

2.1.10 誌上発表及び口頭発表

2.1.10.1 誌上発表(査読あり)

- Aramaki, T., Y. Nojiri, H. Mukai, S. Kushibashi, M. Uchida and Y. Shibata (2009) Preliminary results of radiocarbon monitoring in the surface waters of the North Pacific, Nuclear Instruments and Methods in Physics Research section B, in press, doi:10.1016/j.nimb.2009.10.138.
- Barkley M.P., Monks P.S., Hewitt A., Machida T., Desai A., Vinnichenko N., Nakazawa T., Fedoseev N., Watai T. (2007) Assessing the near surface sensitivity of SCIAMACHY atmospheric CO₂ retrieved using(FSI) WFM-DOAS. *Atmos.Chem.Phys.*, 7, 3597-3619
- Blake R.S., Patel M., Monks P.S., Ellis A.M., Inomata S., Tanimoto H. (2008) Aldehyde and ketone discrimination and quantification using two-stage proton transfer reaction mass spectrometry. *Int.J.Mass Spectrom.*, 278, 15-19
- Brand W.A., Huang L., Mukai H., Chivulescu A., Richter J.M., Rothe M. (2009) How well do we know VPDB? Variability of (13)C and (18)O in CO₂ generated from NBS19-calcite. *Rapid Commun.Mass Spectrom.*, 23, 915-926
- Crevoisier, C., Chédin, A., Matsueda, H., Machida, T., Armante, R., and Scott, N. A. (2009) First year of upper tropospheric integrated content of CO₂ from IASI hyperspectral infrared observations, *Atmos. Chem. Phys.*, 9, 4797-4810
- Cui X., Gu S., Wu J., Tang Y. (2009) Photosynthetic response to dynamic changes of light and air humidity in two moss species from the Tibetan Plateau. *Ecol.Res.*, 24 (3), 645-653
- Deng F., Chem J.M., Ishizawa M., Yuen C-W., Mo G., Higuchi K., Chan D., Maksyutov S. (2007) Global monthly CO₂ flux inversion with a focus over North America. *Tellus B*, 59(2), 179-190
- Gloor M., Dlugokencky E., Brenninkmeijer C., Horowitz L., Hurst D.F., Dutton G., Crevoisier C., Machida T., Tans P. (2007) Three-dimensional SF₆ data and tropospheric transport simulations: Signals, modeling accuracy, and implications for inverse modeling. *J.Geophys.Res.*, 112, D15112
- Hirota M., Kawada K., Hu Q.W., Kato T., Tang Y., Mo W.H., Cao G.M. & Mariko S. (2007). Net primary productivity and spatial distribution of vegetation in an alpine wetland, Qinghai-Tibetan Plateau. *Limnology*, 8, 161-170.
- Hirota M., Zhang P., Gu S., Du M., Shimono A., Shen H., Li Y. & Tang Y. (2009). Altitudinal variation of ecosystem CO₂ fluxes in an alpine grassland from 3600 to 4200m. *Journal of Plant Ecology*, 2, 197-206.
- Ishidoya S., Morimoto S., Sugawara S., Watai T., Machida T., Aoki S., Nakazawa T., Yamanouchi T. (2008) Gravitational separation suggested by O₂/N₂, (15)N of N₂, (18)O of O₂, Ar/N₂ observed in the lowermost part of the stratosphere at northern middle and high latitudes in the early spring of 2002. *Geophys.Res.Lett.*, 35, L03812
- Jang K., S. Kang, J. Kim, C. B. Lee, T. Kim, J. Kim, R. Hirata, N. Saigusa, 2010: Mapping evapotranspiration using MODIS and MM5 Four-Dimensional Data Assimilation, *Remote Sensing of Environment* 114, 657-673.
- Kato T., Tang Y. (2008) Spatial variability and major controlling factors of CO₂ sink strength in Asian terrestrial ecosystems: evidence from eddy covariance data. *Global Change Biol.*, 14 (10), 2333-2348
- Kato T., Tang Y., Gu S., Hirota M., Du M.Y., Li Y.N. & Zhao X.Q. (2006). Temperature and biomass

