

Publications

The original papers published in English are listed by research group as follows. Bold-face and single underlines in the authors indicate the group's principal investigator and its co-investigator, respectively.

A01: Dynamics of Atmospheric Composition

A01-1 Anthropogenic impact on atmospheric trace species and their effects to the air-sea chemical interaction

- Chand, D., Jaffe, D., Prestbo, E., Swartzendruber, P. C., Hafner, W., Weiss-Penzias, P., Kato, S., Takami, A., Hatakeyama, S. and Kajii, Y., "Reactive and particulate mercury in the Asian marine boundary layer" *Atmos. Environ.* **42**, 7988–7996 (2008).
- Chen, X., Aoki, M., Zhang, S., Zhang, J., Nozoe, S., Komori, D., Takami, A. and Hatakeyama, S., "Observation of hydrogen peroxide concentrations in a Japanese Red Pine Forest" *J. Atmos. Chem.* **60**, 37–49 (2008).
- Hien, T. T., Thanh, L. T., Kameda, T., Takenaka, N. and **Bandow, H.**, "Distribution characteristics of polycyclic aromatic hydrocarbons with particle size in urban aerosols at the roadside in Ho Chi Minh City, Vietnam" *Atmos. Environ.* **41**, 1575–1586 (2007).
- Hien, T. T., Pham Phuong, T. N., Sadanaga, Y., Kameda, T., Takenaka, N. and **Bandow, H.**, "Comparison of particle-phase polycyclic aromatic hydrocarbons and their variability causes in the ambient air in Ho Chi Minh City, Vietnam and in Osaka, Japan, during 2005–2006" *Sci. Total Environ.* **382**, 70–81 (2007).
- Itano, Y., **Bandow, H.**, Takenaka, N., Saitoh, Y., Asayama, A. and Fukuyama, J., "Impact of NO_x reduction on long-term ozone trends in an urban atmosphere" *Sci. Total Environ.* **379**, 46–55 (2007).
- Jimenez, J. L., Canagaratna, M. R., Donahue, N. M., Prevot, A. S. H., Zhang, Q., Kroll, J. H., DeCarlo, P. F., Allan, J. D., Coe, H., Ng, N. L., Aiken, A. C., Docherty, K. S., Ulbrich, I. M., Grieshop, A. P., Robinson, A. L., Duplissy, J., Smith, J. D., Wilson, K. R., Lanz, V. A., Hueglin, C., Sun, Y. L., Tian, J., Laaksonen, A., Raatikainen, T., Rautiainen, J., Vaattovaara, P., Ehn, M., Kulmala, M., Tomlinson, J. M., Collins, D. R., Cubison, M. J., Dunlea, E. J., Huffman, J. A., Onasch, T. B., Alfarra, M. R., Williams, P. I., Bower, K., Kondo, Y., Schneider, J., Drewnick, F., Borrmann, S., Weimer, S., Demerjian, K., Salcedo, D., Cottrell, L., Griffin, R., Takami, A., Miyoshi, T., Hatakeyama, S., Shimono, A., Sun, J. Y., Zhang, Y. M., Dzepina, K., Kimmel, J. R., Sueper, D., Jayne, J. T., Herndon, S. C., Trimborn, A. M., Williams, L. R., Wood, E. C., Middlebrook, A. M., Kolb, C. E., Baltensperger, U. and Worsnop, D. R., "Evolution of organic aerosols in the atmosphere" *Science* **326**, 1525–1529 (2009).
- Kameda, T., Inazu, K., Hisamatsu, Y., Takenaka, N. and **Bandow, H.**, "Isomer distribution of nitro-triphenylenes in airborne particles, diesel exhaust particles, and the products of gas-phase radical-initiated nitration of triphenylene" *Atmos. Environ.* **40**, 7742–7751 (2006).
- Kishida, M., Imamura, K., Takenaka, N., Maeda, Y., Viet, P. H. and **Bandow, H.**, "Concentrations of atmospheric polycyclic aromatic hydrocarbons in particulate matter and the gaseous phase at road sites in Hanoi" *Bull. Environ. Contam. Toxicol.* **81**, 174–179 (2008).
- Kishida, M., Mio, C., Fujimori, K., Imamura, K., Takenaka, N., Maeda, Y., Tran Thi Ngoc, L., Shibutani, Y. and **Bandow, H.**, "Seasonal change in the atmospheric concentration of particulate polycyclic aromatic hydrocarbons in Ho Chi Minh City, Vietnam" *Bull. Environ. Contam. Toxicol.* **83**, 747–751 (2009).
- Kishida, M., Imamura, K., Takenaka, N., Maeda, Y., Viet, P. H., Kondo, A. and **Bandow, H.**, "Characteristics of the abundance of polychlorinated dibenzo-p-dioxin and dibenzofurans, and dioxin-like polychlorinated biphenyls in sediment samples from selected Asian regions in Can Gio, Southern Vietnam and Osaka, Japan" *Chemosphere* **78**, 127–133 (2010).
- Le, T. T., Okitsu, K., Sadanaga, Y., Takenaka, N., Maeda, Y. and **Bandow, H.**, "A two-step ultrasound assisted production of biodiesel fuel from waste cooking oils: A practical and economical approach to produce high quality biodiesel fuel" *Biores. Technol.* **101**, 5394–5401 (2010).
- Lun, X., Takami, A., Miyoshi, T. and Hatakeyama, S., "Characteristic of organic aerosol in a remote area of Okinawa Island" *J. Environ. Sci.* **21**, 1371–1377 (2009).
- Mochida, M., Nishita-Hara, C., Kitamori, Y., Aggarwal, S. G., Kawamura, K., Miura, K. and

- Takami, A., "Size-segregated measurements of cloud condensation nucleus activity and hygroscopic growth for aerosols at Cape Hedo, Japan in spring 2008" *J. Geophys. Res.* **115**, doi:10.1029/2009JD013216 (2010).
- Morino, Y., Takahashi, K., Fushimi, A., Tanabe, K., Ohara, T., Hasegawa, S., Uchida, M., Takami, A., Yokouchi, Y. and Kobayashi, S., "Contrasting diurnal variations in fossil and nonfossil secondary organic aerosol in urban outflow, Japan" *Environ. Sci. Technol.*, **44**, 8581–8586 (2010).
- Nanzai, B., Okitsu, K., Takenaka, N. and **Bandow, H.**, "Sonochemical degradation of alkylbenzene sulfonates and kinetics analysis with a Langmuir type mechanism" *J. Phys. Chem.* **C113**, 3735–3739 (2009).
- Primbs, T., Simonich, S. L., Schmedding, D., Wilson, G., Jaffe, D., Takami, A., Kato, S., Hatakeyama, S. and Kajii, Y., "Atmospheric outflow of anthropogenic semi-volatile organic compounds from East Asia in spring 2004" *Environ. Sci. Technol.* **41**, 3551–3558 (2007).
- Qi, B., Kanaya, Y., Takami, A., Hatakeyama, S., Kato, S., Sadanaga, Y., Tanimoto, H. and Kajii, Y., "Diurnal peroxy radical chemistry at a remote coastal site over the sea of Japan" *J. Geophys. Res.* **112**, doi:10.1029/2006JD008236 (2007).
- Sadanaga, Y., Kondo, S., Hashimoto, K. and Kajii, Y., "Measurement of the rate coefficient for the OH + NO₂ reaction: Its humidity dependence" *Chem. Phys. Lett.* **419**, 474–478 (2006).
- Sadanaga, Y., Imabayashi, H., Suzue, T., Kimoto, H., Kimoto, T., Takenaka, N. and **Bandow, H.**, "Quantitative reduction of particulate nitrate to nitric oxide by molybdenum catalyst: Implications for Noy measurements in the marine boundary layer" *Geophys. Res. Lett.* **35**, L21810, doi:10.1029/2008GL035557 (2008).
- Sadanaga, Y., Yuba, A., Kawakami, J., Takenaka, N., Yamamoto, M. and **Bandow, H.**, "A gaseous nitric acid analyzer for remote atmosphere based on the scrubber difference/NO-Ozone chemiluminescence method" *Anal. Sci.* **24**, 967–971 (2008).
- Sadanaga, Y., Shibata, S., Hamana, M., Takenaka, N. and **Bandow, H.**, "Weekday/weekend difference of ozone and its precursors in urban areas of Japan, focusing on nitrogen oxides and hydrocarbons" *Atmos. Environ.* **42**, 4708–4723 (2008).
- Sadanaga, Y., Fukumori, Y., Kobashi, T., Nagata, M., Takenaka, N. and **Bandow, H.**, "Development of a selective light-emitting diode photolytic NO₂ converter for continuously measuring NO₂ in the atmosphere" *Anal. Chem.* **82**, 9234–9239 (2010).
- Sato, K., Takenaka, N., **Bandow, H.** and Maeda, Y., "Evaporation loss of dissolved volatile substances from ice surfaces" *J. Phys. Chem.* **A112**, 7600–7607 (2008).
- Sato, K., Li, H., Tanaka, Y., Ogawa, S., Iwasaki, Y., Takami, A. and Hatakeyama, S., "Long-range transport of particulate polycyclic aromatic hydrocarbons at Cape Hedo remote island site in the East China Sea between 2005 and 2008" *J. Atmos. Chem.* **61**, 243–257 (2009).
- Sato, K., Takami, A., Isozaki, T., Hikida, T., Shimono, A. and Imamura, T., "Mass spectrometric study of secondary organic aerosol formed from the photo-oxidation of aromatic hydrocarbons" *Atmos. Environ.* **44**, 1080–1087 (2010).
- Shiraiwa, M., Kondo, Y., Moteki, N., Takegawa, N., Sahu, L. K., Takami, A., Hatakeyama, S., Yonemura, S. and Blake, D. R., "Radiative impact of mixing state of black carbon aerosol in Asian outflow" *J. Geophys. Res.* **113**, D24210, doi:10.1029/2008JD010546 (2008).
- Suthawaree, J., Kato, S., Takami, A., Hatakeyama, S., Kadana, H., Togushi, M., Tomoyose, N., Yogi, K. and Kajii, Y., "Observation of ozone and carbon monoxide at Cape Hedo, Japan: Seasonal variation and influence of long-range transport" *Atmos. Environ.* **42**, 2971–2981 (2008).
- Takami, A., Miyoshi, T., Shimono, A., Kaneyasu, N., Kato, S., Kajii, Y. and Hatakeyama, S., "Transport of anthropogenic aerosols from Asia and subsequent chemical transformation" *J. Geophys. Res.* **112**, doi:10.1029/2006JD008120 (2007).
- Takenaka, N. and **Bandow, H.**, "Chemical kinetics of reactions in the unfrozen solution of ice" *J. Phys. Chem.* **A111**, 8780–8786 (2007).
- Takenaka, N., Takayama, K., Ojiro, N., Shimazaki, W., Ohira, K., Soda, H., Suzue, T., Sadanaga, Y., **Bandow, H.** and Maeda, Y., "The chemistry of drying an aqueous solution of salts" *J. Phys. Chem.* **A113**, 12233–12242 (2009).
- Takiguchi, Y., Takami, A., Sadanaga, Y., Lun, X., Shimizu, A., Matsui, I., Sugimoto, N., Wang, W., **Bandow, H.** and Hatakeyama, S., "Transport and transformation of total reactive nitrogen over the East China Sea" *J. Geophys. Res.* **113**, D10306, doi:10.1029/2007JD009462 (2008).
- Tanimoto, H., Aoki, N., Inomata, S., Hirokawa, J. and Sadanaga, Y., "Development of a PTR-TOFMS instrument for real-time measurements of volatile organic compounds in air" *Int. J. Mass Spectrom.* **263**, 1–11 (2007).
- Uno, I., Uematsu, M., Hara, Y., He, J. Y., Ohara, T., Mori, A., Kamaya, T., Murano, K., Sadanaga, Y. and **Bandow, H.**, "Numerical study of the atmospheric input of anthropogenic total nitrate to the marginal seas in the Western North Pacific region" *Geophys. Res. Lett.* **34**, doi:10.1029/2007GL030338 (2007).
- Wang, G., Kawamura, K., Hatakeyama, S., Takami, A. and Wang, W., "Aircraft measurement of organic aerosols over China. environ" *Sci. Technol.* **41**, 3115–3120 (2007).

