



**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  
in 2003  
Technical Details on Laboratory Measurements**

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

*1. Instrument*

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

*2. Sampling*

- (1) Sampling volume: 5 ml
- (2) Carrier gas: Instrument grade Nitrogen
- (3) Flow rate: 40 ml/min
- (4) Temperature of the oven: 100 °C

*3. Main column*

- (1) Diameter: 1/8" O.D.
- (2) Length: 6 feet
- (3) Material: Stainless steel

*4. Column packings*

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

*5. Standard gas*

- (1) Number of standard gases: 4
- (2) Concentration of standard gases: 900-3900 ppb CH<sub>4</sub>-in-air
- (3) Scale: NIST (cross calibrated to NOAA/CMDL with ratio NOAA/CMDL to NIWA of 0.986)

*6. References*

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 <sup>13</sup>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.