



**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 2015 to 2016  
Technical Details on Laboratory Measurements**

**Meteorological Research Institute (MRI)**

*1. Information on contributors*

- (1) Contributors: Dr. Hidekazu MATSUEDA
- (2) Organization: Meteorological Research Institute

*2. Information on instrument*

- (1) Analytical method: Cavity Ring Down Spectroscopy
- (2) Manufacturer: Picarro
- (3) Model: G2301

*3. Information on sampling*

- (1) Flow rate: 100ml/min

*4. Information on measuring*

- (1) One measurement: 10 min continuous sampling (discard first 9 minutes data)/per measurement
- (2) Mole fractions: average values of the last one minute data

*5. Information on standard gas*

- (1) Number of standard gases: 5
- (2) Mole fraction of standard gases: 1598.7, 1724.2, 1850.5, 1975.6, 2102.1 ppb
- (3) Diluent gas: Purified air
- (4) Scale: MRI Scale

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

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.

Dlugokencky, E.J., R.C. Myers, P.M. Lang, K.A. Masarie, A.M. Croswell, K.W. Thoning, B.D. Hall, J.W. Elkins, and L.P. Steele, Conversion of NOAA atmospheric dry air CH<sub>4</sub> mole fractions to a gravimetrically prepared standard scale, Journal of Geophysical Research, 110, 2005.

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.