- Wang, W., Liu, H., Yue, X., Li, H., Chen, J., Ren, L., Tang, D., Hatakeyama, S. and Takami, A., “Study on acidity and acidic buffering capacity of particulate matter over Chinese eastern coastal areas in spring” *J. Geophys. Res.* **111**, doi:10.1029/2005JD006753 (2005).
- Wang, W., Bao, L. F., Liu, H. J., Yue, X., Chen, J. H., Li, H., Ren, L. H., Tang, D. G., Hatakeyama, S. and Takami, A., “Vertical profiles of aerodynamic size distribution for airborne particles over Yangtze River Delta” *Chin. Phys.* **16**, 2818–2820 (2007).
- King, J. H., Takahashi, K., Yabushita, A., Kinugawa, T., Nakayama, T., Matsumi, Y., Tonokura, K., Takami, A., Imamura, T., Sato, K., Kawasaki, M., Hikida, T. and Shimono, A., “Characterization of aerosol particles in the Tokyo metropolitan area using two different aerosol mass spectrometers” *Aerosol Sci. Technol.* **45**, 315–326 (2011).
- Yuba, A., Sadanaga, Y., Takami, A., Hatakeyama, S., Takenaka, N. and Bandow, H., “Measurement system for particulate nitrate based on the scrubber difference NO₃-O₃ chemiluminescence method in remote areas” *Anal. Chem.* **82**, 8916–8921 (2010).
- Zhang, Q., Jimenez, J. L., Canagaratna, M. R., Allan, J. D., Coe, H., Ulbrich, I., Dzepina, K., Dunlea, E., Docherty, K., DeCarlo, P. F., Salcedo, D., Alfarra, M. R., Sun, Y. L., Onasch, T., Jayne, J. T., Takami, A., Miyoshi, T., Shimono, A., Hatakeyama, S., Takegawa, N., Kondo, Y., Schneider, J., Drewnick, F., Weimer, S., Demerjian, F., Williams, P., Bower, K., Middlebrook, A. M., Bahreini, R., Cotrell, L., Griffin, R., Rautiainen, J. and Worsnop, D. R., “Oxygenated species dominate organic aerosols in anthropogenically-influenced northern hemisphere mid-latitudes” *Geophys. Res. Lett.* **34**, doi:10.1029/2007GL029979 (2007).
- A01-2 Study on the production and emission of marine-derived volatile halocarbons**
- Hashimoto, S., Toda, S., Suzuki, K., Kato, S., Narita, Y., Kurihara, M. K., Akatsuka, Y., Oda, H., Nagai, T., Nagao, I., Kudo, I. and Uematsu, M., “Production and air-sea flux of methyl halides in the western subarctic Pacific in relation to phytoplankton pigment concentrations during iron fertilization experiment (SEEDS II)” *Deep-Sea Res. II* **56**, 2928–2935, doi:10.1016/j.dsr2.2009.07.003 (2009).
- Itoh, N., Toda, H., Matsuda, M., Negishi, T., Taniguchi, T. and Ohsawa, N., “Involvement of S-adenosylmethionine-dependent halide/thiol methyltransferase (HTMT) in methyl halide emissions from agricultural plants: isolation and characterization of an HTMT-coding gene from *Raphanus sativus* (daikon radish)” *BMC Plant Biol.* **9**, 116 (2009).
- Kamenarska, Z., Taniguchi, T., Ohsawa, N., Hiraoka, M. and Itoh, N., “A vanadium-dependent bromoperoxidase in the marine red alga *Kappaphycus alvarezii* Doty displays clear substrate specificity” *Phytochemistry* **68**, 1358–1366 (2007).
- Kurihara, M. K., Kimura, M., Iwamoto, Y., Narita, Y., Ooki, A., Eum, Y.-J., Tsuda, A., Suzuki, K., Tani, Y., Yokouchi, Y., Uematsu, M. and Hashimoto, S., “Linkage between ocean and air in short-lived iodo-carbons and oceanic distributions of biogenic trace gases in the western North Pacific” *Mar. Chem.* **118**, 156–170 (2010).
- Nagao, I., Hashimoto, S., Suzuki, K., Toda, S., Narita, Y., Tsuda, A., Saito, H., Kudo, I., Kato, S., Kajii, Y. and Uematsu, M., “Responses of DMS in the seawater and atmosphere to iron enrichment in the subarctic western North Pacific (SEEDS-II)” *Deep-Sea Res. II* **56**, 2899–2917 (2009).
- Ooki, A. and Yokouchi, Y., “Development of a silicone membrane tube equilibrator for measuring partial pressures of volatile organic compounds in natural water” *Environ. Sci. Technol.* **42**, 5706–5711 (2008).
- Ooki, A. and Yokouchi, Y., “Dichloromethane in the Indian Ocean: Evidence for in-situ production in seawater” *Mar. Chem.*, **124**, 119–124 (2011).
- Ooki, A. and Yokouchi, Y., “Determination of Henry’s law constant of halocarbons in seawater and analysis of sea-to-air flux of iodoethane (C₂H₅I) in the Indian and Southern oceans based on partial pressure measurements” *Geochem. J.* **45**, e1–e7 (2011).
- Ooki, A., Tsuda, A., Kameyama, S., Takeda, S., Itoh, S., Suga, T., Tazoe, H., Okubo, A. and Yokouchi, Y., “Methyl halides in surface seawater and marine boundary layer of the Northwest Pacific” *J. Geophys. Res.* **115**, C10013, doi:10.1029/2009JC005703 (2010).
- Saito, T., Yokouchi, Y., Aoki, S., Nakazawa, T., Fujii, Y. and Watanabe, O., “A method for determination of methyl chloride concentration in air trapped in ice cores” *Chemosphere* **63**, 1209–1213 (2006).
- Saito, T., Yokouchi, Y., Aoki, S., Nakazawa, T., Fujii, Y. and Watanabe, O., “Ice-core record of methyl chloride over the last glacial Holocene climate change” *Geophys. Res. Lett.* **34**, L03801 (2007).
- Saito, T., Yokouchi, Y., Kosugi, Y., Tani, M., Phillip, E. and Okuda, T., “Methyl chloride and isoprene emissions from tropical rain forest in Southeast Asia” *Geophys. Res. Lett.* **35**, L19182 (2008).
- Tani, Y., Matsumoto, G. I., Soma, M., Soma, Y., Hashimoto, S. and Kawai, T., “Photosynthetic pigments in sediment core HDP-04 from Lake Hovsgol, Mongolia, and their implication in algal productivity and lake environment for the last 1

- Ma" *Quater. Int.* **205**, 74–83 (2009).
- Toda, H. and Itoh, N., "Isolation and characterization of gene encoding S-adenosylmethionine-dependent halide/thiol methyltransferase (HTMT) from marine diatom *Phaeodactylum tricornutum*: Biogenic mechanism of CH₃I emissions in oceans" *Phytochemistry* **72**, 337–343 (2011).
- Yokouchi, Y., Taguchi, S., Saito, T., Tohjima, Y., Tanimoto, H. and Mukai, H., "High frequency measurements of HFCs at a remote site in East Asia and their implications for Chinese emissions" *Geophys. Res. Lett.* **33**, L21814 (2006).
- Yokouchi, Y., Saito, T., Ishigaki, C. and Aramoto, M., "Identification of methyl chloride-emitting plants and atmospheric measurements on a subtropical island" *Chemosphere* **69**, 549–553 (2007).
- Yokouchi, Y., Osada, K., Wada, M., Hasebe, F., Agama, M., Murakami, R., Mukai, H., Nojiri, Y., Inuzuka, Y., Toom-Sauntry, D. and Fraser, P., "Global distribution and seasonal concentration change of methyl iodide in the atmosphere" *J. Geophys. Res.* **113**, D18311 (2008).
- Yokouchi, Y., Nagashima, Y., Saito, T. and Mukai, H., "Identification of coastal emissions of methyl chloride and methyl bromide based on high-frequency measurements on Hateruma Island" *Geochem. J.* **44**, 173–179 (2010).
- Yokouchi, Y., Saito, T., Ooki, A. and Mukai, H., "Diurnal and seasonal variations of iodocarbons (CH₂ClI, CH₂I₂, CH₃I, and C₂H₅I) in the marine atmosphere" *J. Geophys. Res.*, **116**, D06301, doi:10.1029/2010JD015252 (2010).
- A01-3 Atmospheric deposition of particulate trace metals and organic carbon to the ocean and production processes of marine aerosols**
- Aggarwal, S. G. and Kawamura, K., "Molecular distributions and stable carbon isotopic compositions of dicarboxylic acids and related compounds in the aerosols from Sapporo, Japan: Implications for the photochemical aging during long-range atmospheric transport" *J. Geophys. Res.* **113**, doi:10.1029/2007JD009365 (2008).
- Aggarwal, S. G. and Kawamura, K., "Carbonaceous and inorganic composition in long-range transported aerosols over northern Japan: Implication for aging of water-soluble organic fraction" *Atmos. Environ.* **43**, 2532–2540 (2009).
- Aggarwal, S. G., Mochida, M., Kitamori, Y. and Kawamura, K., "Chemical closure study on hygroscopic properties of urban aerosol particles in Sapporo, Japan" *Environ. Sci. Technol.* **41**, 6920–6925 (2007).
- Bendle, J., Kawamura, K. and Yamazaki, K., "Seasonal changes in stable carbon isotopic composition of *n*-alkanes in the marine aerosols from the western North Pacific: Implications for the source and atmospheric transport" *Geochim. Cosmochim. Acta* **70**, 13–26 (2006).
- Bendle, J., Kawamura, K., Yamazaki, K. and Niwai, T., "Latitudinal distribution of terrestrial lipid biomarkers and *n*-alkane compound specific stable carbon isotope ratios in the atmosphere over the western Pacific and Southern Ocean" *Geochim. Cosmochim. Acta* **71**, 5934–5955 (2007).
- Chambers, S., Zahorowski, W., Matsumoto, K. and Uematsu, M., "Seasonal variability of radon-derived fetch regions for Sado Island, Japan, based on 3 years of observations: 2002–2004" *Atmos. Environ.* **43**, 271–279 (2009).
- Duce, R. A., LaRoche, J., Altieri, K., Arrigo, K. R., Baker, A. R., Capone, D. G., Cornell, S., Dentener, F., Galloway, J. N., Ganeshram, R. S., Geider, R. J., Jickells, T., Kuypers, M. M., Langlois, R., Liss, P. S., Liu, S. M., Middelburg, J. J., Moore, C. M., Nickovic, S., Oschlies, A., Pedersen, T. F., Prospero, J. M., Schlitzer, R., Seitzinger, S. P., Sorensen, L. L., Uematsu, M., Ulloa, O., Voss, M., Ward, B. and Zamora, L., "Impacts of atmospheric anthropogenic nitrogen on the open ocean" *Science* **320**, doi:10.1126/science.1150369 (2008).
- Eguchi, K., Uno, I., Yumimoto, K., Takemura, T., Shimizu, A., Sugimoto, N. and Liu, Z., "Trans-Pacific dust transport: integrated analysis of NASA/CALIPSO and a global aerosol transport model" *Atmos. Chem. Phys.* **9**, 3137–3145 (2009).
- Fu, P., Kawamura, K., Okuzawa, K., Aggarwal, S. G., Wang, G., Kanaya, Y. and Wang, Z., "Organic molecular compositions and temporal variations of summertime mountain aerosols over Mt. Tai, North China Plain" *J. Geophys. Res.* **113**, doi:10.1029/2008JD009900 (2008).
- Fu, P., Kawamura, K. and Barrie, L. A., "Photochemical and other sources of organic compounds in the Canadian High Arctic aerosol pollution during winter–spring" *Environ. Sci. Technol.* **43**, 286–292 (2009).
- Fu, P., Kawamura, K., Chen, J. and Barrie, L. A., "Isoprene, monoterpene, and sesquiterpene oxidation products in the High Arctic aerosols during late winter to early summer" *Environ. Sci. Technol.* **43**, 4022–4028 (2009).
- Fu, P. Q., Kawamura, K., Pochanart, P., Tanimoto, H., Kanaya, Y. and Wang, Z. F., "Summertime contributions of isoprene, monoterpenes, and sesquiterpene oxidation to the formation of secondary organic aerosol in the troposphere over Mt. Tai, Central East China during MTX2006" *Atmos. Chem. Phys. Discuss.* **9**, 16941–16972 (2009).
- Fu, P. Q., Kawamura, K., Kanaya, Y. and Wang, Z. F., "Contributions of biogenic volatile organic compounds to the formation of secondary organic aerosols in the troposphere over Mt. Tai, Central East China" *Atmos. Environ.* **44**, 4817–4826