- influences on interannual changes in CO₂ exchange in an alpine meadow on the Qinghai-Tibetan Plateau. *Global Change Biology*, 12, 1285-1298.
- Koike M., Jones N.B., Palmer P.I., Matsui H., Zhao Y., Kondo Y., Matsumi Y., Tanimoto H. (2006) Seasonal variation of carbon monoxide in northern Japan: Fourier transform IR measurements and source-labeled model calculations. *J.Geophys.Res.*, 111, D15306
- Kuwana M., Kondo Y., Miyazaki Y., Komazaki Y., Kim J.H., Yum S.S., Tanimoto H., Matsueda H. (2007) Cloud condensation nuclei activity at Jeju Island, Korea in spring 2005. *Atmos.Chem.Phys.Discuss.*, 7 (6), 15805-15851
- Law R.M., Peters W., Rodenbeck C., Aulagnier C., Baker I., Bergmann D.J., Bousquet P., Brandt J., Bruhwiler L., Maksyutov S. et al. (2008) TransCom model simulations of hourly atmospheric CO₂: Experimental overview and diurnal cycle results for 2002. *Global Biogeochem.Cycles*, 22, GB3009
- Liang N., Hirano T., Zheng Z.-M., Tang J. and Fujinuma Y. (2010) Continuous measurement of soil CO₂ efflux in a larch forest by automated chamber and concentration gradient techniques. *Biogeosciences Discuss*, 7, 1345-1375
- Machida, T., H. Matsueda, Y. Sawa, Y. Nakagawa, K. Hirotani, N. Kondo, K. Goto, T. Nakazawa, K. Ishikawa and T. Ogawa, (2008), Worldwide measurements of atmospheric CO₂ and other trace gas species using commercial airlines. *J. Atmos. Oceanic. Technol.* 25 (10), 1744-1754, DOI: 10.1175/2008JTECHA1082.1.
- Matsueda, H., T. Machida, Y. Sawa, Y. Nakagawa, K. Hirotani, H. Ikeda, N. Kondo and K. Goto (2008), Evaluation of atmospheric CO₂ measurements from new flask air sampling of JAL airliner observation. *Pap. Meteorolo. Geophys.* 59, 1-17.
- Matsumoto K., Minami H., Hayano T., Uyama Y., Tanimoto H., Uematsu M. (2007) Regional climatology of particulate carbonaceous substances in the northern area of the east Asian Pacific rim. *J.Geophys.Res.*, 112, D24203
- Miyazaki, K., T. Machida, P. K. Patra, T. Iwasaki, Y. Sawa, H. Matsueda, and T. Nakazawa (2009), Formation mechanisms of latitudinal CO₂ gradients in the upper troposphere over the subtropics and tropics, *J. Geophys. Res.*, 114, D03306, doi:10.1029/2008JD010545.
- Muraoka H. N Saigusa, K N. Nasahara, H Noda, J Yoshino, T M. Saitoh, S Nagai, S Murayama and H Koizumi: Effects of seasonal and interannual variations in leaf photosynthesis and canopy leaf area index on gross primary production of a cool-temperate deciduous broadleaf forest in Takayama, Japan. *Journal of Plant Research* (in press). (受理報告済み)
- Nagai S., N. Saigusa, H. Muraoka, K. N. Nasahara: What makes the satellite-based EVI-GPP relationship unclear in a deciduous broad-leaved forest?, *Ecological Research*, DOI 10.1007/s11284-009-0663-9 (in press). (受理報告済み)
- Nakatsuka Y., Maksyutov S. (2009) Optimization of the seasonal cycles of simulated CO₂ flux by fitting simulated atmospheric CO₂ to observed vertical profiles. *Biogeosciences*, 6, 2733-2741
- Ohtsuka T., Hirota M., Zhang X., Shimono A., Senga Y., Du M., Yonemura S., Kawashima S. & Tang Y. (2008). Soil organic carbon pools in alpine to nival zones along an altitudinal gradient (4400-5300 · m) on the Tibetan Plateau. *Polar Science*, 2, 277-285.
- Ohyama, H., I. Morino, T. Nagahama, T. Machida, H. Suto, H. Oguma, Y. Sawa, H. Matsueda, N. Sugimoto, H. Nakane, and K. Nakagawa (2009), Column-averaged volume mixing ratio of CO₂ measured with ground-based Fourier transform spectrometer at Tsukuba, *J. Geophys. Res.*, 114, D18303,

doi:10.1029/2008JD011465.

