



**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 Japan from 2009 to 2010  
Technical Details on Laboratory Measurements**

**Japan Meteorological Agency (JMA)**

*1. Information on contributors*

- (1) Contributors: Keiji HAMADA, Atsuya KINOSHITA
- (2) Organization: Japan Meteorological Agency, Japan

*2. Information on instrument*

- (1) Analytical method: Gas Chromatography (FID)
- (2) Manufacturer: SHIMADZU
- (3) Model: Series GC-14BPF

*3. Information on sampling*

- (1) Sampling volume: 10 ml
- (2) Carrier gas: Nitrogen (ultra high purity)
- (3) Flow rate: 50 ml/min
- (4) Temperature of the oven: 70°C

*4. Information on the main column*

- (1) Diameter: 3 mm
- (2) Length: 4 m
- (3) Material: stainless steel

*5. Information on column packings*

- (1) Trade name: Molecular Sieve 5A
- (2) Mesh: 60/80

*6. Information on standard gas*

- (1) Number of standard gases: 5
- (2) Concentration of standard gases: 1622, 1750, 1867, 1983, 2109 ppb
- (3) Scale: NOAA04 Scale CH<sub>4</sub>-in-air

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

- Aoki, S., T. Nakazawa, S. Murayama and S. Kawaguchi, Measurements of atmospheric methane at the Japanese Antarctic station, Syowa, Tellus, Ser. B, 44, 273-281, 1992
- Matsueda, H., Intercalibration experiment of methane standard gas scale between NOAA/CMDL and MRI/GRL, Papers in Meteorology and Geophysics, 44, No.2, 45-56,

1993.

Matsueda, H., Y. Sawa, A. Wada, H.Y. Inoue, K. Suda, Y. Hirano, K. Tsuboi and S. Nishioka, Methane standard gases for atmospheric measurements at the MRI and JMA and intercomparison experiments, *Papers in Meteorology and Geophysics*, 54, 91-109, 2004.