- (2010).
- Furutani, H., Meguro, A., Iguchi, H. and **Uematsu, M.**, "Geographical distribution and sources of phosphorus in atmospheric aerosol over the North Pacific Ocean" *Geophys. Res. Lett.* **37**, L03805, doi:10.1029/2009GL041367 (2010).
- Fuzzi, S., Andreae, M. O., Huebert, B. J., Kulmala, M., Bond, T. C., Boy, M., Doherty, S. J., Guenther, A., Kanadidou, M., **Kawamura, K.**, Kerminen, K.-V., Lohmann, U., Russell, L. M. and Poschl, U., "Critical assessment of the current state of scientific knowledge, terminology, and research needs concerning the role of organic aerosols in the atmosphere, climate, and global change" *Atmos. Chem. Phys.* **6**, 2017–2038 (2006).
- Griessbaum, F., Moat, B. I., Narita, Y., Yelland, M. J., Klemm, O. and **Uematsu, M.**, "Uncertainties in wind speed dependent CO₂ transfer velocities due to airflow distortion at anemometer sites on ships" *Atmos. Chem. Phys.* **10**, 5123–5133 (2010).
- Hara, K., Iwasaka, Y., Wada, M., Ihara, T., Shiba, H., **Osada, K.** and Yamanouchi, T., "Aerosol constituents and their spatial distribution in the free troposphere of coastal Antarctic regions" *J. Geophys. Res.* **111**, doi:10.1029/2005JD006591 (2006).
- Hashimoto, S., Toda, S., Narita, Y., Kurihara, M. K., Akatsuka, Y., Oda, H., Nagai, T., Nagao, I., Kato, S., Kudo, I., Suzuki, K. and **Uematsu, M.**, "Production and air-sea flux of methyl halides in the western subarctic Pacific in relation to phytoplankton pigment concentrations during iron fertilization experiment (SEEDS II)" *Deep-Sea Res. II* **56**, 2928–2935 (2009).
- Ho, K. F., Lee, S. C., Cao, J. J., **Kawamura, K.**, Watanabe, T., Cheng, Y. and Chow, J. C., "Dicarboxylic acids, ketocarboxylic acids and dicarbonyls in the urban roadside area of Hong Kong" *Atmos. Environ.* **40**, 3030–3040 (2006).
- Ho, K. F., Cao, J. J., Lee, S. C., **Kawamura, K.**, Zhang, R. J., Chow, J. C. and Watson, J. G., "Dicarboxylic acids, ketocarboxylic acids and dicarbonyls in the urban atmosphere of China" *J. Geophys. Res.* **112**, doi:10.1029/2006JD008011 (2007).
- Ieda, T., Kitamori, Y., Mochida, M., Hirata, R., Hirano, T., Inukai, K., Fujinuma, Y. and **Kawamura, K.**, "Diurnal variations and vertical gradients of biogenic volatile and semi-volatile organic compounds at the Tomakomai larch forest station in Japan" *Tellus* **59B**, 177–186 (2006).
- Inomata, Y., Hayashi, M., **Osada, K.** and Iwasaka, Y., "Spatial distributions of volatile sulfur compounds in surface seawater and overlying atmosphere in the northwestern Pacific Ocean, eastern Indian Ocean, and Southern Ocean" *Global Biogeochem. Cycles* **20**, doi:10.1029/2005GB002518 (2006).
- Iwamoto, Y., Narita, Y., Tsuda, A. and **Uematsu, M.**, "Single particle analysis of oceanic suspended matter during the SEEDS II iron fertilization experiment" *Mar. Chem.* **113**, 212–218 (2009).
- Iwamoto, Y., Yumimoto, K., Toratani, M., Tsuda, A., **Miura, K.**, **Uno, I.** and **Uematsu, M.**, "Biogeochemical implications of increased mineral particle concentrations in surface waters of the northwestern North Pacific during an Asian dust event" *Geophys. Res. Lett.* **38**, doi:10.1029/2010GL045906 (2010).
- Jung, J., Jang, Y., Arimoto, R., **Uematsu, M.** and Lee, G., "Atmospheric nitrogen deposition and its impact to Lake Sihwa in South Korea from January 2004 to September 2005" *Geochem. J.* **43**, 305–314 (2009).
- Jung, J. S., Tsatsral, B., Kim, Y. J. and **Kawamura, K.**, "Organic and inorganic aerosol compositions in Ulaanbaatar, Mongolia, during the cold winter of 2007 to 2008: Dicarboxylic acids, ketocarboxylic acids, and α -dicarbonyls" *J. Geophys. Res.* **115**, D22203, doi:10.1029/2010JD014339 (2010).
- Kameyama, S., Tanimoto, H., Inomata, S., Tsunogai, U., Ooki, A., Yokouchi, Y., Takeda, S., Obata, H. and **Uematsu, M.**, "Equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS) for sensitive, high-resolution measurement of dimethyl sulfide dissolved in seawater" *Anal. Chem.* **81**, 9021–9026, doi:10.1021/ac901630h (2009).
- Kameyama, S., Tanimoto, H., Inomata, S., Tsunogai, U., Ooki, A., Takeda, S., Obata, H., Tsuda, A. and **Uematsu, M.**, "High-resolution measurement of multiple volatile organic compounds dissolved in seawater using equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS)" *Mar. Chem.* **122**, 59–73 (2010).
- Kamono, A., Kojima, H., Matsumoto, J., **Kawamura, K.** and Fukui, M., "Airborne myxomycete spores: Detection using molecular techniques" *Naturwissenschaften* **96**, 147–151 (2009).
- Kanaya, Y., Cao, R., Kato, S., Miyakawa, Y., Kajii, Y., Tanimoto, H., Yokouchi, Y., Mochida, M., **Kawamura, K.** and Akimoto, H., "Chemistry of OH and HO₂ radicals at Rishiri Island, Japan, in September 2003: Missing daytime sink of HO₂ and positive nighttime correlations with monoterpenes" *J. Geophys. Res.* **112**, D11308, doi:10.1029/2006JD007987 (2007).
- Kanaya, Y., Pochanart, P., Liu, Y., Li, J., Tanimoto, H., Kato, S., Suthawaree, J., Inomata, S., Taketani, F., Okuzawa, K., **Kawamura, K.**, Akimoto, H. and Wang, Z., "Rates and regimes of photochemical ozone production over Central East China in June 2006: a box model analysis using comprehensive measurements of ozone precursors" *Atmos. Chem. Phys.* **9**, 7711–7723 (2009).

