



**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 Asia from 2014 to 2016  
Technical Details on Laboratory Measurements**

**Japan Meteorological Agency (JMA)**

*1. Information on contributors*

- (1) Contributors: Teruo Kawasaki and Takanori Matsumoto
- (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) Mole fraction of standard gases: 1611.38, 1760.21, 1897.75, 2030.01, 2164.63 ppb
- (3) Diluent gas: Purified air
- (4) Scale: WMO X2004A Scale

*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.
- Tsuboi, K., H. Matsueda, Y. Sawa, Y. Niwa, M. Takahashi, S. Takatsuji, T. Kawasaki, T. Shimosaka, T. Watanabe, and K. Kato (2016), Scale and stability of methane standard gas in JMA and comparison with MRI standard gas, *Pap. Meteorol. Geophys.*, 66, 15-24, doi:10.2467/mripapers66.15.