 ml
- (2) Carrier gas: Instrument grade Nitrogen (in-house generator)
- (3) Flow rate: 30 ml/min
- (4) Temperature of the oven: 100 °C

*4. Information on the main column*

- (1) Diameter: 3.18 mm O.D.
- (2) Length: 1.83 m
- (3) Material: Stainless steel

*5. Information on the pre column*

- (1) Diameter: 3.18 mm O.D.
- (2) Length: 300 mm
- (3) Material: Stainless steel

*6. Information on column packings*

- (1) Trade name: Molecular Sieve 5A
- (2) Mesh: 80/100

*7. Information on standard gas*

- (1) Number of standard gases: 3
- (2) Mole fraction of standard gases: 1367.83, 1826.94 and 1969.86 ppb CH<sub>4</sub>-in-air
- (3) Scale: NOAA04 Scale
- (4) 3 gases used at time of measurement are calibrated at NOAA

*8. Other information (references, papers, literatures, etc.)*

Lowe, D.C., W. Allan, M.R. Manning, A.M. Bromley, G.W. Brailsford, D.F. Ferretti, A. Gomez, R.K. Knobben, R.M. Martin, M. Zhu, R. Moss, K. Koshy, and M. Maarta, Shipboard determinations of the distribution of  $^{13}\text{C}$  in atmospheric methane in the Pacific, *Journal of Geophysical Research*, 104 (D21), 26,125-26,135, 1999.

Lowe, D.C., C.A.M. Brenninkmeijer, G.W. Brailsford, K.R. Lassey, A.J. Gomez, and E.G. Nisbet, Concentration and  $^{13}\text{C}$  records of atmospheric methane in New Zealand and Antarctica: Evidence for changes in methane sources, *Journal of Geophysical Research*, 99 (D8), 16,913-16,925, 1994.