- Kato, S., Ui, T., Uematsu, M. and Kajii, Y., "Trace gas measurements over the northwest Pacific during the 2002 IOC cruise" *Geochem. Geophys. Geosys.* **8**, Q06M10, doi:10.1029/2006GC001241 (2007).
- Kato, S., Watari, M., Nagao, I., Uematsu, M. and Kajii, M., "Atmospheric trace gas measurements during SEEDS-II over the Northwestern Pacific" *Deep-Sea Res. II* **56**, 2918–2927 (2009).
- Kawakami, N., Osada, K., Nishita, C., Yabuki, M., Kobayashi, H., Hara, K. and Shiobara, M., "Factors controlling sea salt modification and dry deposition of non-sea-salt components to the ocean" *J. Geophys. Res.* **113**, doi:10.1029/2007JD009410 (2008).
- Kawamura, K. and Pavuluri, C. M., "New directions: Need for better understanding of plastic waste burning as inferred from high abundance of terephthalic acid in South Asian aerosols" *Atmos. Environ.* **44**, 5320–5321 (2010).
- Kawamura, K., Narukawa, M., Li, S.-M. and Barrie, L. A., "Size distributions of dicarboxylic acids and inorganic ions in atmospheric aerosols collected during polar sunrise in the Canadian High Arctic" *J. Geophys. Res.* **112**, D10307, doi:10.1029/2006JD008244 (2007).
- Kawamura, K., Barrie, L. A. and Toom-Saunty, D., "Intercomparison of the measurements of oxalic acid in aerosols by gas chromatography and ion chromatography" *Atmos. Environ.* **44**, 5316–5319 (2010).
- Kawamura, K., Kasukabe, H. and Barrie, L. A., "Secondary formation of water-soluble organic acids and α -dicarbonyls and their contributions to total carbon and water-soluble organic carbon: Photochemical aging of organic aerosols in the Arctic spring" *J. Geophys. Res.* **115**, D23210, doi:10.1029/2010JD014299 (2010).
- Kawamura, K., Matsumoto, K., Uchida, M. and Shibata, Y., "Contributions of modern and dead organic carbon to individual fatty acid homologues in spring aerosols collected from northern Japan" *J. Geophys. Res.* **115**, D22310, doi:10.1029/2010JD014515 (2010).
- Kitamori, Y., Mochida, M. and Kawamura, K., "Assessment of the liquid water content in urban aerosol particles by the hygroscopic growth measurements in Sapporo, Japan" *Atmos. Environ.* **43**, 3416–3423 (2009).
- Kundu, S., Kawamura, K. and Lee, M., "Seasonal variation of the concentrations of nitrogenous species and their nitrogen isotopic ratios in aerosols at Gosan, Jeju Island: Implications for atmospheric processing and source changes of aerosols" *J. Geophys. Res.* **115**, D20305, doi:10.1029/2009JD013323 (2010).
- Kundu, S., Kawamura, K. and Lee, M., "Seasonal variations of diacids, ketoacids and α -dicarbonyls in marine aerosols at Gosan, Jeju Island: Implications for their formation and degradation during long-range transport" *J. Geophys. Res.* **115**, D19307, doi:10.1029/2010JD013973 (2010).
- Kurihara, M. K., Kimura, M., Iwamoto, Y., Narita, Y., Ooki, A., Eum, Y. J., Tsuda, A., Suzuki, K., Tani, Y., Yokouchi, Y., Uematsu, M. and Hashimoto, S., "Distributions of short-lived iodocarbons and biogenic trace gases in the open ocean and atmosphere in the western North Pacific" *Mar. Chem.* **118**, 156–170 (2010).
- Kuwata, M., Kondo, Y., Mochida, M., Takegawa, N. and Kawamura, K., "Dependence of CCN activity on the amount of coating observed in Tokyo" *J. Geophys. Res.* **112**, D11207, doi:10.1029/2006JD007758 (2007).
- Li, L. and Osada, K., "Preferential settling of elongated mineral dust particles in the atmosphere" *Geophys. Res. Lett.* **34**, L17807, doi:10.1029/2007GL030262 (2007).
- Li, L. and Osada, K., "Water-insoluble particles in spring snow at Mt. Tateyama, Japan: Characteristics of the shape factors and size distribution in relation with their origin and transportation" *J. Meteor. Soc. Japan* **85**, 137–149 (2007).
- Matsumoto, K., Minami, H., Hayano, T., Uyama, Y., Tanimoto, H. and Uematsu, M., "Regional climatology of particulate carbonaceous substances in the northern area of the east Asian Pacific rim" *J. Geophys. Res.* **112**, D24203, doi:10.1029/2007JD008607 (2007).
- Matsumoto, K. and Uematsu, M., "Geographical distribution of particle number density in the accumulation mode range over the North Pacific Ocean" *Atmos. Res.* **92**, 251–257 (2009).
- Matsumoto, K., Kawamura, K., Uchida, M. and Shibata, Y., "Radiocarbon content and stable carbon isotopic ratios of individual fatty acids in subsurface soil: Implication for selective microbial degradation and modification of soil organic matter" *Geochem. J.* **41**, 483–492 (2007).
- Matsumoto, K., Minami, H., Uyama, Y. and Uematsu, M., "Size partitioning of particulate inorganic nitrogen species between the fine and coarse mode ranges and its implication to their deposition on the surface ocean" *Atmos. Environ.* **43**, 4259–4265 (2009).
- Matsunaga, S. N., Guenther, A. B., Izawa, Y., Wiedinmyer, C., Greenberg, J. P. and Kawamura, K., "Importance of wet precipitation as a removal and transport process for atmospheric water soluble carbonyls" *Atmos. Environ.* **41**, 790–796 (2007).
- Miyazaki, Y., Kondo, Y., Takegawa, N., Komazaki, Y., Fukuda, M., Kawamura, K., Mochida, M., Okuzawa, K. and Weber, R. J., "Time-resolved measurements of water-soluble organic carbon in Tokyo" *J. Geophys. Res.* **111**, D23206,

- doi:10.1029/2006JD007125 (2006).
- Miyazaki, Y., Aggarwal, S. G., Singh, K., Gupta, P. K. and Kawamura, K., "Dicarboxylic acids and water-soluble organic carbon in aerosols in New Delhi, India in winter: Characteristics and formation processes" *J. Geophys. Res.* **114**, D19206, doi:10.1029/2009JD011790 (2009).
- Miyazaki, Y., Kawamura, K. and Sawano, M., "Latitudinal distributions of organic nitrogen and organic carbon in marine aerosols over the western North Pacific" *Atmos. Chem. Phys.* **11**, 3037–3049 (2010).
- Miyazaki, Y., Kawamura, K. and Sawano, M., "Size distributions and chemical characterization of water-soluble organic aerosols over the western North Pacific in summer" *J. Geophys. Res.* **115**, D23210, doi:10.1029/2010JD014439 (2010).
- Mochida, M., Kuwata, M., Miyakawa, T., Takegawa, N., Kawamura, K. and Kondo, Y., "Relationship between hygroscopicity and cloud condensation nuclei activity for urban aerosols in Tokyo" *J. Geophys. Res.* **111**, D23204, doi:10.1029/2005JD006980 (2006).
- Mochida, M., Umemoto, N., Kawamura, K., Lim, H. and Turpin, B. J., "Bimodal size distributions of various organic acids and fatty acids in the marine atmosphere: Influence of anthropogenic aerosols, Asian dusts, and sea spray off the coast of East Asia" *J. Geophys. Res.* **112**, D15209, doi:10.1029/2006JD007773 (2007).
- Mochida, M., Miyakawa, T., Takegawa, N., Morino, Y., Kawamura, K. and Kondo, Y., "Significant alteration in the hygroscopic properties of urban aerosol particles by the secondary formation of organics" *Geophys. Res. Lett.* **35**, doi:10.1029/2007GL031310 (2008).
- Mochida, M., Nishita-Hara, C., Furutani, H., Miyazaki, Y., Jung, J. Y., Kawamura, K. and Uematsu, M., "Hygroscopicity and cloud condensation nucleus activity of marine aerosol particles over the western North Pacific" *J. Geophys. Res.* **116**, D06204, doi:10.1029/2010JD014759 (2010).
- Mochida, M., Nishita-Hara, C., Kitamori, Y., Aggarwal, S. G., Kawamura, K., Miura, K. and Takami, A., "Size-segregated measurements of cloud condensation nucleus activity and hygroscopic growth for aerosols at Cape Hedo, Japan in spring 2008" *J. Geophys. Res.* **115**, doi:10.1029/2009JD013216 (2010).
- Mochida, M., Kawamura, K., Fu, P. Q. and Takemura, T., "Seasonal variation of levoglucosan in aerosols over the western North Pacific and its assessment as a biomass-burning tracer" *Atmos. Environ.* **44**, 3511–3518 (2010).
- Murosaki, M., Fujita, S., Takahashi, A., Hayami, H. and Miura, K., "Measurements of ozone vertical distribution at Mt. Fuji using a passive sampler" *J. Jpn. Soc. Atmos. Environ.* **41**, 347–354 (2006).
- Nagano, K., Kojima, H. and Miura, K., "Development and evaluation of global radon transport model: Distribution of radon transit time and concentration over the Pacific" *J. Atmos. Electr.* **27**, 95–103 (2007).
- Nagao, I., Hashimoto, S., Toda, S., Narita, Y., Suzuki, K., Tsuda, A., Saito, H., Kudo, I., Kato, K., Kajii, Y. and Uematsu, M., "Responses of seawater and atmospheric DMS to iron enrichment experiment (SEEDS-II) in the subarctic western North Pacific" *Deep-Sea Res. II* **56**, 2899–2917 (2009).
- Nakamura, T., Ogawa, H., Kumar, D. M. and Uematsu, M., "Contribution of water soluble organic nitrogen to total nitrogen in marine aerosols over the East China Sea and western North Pacific" *Atmos. Environ.* **40**, 7259–7264 (2006).
- Narukawa, M., Kawamura, K., Li, S. M. and Bottenheim, J. W., "Stable carbon isotopic composition of the high Arctic aerosols: An increase in $\delta^{13}\text{C}$ values from winter to spring" *J. Geophys. Res.* **113**, doi:10.1029/2007JD008755 (2008).
- Nishita, C., Osada, K., Matsunaga, K. and Iwasaka, Y., "Number-size distributions of free tropospheric aerosol particles at Mt. Norikura, Japan: effects of precipitation and air-mass transportation pathways" *J. Geophys. Res.* **112**, doi:10.1029/2006JD007969 (2007).
- Nishita, C., Osada, K., Matsunaga, K. and Iwasaka, Y., "Nucleation mode particles in up-slope valley winds at Mt. Norikura, Japan: implications for the vertical extent of new particle formation events in the lower troposphere" *J. Geophys. Res.* **113**, doi:10.1029/2007JD009302 (2008).
- Ooki, A., Uematsu, M. and Noriki, S., "Size-resolved sulfate and ammonium measurements in marine boundary layer over the North and South Pacific" *Atmos. Environ.* **41**, 81–91 (2006).
- Osada, K., Hara, K., Wada, M., Yamanouchi, T. and Matsunaga, K., "Lower tropospheric vertical distribution of aerosol particles over Syowa Station, Antarctica from spring to summer in 2004" *Polar Meteorol. Glaciol.* **20**, 16–27 (2006).
- Osada, K., Kido, M., Nishita, C., Matsunaga, K., Iwasaka, Y., Nagatani, M. and Nakada, H., "Temporal variation of water-soluble ions of free tropospheric aerosol particles over central Japan" *Tellus* **59B**, 742–754 (2007).
- Osada, K., Ohara, T., Uno, I., Kido, M. and Iida, H., "Impact of Chinese anthropogenic emissions on submicrometer aerosol concentration at Mt. Tateyama, Japan" *Atmos. Chem. Phys.* **9**, 9111–9120 (2009).
- Osada, K., Shido, Y., Iida, H. and Kido, M., "Deposition processes of ionic constituents to snow cover" *Atmos. Environ.* **44**, 347–353 (2010).
- Osada, K., Ueda, S., Egashira, T., Takami, A. and Kaneyasu, N., "Measurements of gaseous NH_3 and particulate NH_4^+ in the atmosphere by fluorescent