- Patra P.K., Law R.M., Peters W., Rodenbeck C., Takigawa M., Aulagnier C., Baker I., Bergmann D.J., Bousquet P., Maksyutov S. (2008) TransCom model simulations of hourly atmospheric CO₂: Analysis of synoptic-scale variations for the period 2002-2003. *Global Biogeochem.Cycles*, 22, GB4013
- Peylin P., Breon F.M., Serrar S., Tiwari Y., Chedin A., Gloor M., Machida T., Brenninkmeijer C., Zahn A., Ciais P. (2007) Evaluation of Television Infrared Observation Satellite(TIROS-N) Operational Vertical Sounder(TOVS) spaceborne CO₂ estimates using model simulations and aircraft data. *J.Geophys.Res.*, 112, D09313
- Qi P., Gu S., Du M., Tang Y., Wu L., Zhao L. (*1Chin.Acad.Sci., *2NIAES (2008) Comparison of three methods for measurement of evapotranspiration in an alpine meadow. *Acta Ecol.Sin.*, 28 (1), 202-211 <In Chinese>
- Qiao Y., Gu S., Tang Y., Du M., Zhao L., Li Y., Zhang X., Jiang S., Gao Y. (2008) Characteristics of diffuse radiation on the Qinghai-Tibetan Plateau. *Acta Sci.Nat.Univ.Nankai*, 41 (3), 69-78 <In Chinese>
- Saigusa, N., Ichii, K., Murakami, H., Hirata, R., Asanuma, J., Den, H., Han, S.-J., Ide, R., Li, S.-G., Ohta, T., Sasai, T., Wang, S.-Q., and Yu, G.-R.: Impact of meteorological anomalies in the 2003 summer on Gross Primary Productivity in East Asia, *Biogeosciences*, 7, 641-655, 2010.
- Saito M., Kato T., Tang Y. (2009) Temperature controls ecosystem CO₂ exchange of an alpine meadow on the northeastern Tibetan Plateau. *Global Change Biol.*, 15 (1), 221-228
- Sawa Y., Tanimoto H., Yonemura S., Matsueda H., Wada A., Taguchi S., Hayasaka T., Tsuruta H., Tohjima Y., Mukai H. et al. (2007) Widespread pollution events of carbon monoxide observed over the western North Pacific during the EAREX 2005 campaign. *J.Geophys.Res.*, 112, D22S26
- Sawa, Y., T. Machida, and H. Matsueda (2008), Seasonal variations of CO₂ near the tropopause observed by commercial aircraft, *J. Geophys. Res.*, 113, D23301, doi:10.1029/2008JD010568.
- Shen H., Tang Y., Muraoka H., Washitani I. (2008) Characteristics of leaf photosynthesis and simulated individual carbon budget in *Primula nutans* under contrasting light and temperature conditions. *J.Plant Res.*, 121 (2), 191-200
- Shen H., Tang Y., Washitani I. (2009) Ecological responses of *Primula nutans* to centimeter-scale topographic and environmental variability in an alpine wetland. *Ecol.Res.*, 24 (1), 75-81
- Shen M., Chen J., Zhu X., Tang Y. (2009) Yellow flowers can decrease NDVI and EVI values: evidence from a field experiment in an alpine meadow. *Can.J.Remote Sensing*, 35 (2), 99-106
- Stephens B., Gurney K., Tans P., Sweeney C., Peters W., Bruhwiler L., Ciais P., Ramonet M., Bousquet P., Machida T. et al. (2007) Weak northern and strong tropical land carbon uptake from vertical profiles of atmospheric CO₂. *Science*, 316, 1732-1735
- Stohl A., Seibert P., Arduini A., Eckhardt S., Fraser P., Greally B.R., Lunder C., Maione M., Saito T., Yokouchi Y. et al. (2009) An analytical inversion method for determining regional and global emissions of greenhouse gases: Sensitivity studies and application to halocarbons. *Atmos.Chem.Phys.*, 9, 1597-1620
- Takagi, K., Fukuzawa, K., Liang, N., Kayama, M., Nomura, M., Hojyo, H., Sugata, S., Shibata, H., Fukazawa, T., Nakaji, T., Oguma, H., Mano, M., Akibayashi, Y., Murayama, T., Koike, T., Sasa, K., Fujinuma, Y. (2009) Change in the CO₂ balance under a series of forestry activities in

