6. 参考文献

Baer, D. S., J. B. Paul, M. Gupta, and A. O'Keefe (2002), Sensitive absorption measurements in the near-infrared region using off-axis integrated-cavity-output spectroscopy, *Appl. Phys. B*, doi:10.1007/s00340-002-0971-z.

Brenninkmeijer, C. A. M., R. Müller, P. J. Crutzen, D. C. Lowe, M. R. Manning, R. J. Sparks, and P. F. J. van Velthoven (1996), A large ^{13}CO deficit in the lower Antarctic stratosphere due to "ozone hole" chemistry: Part I, observations, *Geophys. Res. Lett.*, *23*(16), 2125-2128.

Brenninkmeijer, C. A. M. et al. (2007), Civil Aircraft for the regular investigation of the atmosphere based on an instrumented container: The new CARIBIC system, *Atmos. Chem. Phys.*, *7*, 4953-4976.

Cammas, J.-P., and A. Volz-Thomas (2007), The MOZAIC program (1994-2007), *IGACtivities Newsletter*, *No.37*, 10-17.

Chen, H., J. Winderlich, C. Gerbig, A. Hoefer, C. W., Rella, E. R. Crosson, A. D. Van Pelt, J. Steinbach, O. Kolle, V. Beck, B. C. Daube, E. W. Gottieb, V. Y. Chow, G. W. Santoni, and S. C. Wofsy (2010), High-accuracy continuous airborne measurements of greenhouse gases (CO_2 and CH_4) using the cavity ring-down spectroscopy (CRDS) technique, *Atmos. Meas. Tech.*, *3*, 375-386.

Coplen , T. B., J. K. Böhlke, P. De Bièvre, T. Ding, N. E. Holden, J. A. Hopple, H. R. Krouse, A. Lamberty, H. S. Peiser, K. Revesz, S. E. Rieder, K. J. R. Rosman, E. Roth, P. D. P. Taylor, R. D. Vocke, Jr. and Y. K. Xiao (2002), Isotope-abundance variations of selected elements (IUPAC Technical Report), *Pure Appl. Chem.*, *74*, 1987–2017.

Crosson, E. R. (2008), A cavity ring-down analyzer for measuring atmospheric levels of methane, carbon dioxide, and water vapor, *Appl. Phys.*, *B92*, 403-408.

Dlugokencky, E. J., R. C. Myers, P. M. Lang, K. A. Masarie, A. M. Crotwell, K. W. Thoning, B. D. Hall, J. W. Elkins, and L. P. Steele (2005), Conversion of NOAA atmospheric dry air CH_4 mole fractions to a gravimetrically prepared standard scale. *J. Geophys.Res.*, *110*, D18306, doi:10.1029/2005JD006035.

Gerbig, C., S. Schmitgen, D. Kley, and A. Volz-Thomas (1999), An improved fast-response vacuum-UV resonance fluorescence CO instrument, *J. Geophys. Res.*, *104*(D1), 1699-1704.

Hall, B. D., G. S. Dutton, and J. W. Elkins (2007), The NOAA nitrous oxide standard scale for atmospheric observations, *J. Geophys., Res.*, *112*, D09305, doi:10.1029/2006JD007954.

IPCC (2007), Climate Change 2007: The physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, edited by Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tigonor, and H. L. Miller, Cambridge University Press, Cambridge, UK and New York, NY, USA, 2007.

Ishijima, K. (2003), A study of temporal and spatial variations of atmospheric nitrous oxide, *D.Sc. thesis*, Tohoku Univ., Sendai, Japan.

Kato, S., H. Akimoto, M. Bräunlich, T. Röckmann, and C. A. M. Brenninkmeijer (1999), Measurements of stable

carbon and oxygen isotopic compositions of CO in automobile exhausts and ambient air from semi-urban Mainz, Germany, *Geochem. J.*, *33*, 73-77.

Lee, J. -Y., H. -S. Yoo, K. Marti, D. M. Moon, J. B. Lee, and J. S. Kim (2006), Effect of carbon isotopic variations on measured CO_2 abundances in reference gas mixtures, *J. Geophys.l Res.*, *111*, D05302, doi:10.1029/2005JD006551.