- detection after continuous air-water droplet sampling" *Aerosol Air Qual. Res.* **11**, 170–178 (2010).
- Osada, K., Ura, S., Kagawa, M., Mikami, M., Tanaka T. Y., Matoba, S., Aoki, K., Shinoda, M., Kurosaki, Y., Hayashi, M., Shimizu, A. and **Uematsu, M.**, "Osada temporal and spatial variations of wet deposition flux of mineral dust in Japan" *SOLA* **7**, 049–052 (2011).
- Patra, P. K., Moore, J. K., Mahowald, N., **Uematsu, M.**, Doney, S. C. and Nakazawa, T., "Exploring the sensitivity of interannual basin-scale air-sea CO₂ fluxes to variability in atmospheric dust deposition using ocean carbon cycle models and atmospheric CO₂ inversions" *J. Geophys. Res.* **112**, G02012, doi:10.1029/2006JG000236 (2007).
- Pavuluri, C. M., Kawamura, K. and Swaminathan, T., "Water-soluble organic carbon, dicarboxylic acids, ketoacids and α -dicarbonyls in the tropical Indian aerosols" *J. Geophys. Res.* **115**, D11302, doi:10.1029/2009JD012661 (2010).
- Pavuluri, C. M., Kawamura, K., Tachibana, E. and Swaminathan, T., "Elevated nitrogen isotopic ratios of tropical Indian aerosols from Chennai: Implication for the origins of aerosol nitrogen in South and Southeast Asia" *Atmos. Environ.* **44**, 3597–3604 (2010).
- Saito, T., Kawamura, K., Tsunogai, U., Chen, T.-Y., Matzueda, H., Nakatsuka, T., Gamo, T., **Uematsu, M.** and Huebert, B. J., "Photochemical histories of non-methane hydrocarbons inferred from their stable carbon isotope ratio measurements over East Asia" *J. Geophys. Res.* **114**, D11303, doi:10.1029/2008JD011388 (2009).
- Seki, O., Yoshikawa, C., Nakatsuka, T., Kawamura, K. and Wakatsuchi, M., "Fluxes, source and transport of organic matter in the western Sea of Okhotsk: stable carbon isotopic ratios of *n*-alkanes and total organic carbon" *Deep-Sea Res.* **153**, 253–270 (2006).
- Seki, O., Nakatsuka, T., Kawamura, K., Saitoh, S. and Wakatsuchi, M., "Time-series sediment trap record of alkenones from the western Sea of Okhotsk" *Mar. Chem.* **104**, 253–265 (2007).
- Seki, O., Meyers, P. A., Kawamura, K., Zheng, Y. and Zhou, W., "Hydrogen isotopic ratios of plant-wax *n*-alkanes in peat bog in northeastern China during the last 16 ky" *Org. Geochem.* **40**, 671–677 (2009).
- Takegawa, N., Miyakawa, T., Kawamura, K. and Kondo, Y., "Contribution of selected dicarboxylic and omega-oxocarboxylic acids in ambient aerosol to the *m/z* 44 signal of an Aerodyne Aerosol Mass Spectrometer" *Aerosol Sci. Technol.* **41**, 418–437 (2007).
- Tanimoto, H., Matsumoto, K. and **Uematsu, M.**, "Ozone-CO correlations in Siberian Wildfire Plumes observed at Rishiri Island" *SOLA* **4**, 065–068, doi:10.2151/sola.2008-017 (2008).
- Tedetti, M., Kawamura, K., Charriere, B., Chevalier, N. and Sempere, R., "Determination of low molecular weight dicarboxylic acids in seawater samples" *Anal. Chem.* **78**, 6012–6018 (2006).
- Tedetti, M., Kawamura, K., Narukawa, M., Joux, F., Charrière, B. and Sempéré, R., "Hydroxyl radical-induced photochemical formation of dicarboxylic acids from unsaturated fatty acid (oleic acid) in aqueous solution" *J. Photochem. Photobiol.* **A188**, 135–139 (2007).
- Tedetti, M., Sempéré, R., Vasilkov, A., Charrière, B., Nérini, D., Miller, W. L., Kawamura, K. and Raimbault, P., "High penetration of ultraviolet radiation in the south east Pacific waters" *Geophys. Res. Lett.* **34**, L12610, doi:10.1029/2007GL029823 (2007).
- Tsuda, A., Takeda, S., Saito, H., Nishioka, J., Kudo, I., Nojiri, Y., Suzuki, K., **Uematsu, M.**, Wells, M. L., Tsumune, D., Yoshimura, T., Aono, T., Aramaki, T., Cochlan, W. P., Hayakawa, M., Imai, K., Isada, T., Iwamoto, Y., Johnson, W. K., Kameyama, S., Kato, S., Kiyosawa, H., Kondo, Y., Levasseur, M., Machida, R., Nagao, I., Nakagawa, F., Nakanishi, T., Nakatsuka, S., Narita, A., Noiri, Y., Obata, H., Ogawa, H., Oguma, K., Ono, T., Sakuragi, T., Sasakawa, M., Sato, M., Shimamoto, A., Takata, H., Trick, C. G., Watanabe, Y. Y., Wong, C. S. and Yoshie, N., "Evidence for the grazing hypothesis: Grazing reduces phytoplankton responses of the HNLC ecosystem to iron enrichment in the western subarctic Pacific (SEEDS II)" *J. Oceanogr.* **63**, 983–994 (2007).
- Ueda, S., Osada, K. and Okada, K., "Mixing states of cloud interstitial particles between water-soluble and insoluble materials at Mt. Tateyama" *Atmos. Res.* **99**, 325–336 (2010).
- Uematsu, M.**, Wells, M. L., Tsuda, A. and Saito, H., "Introduction to Subarctic Iron Enrichment for Ecosystem Dynamics Study II (SEEDS II)" *Deep-Sea Res. II* **56**, 2731–2732 (2009).
- Uematsu, M.**, Hattori, H., Nakamura, T., Narita, Y., Jung, J., Matsumoto, K. and Kumar, D., "Atmospheric transport and deposition of anthropogenic substances from the Asia to the East China Sea" *Mar. Chem.*, doi:10.1016/j.marchem.2010.01.004 (2010).
- Uematsu, M.**, Hattori H., Nakamura, T., Narita, Y., Jung, J. Y., Matsumoto, K., Nakaguchi, Y. and Kumar, M. D., "Atmospheric transport and deposition of anthropogenic substances from the Asia continent to the East China Sea" *Mar. Chem.* **120**, 108–115 (2010).
- Uno, I., **Uematsu, M.**, Hara, Y., He, Y. J., Ohara, T., Mori, A., Kamaya, T., Murano, K., Sadanaga, Y. and **Bandow, H.**, "Numerical study of the atmospheric input of anthropogenic total nitrate to the Marginal Seas in the western North Pacific region"

- Geophys. Res. Lett.* **34**, L17817, doi:10.1029/2007GL030338 (2007).
- Uno, I., Eguchi, K., Yumimoto, K., Takemura, T., Shimizu, A., Uematsu, M., Liu, Z. Wang, Z., Hara, Y. and Sugimoto, N., "Asian dust transported one full circuit around the globe" *Nature Geosci.* **2**, 557–560, doi:10.1038/NCEO583 (2009).
- Uno, I., Eguchi, K., Yumimoto, K., Liu, Z., Hara, Y., Sugimoto, N., Shimizu, A. and Takemura, T., "Large Asian dust layers continuously reached North America in April (2010)" *Atmos. Chem. Phys. Discuss.* **11**, 12251–12268 (2010).
- Wang, G., Kawamura, K., Lee, S., Ho, K. and Cao, J., "Molecular, seasonal and spatial distribution of organic aerosols from fourteen Chinese cities" *Environ. Sci. Technol.* **40**, 4619–4625 (2006).
- Wang, G., Kawamura, K., Watanabe, T., Lee, S., Ho, K. and Cao, J., "High loadings and source strengths of organic aerosols in China" *Geophys. Res. Lett.* **33**, L22801, doi:10.1029/2006GL027624 (2006).
- Wang, G., Kawamura, K., Zhao, X., Li, Q., Dai, Z. and Niu, H., "Identification, abundance and seasonal variation of anthropogenic organic aerosols from a mega-city in China" *Atmos. Environ.* **41**, 407–416 (2007).
- Wang, G., Kawamura, K., Hatakeyama, S., Takami, A., Li, H. and Wang, W., "Aircraft measurement of organic aerosols over China" *Environ. Sci. Technol.* **41**, 3115–3120 (2007).
- Wang, G., Kawamura, K. and Lee, M., "Comparison of organic compositions in dust storm and normal aerosol samples collected at Gosan, Jeju Island, during spring" *Atmos. Environ.* **43**, 219–227 (2009).
- Wang, G., Kawamura, K., Xie, M., Hu, S., Cao, J., An, Z., Weston, J. G. and Chow, J. C., "Organic molecular compositions and size distributions of Chinese Summer and autumn aerosols from Nanjing: Characteristic haze event caused by wheat straw burning" *Environ. Sci. Technol.* **43**, 6493–6499 (2009).
- Wang, G., Kawamura, K., Xie, M., Hu, S. and Wang, Z., "Water-soluble organic compounds in PM_{2.5} and size-segregated aerosols over Mt. Tai in North China Plain" *J. Geophys. Res.* **114**, D19208, doi:10.1029/2008JD011390 (2009).
- Wang, G., Kawamura, K., Xie, M., Hu, S., Gao, S., Cao, J., An, Z. and Wang, Z., "Size-distributions of n-hydrocarbons, PAHs and hopanes and their sources in the urban, mountain and marine atmospheres over East Asia" *Atmos. Chem. Phys.* **9**, 8869–8882 (2009).
- Wang, H. and Kawamura, K., "Stable carbon isotopic composition of low-molecular-weight dicarboxylic acids and ketoacids in remote marine aerosols" *J. Geophys. Res.* **111**, D07304, doi:10.1029/2005JD 006466 (2006).
- Wang, H., Kawamura, K., Ho, K. F. and Lee, S. C., "Low molecular weight dicarboxylic acids, ketoacids and dicarbonyls in the fine particles from a roadway tunnel: Significant secondary production from the precursors in vehicular emissions" *Environ. Sci. Technol.* **40**, 6255–6260 (2006).
- Wang, H., Kawamura, K. and Shooter, D., "Winter-time organic aerosols in Christchurch and Auckland, New Zealand: Contributions of residential wood and coal burning and petroleum utilization" *Environ. Sci. Technol.* **40**, 5257–5262 (2006).
- Wang, H., Kawamura, K. and Yamazaki, K., "Water-soluble dicarboxylic acids, ketoacids and dicarbonyls in the atmosphere over the Southern Ocean and western North Pacific" *J. Atmos. Chem.* **53**, 43–61 (2006).
- Williams, A. G., Chambers, S., Zahorowski, W., Crawford, J., Matsumoto, K. and Uematsu, M., "Estimating the Asian radon flux density and its latitudinal gradient in winter using ground-based radon observations at Sado Island" *Tellus* **61B**, 732–746, doi:10.1111/j.1600-0889.2009.00438.x (2009).
- Yokouchi, Y., Osada, K., Wada, M., Hasebe, F., Agama, M., Murakami, R., Mukai, H., Nojiri, Y., Inuzuka, Y., Toom-Saunty, D. and Fraser, P., "Global distribution and seasonal concentration change of methyl iodide in the atmosphere" *J. Geophys. Res.* **113**, doi:10.1029/2008JD009861 (2008).

A01-Supporting research

- Furukawa, T. and Takahashi, Y., "Oxalate metal complexes in aerosol particles: implications for the hygroscopicity of oxalate-containing particles" *Atom. Chem. Phys.* **11**, 4289–4301 (2011).
- Higashi, M. and Takahashi, Y., "Detection of S(IV) species in aerosol particles using XANES spectroscopy" *Environ. Sci. Technol.* **43**, 7357–7363 (2009).
- Kashiwabara, T., Mistunobu, S., Das, A., Itai, T., Tanimizu, M. and Takahashi, Y., "Oxidation states of antimony and arsenic in marine ferromanganese oxides related to their fractionation in oxic marine environment" *Chem. Lett.* **37**, 756–757 (2008).
- Kashiwabara, T., Takahashi, Y. and Tanimizu, T., "A XAFS study on the mechanisms of isotopic fractionation of molybdenum during its adsorption on ferromanganese oxides" *Geochem. J.* **43**, e31–e36 (2009).
- Kashiwabara, T., Takahashi, Y., Uruga, T., Tanida, H., Terada, Y., Niwa, Y. and Nomura, M., "Speciation of tungsten in natural ferromanganese oxides using wavelength dispersive XAFS" *Chem. Lett.* **39**, 870–871 (2011).