- a cool temperate mixed forest with dense undergrowth. *Global Change Biology* 15: 1275-1288
- Takahashi, Y., N. Liang, R. Hirata, T. Machida, and Y. Fujinuma (2008), Variability in carbon stable isotope ratio of heterotrophic respiration in a deciduous needle-leaf forest, *J. Geophys. Res.*, 113, G01022, doi:10.1029/2007JG000478.
- Tanimoto H., Mukai H., Hashimoto S., Norris J.E. (2006) Intercomparison of ultraviolet photometry and gas-phase titration techniques for ozone reference standards at ambient levels. *J.Geophys.Res.*, 111, D16313
- Tanimoto H., Mukai H., Sawa Y., Matsueda H., Yonemura S., Wang T., Poon S., Wong A., Lee G., Jung J.Y. et al. (2007) Direct assessment of international consistency of standards for ground-level ozone: Strategy and implementation toward metrological traceability network in Asia. *J.Environ.Monit.*, 9, 1183-1193
- Tanimoto H., Sawa Y., Matsueda H., Yonemura S., Wada A., Mukai H., Wang T., Poon S., Wong A., Lee G. et al. (2007) Evaluation of standards and methods for continuous measurements of carbon monoxide at ground-based sites in Asia. *Pap.Meteorol.Geophys.(気象研究所研究報告)*, 58, 85-93
- Tanimoto H., Sawa Y., Yonemura S., Yumimoto K., Matsueda H., Uno I., Hayasaka T., Mukai H., Tohjima Y., Tsuboi K. (2007) Diagnosing recent CO emissions and springtime O₃ evolution in East Asia using coordinated ground-based observations of O₃ and CO during the East Asian Regional Experiment (EAREX) 2005 campaign. *Atmos.Chem.Phys.Discuss.*, 8 (1), 3525-3561
- Terao Y., Logan J.A., Douglass A.R., Stolarski R.S. (2008) Contribution of stratospheric ozone to the interannual variability of tropospheric ozone in the northern extratropics. *J.Geophys.Res.*, 113, D18309
- Tohjima Y., Katsumata K., Morino I., Mukai H., Machida T., Akama I., Amari T., and Tsunogai U., (2009), Theoretical and experimental evaluation of the isotope effect of NDIR analyzer on atmospheric CO₂ measurement, *J. Geophys. Res.*, 114, D13302, doi:10.1029/2009JD011734.
- Tohjima Y., Mukai H., Hashimoto S., and Patra P. K. (2010), Increasing synoptic scale variability in atmospheric CO₂ at Hateruma Island associated with increasing East-Asian emissions, *Atmos. Chem. Phys.*, 10, 453-462 (www.atmos-chem-phys.net/10/453/2010/).
- Tohjima, Y., H. Mukai, Y. Nojiri, H. Yamagishi, and T. Machida (2008), Atmospheric O₂/N₂ measurements at two Japanese sites: estimation of global oceanic and land biotic carbon sinks and analysis of the variations in atmospheric potential oxygen (APO), *Tellus*, doi: 10.1111/j.1600-0889.2007.00334.x.
- Uchida, M., M. Kondo, Y. Nojiri, H. Mukai, S. Murayama, T. Machida, H. Koizumi, N. Ogura, and Y. Ambe (2008), Ecosystem-scale carbon isotope ratio of respired CO₂ in cool-temperate deciduous forests under Asian monsoon climate, *J. Geophys. Res.*, 113, G02015, doi:10.1029/2007JG000574.
- Yamagishi H., Tohjima Y., Mukai H., Sasaoka K. (2008) Detection of regional scale sea-to-air oxygen emission related to spring bloom near Japan by using in-situ measurements of the atmospheric oxygen/nitrogen ratio. *Atmos.Chem.Phys.*, 8 (12), 3325-3335
- Yang Y., Fang J., Tang Y., Zheng C. (2008) Storage, patterns and controls of soil organic carbon in the Tibetan grasslands. *Global Change Biol.*, 14 (7), 1592-1599
- Zhang F-W., Zhao X-Q., Li Y-N., Gu S., Wang Q-X., Du M-Y., Tang Y. (2008) Effects of one precipitation process on CO₂ flux and thermal transportation in alpine meadow of Qinghai-Tibetan Plateau. *Chin.J.Ecol.*, 27 (10), 1685-1691 <In Chinese>
- Zhang P., Tang Y., Hirota M., Yamamoto A., Mariko S. (2009) Use of a regression method to partition

sources of ecosystem respiration in an alpine meadow. *Soil Biol.Biochem.*, (41), 663-670
Zhang X., Nakazawa T., Ishizawa M., Aoki S., Nakaoka S., Sugawara S., Maksyutov S., Saeki T., Hayasaka T. (2007) Temporal variations of atmospheric carbon dioxide in the southernmost part of Japan. *Tellus B*, 59 (4), 654-663