Machida, T., H. Matsueda, Y. Sawa, Y. Nakagawa, K. Hirotani, N. Kondo, K. Goto, K. Ishikawa, T. Nakazawa, and T. Ogawa (2008), Worldwide measurements of atmospheric CO_2 and other trace gas species using commercial airlines, *J. Atmos. Oceanic Technol.*, *25*, 1744-1745.

Matsueda, H., and H. Y. Inoue (1996), Measurements of atmospheric CO_2 and CH_4 using a commercial airliner from 1993 to 1994, *Atmos. Environ*., *30*, 1647-1655.

Matsueda, H., H.Y. Inoue, Y. Sawa, Y. Tsutsumi, and M. Ishii (1998), Carbon monoxide in the upper troposphere over the western Pacific between 1993 and 1996, *J. Geophys. Res.*, *103*(D15), 19093-19110.

Matsueda, H. (2008), NDIR による二酸化炭素濃度測定における同位体効果の評価実験（旅客機観測データの再評価のために）(私信).

Novelli, P. C., K. A. Masarie, P. M. Lang, B. D. Hall, R. C. Myers, and J. W. Elkins (2003), Reanalysis of tropospheric CO trends: Effects of the 1997-1998, *J. Geophys. Res.*, *108*, D154464, doi:10.1029/2002JD003031.

Smith, A. D., G. A. Barone, M. E. Higgins, B. R. F. Kendall, and D. J. Lavrich (2006), Method for chemical vapor deposition of silicon on to substrates for use in corrosive and vacuum environments, *United States Patent No.7,070,833 B2*

Stephens, B. B., K. R. Gurney, P. P. Tans, C. Sweeney, W. Peters, L. Bruhwiler, P. Ciais, M. Ramonet, P. Bousquet, T. Nakazawa, S. Aoki, T. Machida, G. Inoue, N. Vinnichenko, J. Lloyd, A. Jordan, M. Heimann, O. Shibistova, R. Langenfelds, L. P. Steele, R. J. Francey, and A. S. Denning (2007), Weak northern and strong tropical land carbon uptake from vertical profiles of atmospheric CO_2, *Science*, *316*, 1732-1735.

Tohjima, Y., K. Katsumata, I. Morino, H. Mukai, T. Machida, I. Akama, T. Amari, and U. Tsunogai (2009), Theoretical and experimental evaluation of the isotope effect of NDIR analyzer on atmospheric CO_2 measurement, *J. Geophys. Res.*, *114*, D13302, doi:10.1029/2009JD011734.

Umezawa, T. (2009), A study of global methane cycle based on measurements of its carbon and hydrogen isotopes, *D.Sc. thesis*, Tohoku Univ., Sendai, Japan.

Voltz-Thomas, A., and the IAGOS team (2007), In-service Aircraft for Global Observations – the future, *IGACtivities Newsletter*, *No.37*, 18-22.

Winderlich, J., H. Chen, C. Gerbig, T. Seifert, O. Kolle, J. V. Lavrič, C. Kaiser, A. Höfer, and M. Heimann (2010), Continuous low-maintenance CO_2/CH_4/H_2O measurements at the Zotino Tall Tower Observatory (ZOTTO) in Central Siberia, *Atmos. Meas. Tech.*, *3*, 1113-1128

WMO/GAW (1999), Report of the Ninth WMO Meeting of Experts on Carbon Dioxide Concentration and Related Tracer Measurement Techniques (WMO TD No. 952) Report No.132.

WMO/GAW (2001), Global Atmosphere Watch Measurements Guide (WMO TD No. 1073) Report No.143.

WMO/GAW (2009), Guidelines for the Measurement of Methane and Nitrous Oxide and their Quality Assurance (WMO TD No. 1478), Report No185.

WMO/GAW (2010), Guidelines for the Measurement of Atmospheric Carbon Monoxide (WMO TD No. 1551), Report No.192.

Zellweger, C., C. Hüglin, J. Klausen, M. Steinbacher, M. Vollmer, and B. Buchmann (2009), Inter-comparison of four different carbon monoxide measurement techniques and evaluation of the long-term carbon monoxide time series of Jungfraujoch, *Atmos. Chem. Phys.*, *9*, 3491–3503.

Zhao, C. L., and P. P. Tans (2006), Estimating uncertainty of the WMO mole fraction scale for carbon dioxide air, *J. Geophys. Res.*, *111*, D08S09, doi:10.1029/2005JD006003.