- Mitsunobu, S., Takahashi, Y., Terada, Y. and Sakata, M., "Antimony(V) incorporation into synthetic ferrihydrite, goethite, and natural Fe oxyhydroxides" *Environ. Sci. Technol.* **44**, 3712–3718 (2010).
- Shimamoto, Y. S. and **Takahashi, Y.**, "Superiority of K-edge XANES over LIII-edge XANES in the speciation of iodine in natural soils" *Anal. Sci.* **24**, 405–409 (2008).
- Takahashi, Y.**, Manceau, A., Geoffroy, N., Marcus, M. A. and Usui, A., "Chemical and structural control of the partitioning of Co, Ce, and Pb in marine ferromanganese oxides" *Geochim. Cosmochim. Acta* **71**, 984–1008 (2007).
- Takahashi, Y.**, Miyoshi, T., Yabuki, S., Inada, Y. and Shimizu, H., "Observation of transformation of calcite to gypsum in mineral aerosols by Ca K-edge X-ray absorption near-edge structure (XANES)" *Atmos. Environ.* **26**, 6535–6541 (2008).
- Takahashi, Y.**, Miyoshi, T., Higashi, M., Kamioka, H. and Kanai, Y., "Neutralization of calcite in mineral aerosols by acidic sulfur species collected in China and Japan studied by Ca K-edge X-ray absorption near-edge structure" *Environ. Sci. Technol.* **43**, 6535–6540 (2009).
- Takahashi, Y., Yamamoto, M., Yamamoto, Y. and Tanaka, K., "EXAFS study on the cause of enrichment of heavy REEs on bacterial cell surfaces" *Geochim. Cosmochim. Acta* **74**, 5443–5462 (2010).
- Tanaka, K., **Takahashi, Y.** and **Shimizu, H.**, "Local structure of Y and Ho in calcite and its relevance to Y fractionation from Ho in partitioning between calcite and aqueous solution" *Chem. Geol.* **248**, 104–113 (2008).
- Tanaka, K., **Takahashi, Y.** and **Shimizu, H.**, "Determination of the host phase of rare earth elements in natural carbonate using X-ray absorption near-edge structure" *Geochem. J.* (in press).
- Yamashita, Y., **Takahashi, Y.**, Haba, H., Enomoto, S. and Shimizu, H., "Comparison of reductive accumulation of Re and Os in seawater-sediment systems" *Geochim. Cosmochim. Acta* **71**, 3458–3475 (2007).
- A02: Variability of Gas Exchanges
at the Air-Sea Interface**
- A02-1 Trace gas geochemistry in ocean surface**
- Arakawa, S., Sato, T., Sato, R., Zhang, J., Gamo, T., **Tsunogai, U.**, Hirota, A., Yoshida, Y., Usami, R., Inagaki, F. and Kato, C., "Molecular phylogenetic and chemical analyses of the microbial mats in deep-sea cold seep sediments at the northeastern Japan Sea" *Extremophiles* **10**, 311–319 (2006).
- Hirota, A., Ijiri, A., Komatsu, D. D., Ohkubo, S. B., Nakagawa, F. and **Tsunogai, U.**, "Enrichment of nitrous oxide in a water column in the Bering and Chukchi Sea area" *Mar. Chem.* **116**, 47–53 (2009).
- Hirota, A., **Tsunogai, U.**, Komatsu, D. D. and Nakagawa, F., "Simultaneous determination of $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of N_2O and $\delta^{13}\text{C}$ of CH_4 in nanomolar quantities from a single water sample" *Rapid Commun. Mass Spectrom.* **24**, 1085–1092 (2010).
- Ijiri, A., **Tsunogai, U.**, Gamo, T., Nakagawa, F., Sakamoto, T. and Saito S., "Enrichment of adsorbed methane in authigenic carbonate concretions" *Geo-Mar. Lett.* **29**, 301–308 (2009).
- Inagaki, F., Kuypers, M. M. M., **Tsunogai, U.**, Ishibashi, J., Nakamura, K., Treude, T., Ohkubo, S., Nakaseama, M., Gena, K., Chiba, H., Hirayama, H., Nunoura, T., Takai, K., Jørgensen, B. B., Horikoshi, K. and Boetius, A., "Microbial community in a sediment-hosted CO_2 lake of the southern Okinawa Trough hydrothermal system" *Proc. Nat. Acad. Sci. U.S.A.* **103**, 14164–14169 (2006).
- Inomata, S. and Tanimoto, H., "A quantitative examination of the detection sensitivities of proton-transfer reaction mass spectrometry for gaseous 2-propanol and acetic acid" *Bull. Chem. Soc. Jpn.* **83**, 900–904 (2010).
- Inomata, S., Tanimoto, H., Kameyama, S., **Tsunogai, U.**, Irie, H., Kanaya, Y. and Wang, Z., "Technical note: Determination of formaldehyde mixing ratios in air with PTR-MS: Laboratory experiments and field measurements" *Atmos. Chem. Phys.* **8**, 273–284 (2008).
- Ishimura, T., **Tsunogai, U.** and Nakagawa, F., "Grain-scale heterogeneities in the stable carbon and oxygen isotopic compositions of the international standard calcite materials (NBS19, NBS18, IAEA-CO-1, and IAEA-CO-8)" *Rapid Commun. Mass Spectrom.* **22**, 1925–1932 (2008).
- Kameyama, S., Tanimoto, H., Inomata, S., **Tsunogai, U.**, Ooki, A., Yokouchi, Y., Takeda, S., Obata, H. and Uematsu, M., "Equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS) for sensitive, high-resolution measurement of dimethyl sulfide dissolved in seawater" *Anal. Chem.* **81**, 9021–9026 (2009).
- Kameyama, S., **Tsunogai, U.**, Nakagawa, F., Sasakawa, M., Komatsu, D. D., Ijiri, A., Yamaguchi, J., Horiguchi, T., Kawamura, H., Yamaguchi, A. and Tsuda, A., "Enrichment of alkanes within a phytoplankton bloom during an in situ iron enrichment experiment in the western subarctic Pacific" *Mar. Chem.* **115**, 92–101 (2009).
- Kameyama, S., Tanimoto, H., Inomata, S., **Tsunogai, U.**, Ooki, A., Takeda, S., Obata, H., Tsuda, A. and Uematsu, M., "High-resolution measurement of multiple volatile organic compounds dissolved in seawater using equilibrator inlet-proton transfer

- reaction-mass spectrometry (EI-PTR-MS)" *Mar. Chem.*, **122**, 59–73 (2010).
- Kameyama, S., Tanimoto, H., Inomata, S., Suzuki, K., Komatsu, D. D., Hirota, A., Konno, U. and **Tsunogai, U.**, "Application of PTR-MS to incubation experiments of the marine diatom *Thalassiosira pseudonana*" *Geochem. J.* **45**, 355–363 (2010).
- Kawagucci, S., **Tsunogai, U.**, Kudo, S., Nakagawa, F., Honda, H., Aoki, S., Nakazawa, T., Tsutsumi, M. and Gamo, T., "Long-term observation of mass-independent oxygen isotope anomaly in stratospheric CO₂" *Atmos. Chem. Phys.* **8**, 6189–6197 (2008).
- Kim, J.-H., Park, M.-H., **Tsunogai, U.**, Cheong, T.-J., Ryu, B.-J., Lee, Y.-J., Han, H.-C., Oh, J.-H. and Chang, H.-W., "Geochemical characterization of the organic matter, pore water constituents and shallow methane gas in the eastern part of the Ulleung Basin, East Sea (Japan Sea)" *Isl. Arc* **16**, 93–104 (2007).
- Kim, Y.-S., Tanaka, N., Nakagawa, F., **Tsunogai, U.**, Ueyama, M. and Harazono, Y., "Assessment of winter fluxes of CO₂ and CH₄ in boreal forest soils of central Alaska estimated by the profile method and the chamber method: a diagnosis of methane emission and implications for the regional carbon budget" *Tellus* **59B**, 223–233 (2007).
- Komatsu, D. D., Ishimura, T., Nakagawa, F. and **Tsunogai, U.**, "Determination of the ¹⁵N/¹⁴N, ¹⁷O/¹⁶O, and ¹⁸O/¹⁶O ratios of nitrous oxide by using continuous-flow isotope ratio mass spectrometry" *Rapid Commun. Mass Spectrom.* **22**, 1587–1596 (2008).
- Konno, U., **Tsunogai, U.**, Nakagawa, F., Nakaseama, M., Ishibashi, J., Nunoura, T. and Nakamura, K., "Liquid CO₂ venting on seafloor: Yonaguni IV Knoll hydrothermal system, Okinawa Trough" *Geophys. Res. Lett.* **33**, L16607, doi:10.1029/2006GL026115 (2006).
- Konno, U., **Tsunogai, U.**, Komatsu, D. D., Daita, S., Nakagawa, F., Tsuda, A., Matsui, T., Eum, Y.-J. and Suzuki, K., "Significance of N₂ fixation in dissolved fractions of organic nitrogen" *Biogeosci. Discuss.* **7**, 765–786 (2010).
- Konno, U., **Tsunogai, U.**, Komatsu, D. D., Daita, S., Nakagawa, F., Tsuda, A., Matsui, T., Eum, Y. J., Suzuki, K., "Determination of total N₂ fixation rates in the ocean taking into account both the particulate and filtrate fractions" *Biogeosciences* **7**, 2369–2377 (2010).
- Nakagawa, T., Takai, K., Suzuki, Y., Hirayama, H., Konno, U., **Tsunogai, U.** and Horikoshi, K., "Geomicrobiological exploration and characterization of a novel deep-sea hydrothermal system at the TOTO caldera in the Mariana Volcanic Arc" *Environ. Microbiol.* **8**, 37–49 (2006).
- Oba, M., Sakata S. and **Tsunogai, U.**, "Polar and neutral isopranyl glycerol ether lipids as biomarkers of archaea in near-surface sediments from the Nankai Trough" *Org. Geochem.* **37**, 1643–1654 (2006).
- Saegusa, S., **Tsunogai, U.**, Nakagawa, F. and Kaneko, S., "Development of a multi-bottle gas-tight fluid sampler WHATS II for Japanese submersibles/ROVs" *Geofluids* **6**, 234–240 (2006).
- Sasakawa, M., **Tsunogai, U.**, Kameyama, S., Nakagawa, F., Nojiri, Y. and Tsuda, A., "Carbon isotopic characterization for the origin of excess methane in subsurface seawater" *J. Geophys. Res.* **113**, doi:10.1029/2007JC004217 (2008).
- Saito, T., Kawamura, K., **Tsunogai, U.**, Chen, T.-Y., Matsueda, H., Nakatsuka, T., Gamo, T., Uematsu, M. and Huebert B. J., "Photochemical histories of nonmethane hydrocarbons inferred from their stable carbon isotope ratio measurements over east Asia" *J. Geophys. Res.* **114**, D11303, doi:10.1029/2008JD011388 (2009).
- Saito, T., Stein, O., **Tsunogai, U.**, Kawamura, K., Nakatsuka, T., Gamo, T. and Yoshida, N., "Stable carbon isotope ratios of ethane over the North Pacific: Atmospheric measurements and global chemical transport modeling" *J. Geophys. Res.* **116**, doi:10.1029/2010JD014602 (2010).
- Sasakawa, M., **Tsunogai, U.**, Kameyama, S., Nakagawa, F., Nojiri, Y. and Tsuda, A., "Carbon isotopic characterization for the origin of excess methane in subsurface seawater" *J. Geophys. Res.* **113**, C03012, doi:10.1029/2007JC004217 (2008).
- Tanimoto, H., Tohjima, Y., Mukai, H., Nara, H. and Hashimoto, S., "Anomalous geographical gap in carbon monoxide mixing ratios over Hokkaido (Japan) in summer 2004" *Geochem. J.* **43**, e23–e29 (2009).
- Tohjima, Y., Katsumata, K., Morino, I., Mukai, H., Machida, T., Akama, I., Amari, T. and **Tsunogai, U.**, "Theoretical and experimental evaluation of the isotope effect of NDIR analyzer on atmospheric CO₂ measurement" *J. Geophys. Res.* **114**, D13302, doi:10.1029/2009JD011734 (2009).
- Toki, T., Gamo, T. and **Tsunogai, U.**, "Origins of hydrocarbons at Sagara oil field, Central Japan" *Isl. Arc* **15**, 285–291 (2006).
- Tsunogai, U.**, Kido, T., Hirota, A., Ohkubo, S. B., Komatsu, D. D. and Nakagawa, F., "Sensitive determinations of stable nitrogen isotopic composition of organic nitrogen through chemical conversion to N₂O" *Rapid Commun. Mass Spectrom.* **22**, 345–354 (2008).
- Tsunogai, U.**, Komatsu, D. D., Daita, S., Kazemi, G. A., Nakagawa, F., Noguchi, I. and Zhang, J., "Tracing the fate of atmospheric nitrate deposited onto a forest ecosystem in eastern Asia using Δ¹⁷O" *Atmos. Chem. Phys.* **10**, 1809–1820 (2010).
- Tsunogai, U.**, Kosaka, A., Nakayama, N., Komatsu,