2.1.10.2 誌上発表(査読なし)

Groisman P.Y., Clark E.A., Kattsov V.M., Lettenmaier D.P., Sokolik I.N., Aizen V.B., Cartus O., Machida T., Maksyutov S. et al. (2009) The northern Eurasia earth science partnership: An example of science applied to societal needs. *Bull.Am.Meteorol.Soc.*, 90 (5), 671-688
Machida, T., H. Matsueda and Y. Sawa, A new JAL project; CONTRAIL - Comprehensive Observation Network for TRace gases by AIRLiner -, IGAC Newsletter, No. 37, 23-30. (2007).
Matsueda H., Machida T., Sawa Y., Nakagawa Y., Hirotani K., Ikeda H., Kondo N., Goto K. (2008) Evaluation of atmospheric CO₂ measurements from new flask air sampling of JAL airliner observations. *Pap.Meteorol.Geophys.(気象研究所研究報告)*, 59, 1-17
Nakatsuka Y., Maksyutov S. (2009) Optimization of the seasonal cycles of simulated CO₂ flux by fitting simulated atmospheric CO₂ to observed vertical profiles. *Biogeosciences Discuss*, 6, 5933-5957
植山雅仁, 齊藤誠, 滝本貴弘 (2008) Re-thinking global change science: from knowledge to policy -AsiaFlux Workshop 2008- の報告. 生物と気象, 8, D3
梁乃申 (2009) 日本における森林土壤有機炭素放出に及ぼす温暖化の影響. 関東の農業気象, 35, 7-11

2.1.10.3 書籍

谷本浩志 (2007) 3.1.2 オゾン・PAN. 日本化学会編, 実験化学講座 20-2 環境化学(第5版), 丸善, 193-196.
町田敏暢 (2007) 2.1.3b 航空機観測. 3.1.4 二酸化炭素. 3.1.14 酸素. 日本化学会編, 実験化学講座 20-2 環境化学(第5版), 丸善, 247-250. 64-67. 200-203.

2.1.10.4 口頭発表

国外 : 39 件

国内 : 46 件

招待講演

Machida T., H. Matsueda, Y. Sawa, Y. Nakagawa, N. Kondo, K. Ishikawa, T. Nakazawa, T. Ogawa, Y. Matsumoto, T. Suenaga and T. Oka, Global Observation of CO₂ and other Trace Species by Aircraft, Annual IAGOS Meeting 2006, 9.-10.5.2006, Toulouse, France, May 2006.
Machida T., H. Matsueda, and Y. Sawa, Japanese Aircraft Measurement Project "Comprehensive Observation Network for Trace Gases by Airliner, CONTRAIL, International Workshop on Pacific Greenhouse Gases Measurement, Taipei, Taiwan, June 2008.
Machida T., H. Matsueda, Y. Sawa, Y. Abe, T. Endo, T. Honda, N. Kondo, M. Sakai, Y. Niwa, P. Patra, T. Maki, S. Taguchi, K. Miyazaki, K. Ishijima, T. Umezawa, C. Crevoisier and O. Uchino, Activities of CONTRAIL project in the first 3 years, Annual IAGOS-ERI Meeting, Toulouse, France, October, 2009.
Machida T., M. Sasakawa, K. Shimoyama, N. Tsuda, M. Arshinov, B. Belan, D. Davidov, A. Fofonov, O. Krasnov, N. Fedoseev, S. Maksyutov, Long-term Monitoring of Atmospheric Greenhouse Gases in Siberia, XVI International Symposium "Atmospheric and Ocean Optics. Atmospheric Physics", Tomsk,

Russia, October, 2009.

2.1.10.5 特許等

松枝秀和、町田敏暢、後藤啓太、近藤直人：航空機搭載型二酸化炭素連続測定装置、特願2007-266
386

松枝秀和、町田敏暢、後藤啓太、近藤直人：航空機搭載型大気自動フラスコサンプリング装置、特願200
7-266387