D. D., Konno, U., Kameyama, S., Nakagawa, F., Sumino, H., Nagao, K., Fujikura, K. and Machiyama, H., "Origin and fate of deep-sea seeping methane bubbles at Kuroshima knoll, Ryukyu forearc region, Japan" *Geochem. J.* **44**, 461–476 (2010).

A02-2 Development of direct eddy-covariance system for the air-sea trace gas flux measurements

Chuda, T., Niino, H., Yoneyama, K., Katsumata, M., Ushiyama T. and **Tsukamoto, O.**, "A statistical analysis of surface turbulent heat flux enhancements due to precipitating clouds observed in the tropical western Pacific" *J. Meteor. Soc. Japan* **86**, 439–457 (2008).

Hashimoto, S., Toda, S., Suzuki, K., Kato, S., Narita, Y., Kurihara, M., Akatsuka, Y., Oda, H., Nagai, T., **Nagao, I.**, Kudo, I. and Uematsu M., "Production and air-sea flux of methyl halides in the western subarctic Pacific in relation to phytoplankton pigment concentrations during iron fertilization experiment (SEEDS II)" *Deep-Sea Res. II* **56**, 2928–2935 (2009).

Iwata, T., Watanabe, C. and **Tsukamoto, O.**, "CO₂ profile in the lower atmosphere and CO₂ flux by the gradient method" *Abstracts of Surface Ocean CO₂ Variability and Vulnerability Workshop*, **58**, Paris, France, April (2007).

Kato, S., Watari, M., **Nagao, I.**, Uematsu, M. and Kajii, Y., "Atmospheric trace gas measurements during SEEDS-II over the Northwestern Pacific" *Deep-Sea Res. II* **56**, 2918–2927 (2009).

Kondo, F. and **Tsukamoto, O.**, "Air-sea CO₂ flux by eddy covariance technique in the equatorial Indian Ocean" *Abstracts of Surface Ocean CO₂ Variability and Vulnerability Workshop*, **60**, Paris, France, April (2007).

Kondo, F. and **Tsukamoto, O.**, "Air-sea CO₂ flux by eddy covariance technique in the equatorial Indian Ocean" *J. Oceanogr.* **63**, 449–456 (2007).

Kondo, F. and **Tsukamoto, O.**, "Evaluation of webb correction on CO₂ flux by eddy covariance technique using open-path gas analyzer over asphalt surface" *J. Agric. Meteorol.* **64**, 1–8 (2008).

Kondo, F., **Tsukamoto, O.**, Ishida, H. and Yoneyama, K., "On-board Direct CO₂ Flux Measurement Technique over the Open Ocean" Proc. Oceans '08/MTS/IEEE/TECHNO-OCEAN '08, 4 (various pages), April (2008).

Murata, A., Shimada, A., Nishino, S. and Itoh, M., "Distributions of surface water CO₂ and air-sea flux of CO₂ in coastal regions of the Canadian Beaufort Sea in late summer" *Biogeosci. Discuss.* **5**, 5093–5132 (2008).

Murata, A., Kumamoto, Y., Sasaki, K., Watanabe, S. and Fukasawa, M., "Decadal increases of anthro-

pogenic CO₂ along 149°E in the western North Pacific" *J. Geophys. Res.* **114**, C04018, doi:10.1029/2008JC004920 (2009).

Murata, A., Kumamoto, Y., Sasaki, K., Watanabe, S. and Fukasawa, M., "Decadal increases in anthropogenic CO₂ along 20°S in the South Indian Ocean" *J. Geophys. Res.*, **115**, C12055, doi:10.1029/2010JC006250 (2010).

Nagao, I., Hashimoto, S., Suzuki, K., Toda, S., Narita, Y., Tsuda, A., Saito, H., Kudo, I., Kato, S., Kajii, Y. and Uematsu, M., "Responses of DMS in the seawater and atmosphere to iron enrichment in the subarctic western North Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2899–2917 (2009).

Tsukamoto, O., Takeda, T., Kamei, Y., Miura, J., **Kondo, F.** and Ishida, H., "Mobile platform for on-board eddy flux measurements of energy, CO₂ and momentum" *Proc. Techno-Ocean 2010*, 84–87 (2010).

A02-3 Long-term changes of green house gases in the ocean and its feedback effect on climate

Ikeda, M., Greve, R., Hara, T., **Watanabe, Y. W.**, Ohmura, A. and Kawamiya, M., "Identifying crucial issues in climate science: drastic change in the earth system during global warming" *EOS Trans.* **90**, 15 (2009).

Ishida, H., **Watanabe, Y. W.**, Ishizaka, J., Nakano, T., Nagai, N., Watanabe, Y., Shimamoto, A., Maeda, N. and Magi, M., "Possibility of recent changes in vertical distribution and size composition of chlorophyll-*a* in the western North Pacific region" *J. Oceanogr.* **65**, 179–186 (2009).

Itoh, S., **Yasuda, I.**, Nishikawa, H., Sasaki, H. and Sasai, Y., "Transport and environmental temperature variability of eggs and larvae of the Japanese anchovy (*Engraulis japonicus*) and Japanese sardine (*Sardinops melanostictus*) in the western North Pacific estimated via numerical particle tracking experiments" *Fish. Oceanogr.* **18**, 118–133 (2009).

Itoh, S., **Yasuda, I.**, Nakatsuka, T., Nishioka, J. and Volkov, Y. N., "Fine- and microstructure observations in the Urup Strait, Kuril Islands, during August of 2006" *J. Geophys. Res.* **115**, C08004, doi:10.1029/2009JC005629 (2010).

Katsumata, K. and **Yasuda, I.**, "Estimate of non-tidal exchange transport between the Sea of Okhotsk and the North Pacific" *J. Oceanogr.* **66**, 489–504 (2010).

Masujima, M. and **Yasuda, I.**, "Distribution and modification of North Pacific Intermediate Water around the subarctic frontal zone east of 150°E" *J. Phys. Oceanogr.* **39**, 1462–1474 (2009).

Oguma, S., Ono, T., **Watanabe, Y. W.**, Kasai, H., Watanabe, S., Nomura, D. and Mitsudera, H., "Flux of low salinity water from Aniva Bay

- (Sakhalin Island) in the southern Okhotsk Sea” *Estuar. Coast. Shelf Sci.* **91**, 24–32 (2011).
- Osafune, S. and **Yasuda, I.**, “Bidecadal variability in the intermediate waters of the northwestern subarctic Pacific and the Okhotsk Sea in relation to 18.6-year period nodal tidal cycle” *J. Geophys. Res.* **111**, doi:10.1029/2995JC003277 (2006).
- Osafune, S. and **Yasuda, I.**, “Bidecadal variability in the Bering Sea and the relation with 18.6 year period nodal tidal cycle” *J. Geophys. Res.* **115**, C02014, doi:10.1029/2008JC005110 (2010).
- Sakamoto, A., **Watanabe, Y. W.**, Osawa, M., Kido, K. and Noriki, S., “Time series of carbonate system variables off Otaru coast in Hokkaido, Japan” *Estuar. Coast. Shelf Sci.* **79**, 1–10, doi:10.1016/j.ecss.2008.04.013 (2008).
- Shigemitsu, M., Narita, H., **Watanabe, Y. W.**, Harada, N. and Tsunogai, S., “Ba, Si, U, Al, Sc, La, Th, C and C-13/C-12 in a sediment core in the western subarctic Pacific as proxies of past biological production” *Mar. Chem.* **106**, 442–455 (2007).
- Shigemitsu, M., **Watanabe, Y. W.** and Narita, H., “Time variations of delta N-15 of organic nitrogen in deep western subarctic Pacific over the last 145 kyr” *Geochem. Geophys. Geosys.* **9**, Q10012, doi:10.1029/2008GC001999 (2008).
- Shigemitsu, M., **Watanabe, Y. W.** and Narita, H., “Sedimentary inorganic nitrogen and its isotope ratio in the western subarctic Pacific over the last 145 kyr” *J. Oceanogr.* **65**, 541–548 (2009).
- Shigemitsu, M., Yamanaka, Y., **Watanabe, Y. W.**, Maeda, N. and Noriki, S., “Seasonal characteristics of the nitrogen isotope biogeochemistry of settling particles in the western subarctic Pacific: a model study” *Earth Planet. Sci. Lett.* **293**, 180–190 (2010).
- Shimizu, Y., Takahashi, K., Ito, S., Kakehi, S., Tatebe, H., **Yasuda, I.**, Kusaka, A. and Nakayama, T., “Transport of subarctic large copepods from the Oyashio area to the mixed water region by Oyashio intrusions” *Fish. Oceanogr.* **18**, 312–327 (2009).
- Tadokoro, K., Ono, T., **Yasuda, I.**, Osafune, S., Shiimoto, A. and Sugisaki, H., “Possible mechanisms of decadal scale variations in PO₄ concentration in the Oyashio and Kuroshio-Oyashio Transition waters, western North Pacific” *Geophys. Res. Lett.* **36**, L08606, doi:10.1029/2009GL037327 (2009).
- Tanaka, S. S. and **Watanabe, Y. W.**, “A high accuracy method for determining nitrogen, argon and oxygen in seawater” *Mar. Chem.* **106**, 516–529 (2007).
- Tatebe, H., **Yasuda, I.**, Saito, H. and Shimizu, Y., “Horizontal transport of the calanoid copepod *Neocalanus* in the North Pacific: The influences of the current system and the life history” *Deep-Sea Res. I* **57**, 409–419 (2010).
- Tsumune, D., Nishioka, J., Shimamoto, A., **Watanabe, Y. W.**, Aramaki, T., Nojiri, Y., Takeda, S. and Tsubono, T., “Physical behaviours of iron fertilized patch in SEEDS II” *Deep-Sea Res. II* **56**, 2948–2957, doi:10.1016/j.dsr2.2009.07.004 (2009).
- Watanabe, Y. W.**, Yoshinari, H., Sakamoto, A., Nakano, Y., Kasamatsu, N., Midorikawa, T. and Ono, T., “Reconstruction of dimethylsulfide in the North Pacific surface water during 1970s to 2000s” *Mar. Chem.* **103**, 347–358 (2007).
- Watanabe, Y. W.**, Shigemitsu, M. and Tadokoro, K., “Evidence of a change in oceanic fixed nitrogen with decadal climate change in the North Pacific subpolar region” *Geophys. Res. Lett.* **35**, L01602, doi:10.1029/2007GL032188 (2008).
- Watanabe, Y. W.**, Chiba, T. and Tanaka, T., “Recent change in the oceanic uptake rate of anthropogenic carbon in the North Pacific subpolar region determined by using a C-13 time series” *J. Geophys. Res.* **116**, C02006, doi:10.1029/2010JC006199 (2011).
- Yasuda, I.**, “The 18.6-year period moon-tidal cycle in Pacific Decadal Oscillation reconstructed from tree-rings in western North America” *Geophys. Res. Lett.* **36**, L05605, doi:10.1029/2008GL036880 (2009).
- Yasuda, I.**, Osafune, S. and Tatebe H., “Possible explanation linking 18.6-year period nodal tidal cycle with bi-decadal variations of ocean and climate in the North Pacific” *Geophys. Res. Lett.* **33**, doi:10.1029/2005GL025237 (2006).

A02-Supporting research

- Ambe, D., Endoh, T., **Hibiya, T.** and Imawaki, S., “Transition to the large meander path of the Kuroshio as observed by satellite altimetry” *La mer* **47**, 19–27 (2009).
- Endoh, T. and **Hibiya, T.**, “Interaction between the trigger meander of the Kuroshio and the abyssal anticyclone over Koshu Seamount as seen in the reanalysis data” *Geophys. Res. Lett.* **36**, L18604, doi:10.1029/2009GL039389 (2009).
- Hosoda, S., **Suga, T.**, Shikama, N. and Mizuno, K., “Global surface layer salinity change detected by Argo and its implication for hydrological cycle intensification” *J. Oceanogr.* **65**, 579–586 (2009).
- Itoh, M., Ohte, N., **Koba, K.**, Katsuyama, M., Hayamizu, K. and Tani, M., “Hydrologic effects on methane dynamics in riparian wetlands in a temperate forest catchment” *J. Geophys. Res.* **112**, G01019, doi:10.1029/2006JG000240 (2007).
- Iwamae, N., **Hibiya, T.** and Watanabe, M., “Numerical study of the bottom-intensified tidal mixing using an ‘eikonal’ approach” *J. Geophys. Res.* **114**, C05022, doi:10.1029/2008JC005130 (2009).

- Nara, H., **Toyoda, S.** and Yoshida, N., "Measurements of stable carbon isotopic composition of ethane and propane over the western North Pacific and eastern Indian Ocean: a useful indicator of atmospheric transport process" *J. Atmos. Chem.* **56**, 293–314 (2007).
- Oka, E., Toyama, K. and **Suga, T.**, "Subduction of North Pacific central mode water associated with subsurface mesoscale eddy" *Geophys. Res. Lett.* **36**, L08607, doi:10.1029/2009GL037540 (2009).
- Sato, K. and **Suga, T.**, "Structure and modification of the South Pacific Eastern Subtropical Mode Water" *J. Phys. Oceanogr.* **39**, 1700–1714 (2009).
- Suga, T.**, "Argo: Taking the pulse of the ocean" *ARGOS forum* **64**, 14–17 (2007).
- Sugiyama, Y., Niwa, Y. and **Hibiya, T.**, "Numerically reproduced internal wave spectra in the deep ocean" *Geophys. Res. Lett.* **36**, L07601, doi:10.1029/2008GL036825 (2009).
- Sukigara, C., **Suga, T.**, Saino, T., Toyama, K., Yanagimoto, D., Hanawa, K., Shikama, N., "Biogeochemical evidence of large diapycnal diffusivity associated with the subtropical mode water of the North Pacific" *J. Oceanogr.* **67**, 77–85 (2011).
- Toyama, K. and **Suga, T.**, "Vertical structure of North Pacific mode waters" *Deep-Sea Res. II* **57**, 1152–1160 (2010).
- Toyoda, S.**, Yamamoto, S., Arai, S., Nara, H., Yoshida, N., Kashiwakura, K. and Akiyama, K., "Isotopomeric characterization of N₂O produced, consumed, and emitted by automobiles" *Rapid Commun. Mass Spectrom.* **22**, 603–612 (2008).
- Toyoda, S.**, Iwai, H., **Koba, K.** and Yoshida, N., "Isotopomeric analysis of N₂O dissolved in a river in the Tokyo metropolitan area" *Rapid Commun. Mass Spectrom.* **23**, 809–821 (2009).
- Tsubouchi, T., **Suga, T.** and Hanawa, K., "Indian Ocean Subtropical Mode Water: its water characteristics and spatial distribution" *Ocean Sci.* **6**, 41–50 (2010).
- Ueno, H., Freeland, H., Crawford, W. R., Onishi, H., Oka, E., Sato, K. and **Suga, T.**, "Anticyclonic eddies in the Alaskan Stream" *J. Phys. Oceanogr.* **39**, 934–951 (2009).
- Ueno, Y., Ono, S., Rumble, D. and Maruyama, S., "Quadruple sulfur isotope analysis of ca. 3.5 Ga Dresser Formation: new evidence for microbial sulfate reduction in the Early Archean" *Geochim. Cosmochim. Acta* **72**, 5675–5691 (2008).
- Yamagishi, H., Westley, M. B., Popp, B. N., **Toyoda, S.**, Yoshida, N., Watanabe, S., **Koba, K.** and Yamanaka, Y., "Role of nitrification and denitrification on the nitrous oxide in the eastern tropical North Pacific and Gulf of California" *J. Geophys. Res.* **112**, G02015, doi:10.1029/2006JG000227 (2007).
- Zhai, X., Greatbatch, R. J., Eden, C. and **Hibiya, T.**, "On the loss of wind-induced near-inertial energy to turbulent mixing in the upper ocean" *J. Phys. Oceanogr.* **39**, doi:10.1175/2009JPO4259.1 (2009).

A03: Dynamics of Marine Ecosystem

A03-1 Bioavailability and biogeochemical process of trace metals in the surface ocean

- Boyd, P. W., Jickells, T., Law, C. S., Blain, S., Boyle, E. A., Buesseler, K. O., Coale, K. H., Cullen, J. J., de Baar, H. J. W., Follows, M., Harvey, M., Lancelot, C., Levasseur, M., Pollard, R., Rivkin, R. B., Sarmiento, J., Schoemann, V., Smetacek, V., **Takeda, S.**, Tsuda, A., Turner, S. and Watson, A. J., "Mesoscale iron-enrichment experiments 1993–2005: synthesis and future directions" *Science* **315**, 612–617 (2007).
- Buesseler, K. O., Doney, S. C., Karl, D. M., Boyd, P. W., Caldeira, K., Chai, F., Coale, K., de Baar, H. J. W., Falkowski, P. G., Johnson, K. S., Lampitt, R. S., Michaels, A. F., Naqvi, S. W. A., Smetacek, V., **Takeda, S.** and Watson, A. J., "Ocean iron fertilization: moving forward in a sea of uncertainty" *Science* **319**, 162, doi:10.1126/science.1154305 (2008).
- Hara, Y., **Obata, H.**, Doi, T., Hongo, Y., Gamo, T., **Takeda, S.** and Tsuda, A., "Rare earth elements during the iron-induced phytoplankton bloom of the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2839–2851 (2009).
- Hashihama, F., Furuya, K., Kitajima, S., **Takeda, S.**, Takemura, T. and Kanda, J., "Macro-scale exhaustion of surface phosphate by dinitrogen fixation in the western North Pacific" *Geophys. Res. Lett.* **36**, doi:10.1029/2008GL036866 (2009).
- Hashihama, F., Sato, M., **Takeda, S.**, Kanda, J. and Furuya, K., "Mesoscale decrease of surface phosphate and associated phytoplankton dynamics in the vicinity of the subtropical South Pacific islands" *Deep-Sea Res. II* **57**, 338–350 (2010).
- Hongo, Y., **Obata, H.**, Alibo, D. S. and Nozaki, Y., "Spatial variations of rare earth elements in North Pacific surface water" *J. Oceanogr.* **62**, 441–455 (2006).
- Kameyama, S., Tanimoto, H., Inomata, S., Tsunogai, U., Ooki, A., Yokouchi, Y., **Takeda, S.**, **Obata, H.** and Uematsu, M., "Equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS) for sensitive, high-resolution measurement of dimethyl sulfide dissolved in seawater" *Anal. Chem.* **81**, 9021–9026 (2009).
- Kameyama, S., Tanimoto, H., Inomata, S., Tsunogai, U., Ooki, A., **Takeda, S.**, **Obata, H.**, Tsuda, A. and Uematsu, M., "High-resolution measurement of

- multiple volatile organic compounds dissolved in seawater using equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS)" *Mar. Chem.*, **122**, 59–73 (2010).
- Kitajima, S., Furuya, K., Hashihama, F., **Takeda, S.** and Kanda, J., "Latitudinal distribution of diazotrophs and their nitrogen fixation in the tropical and subtropical western North Pacific" *Limnol. Oceanogr.* **54**, 537–547 (2009).
- Kondo, Y., Takeda, S.** and Furuya, K., "Distribution and speciation of dissolved iron in the Sulu Sea and its adjacent waters" *Deep-Sea Res. II* **54**, 60–80 (2007).
- Kondo, Y., Takeda, S.,** Nishioka, J., **Obata, H.,** Furuya, K., Johnson, W. K. and Wong, C. S., "Organic iron (III) complexing ligands during an iron enrichment experiment in the western subarctic North Pacific" *Geophys. Res. Lett.* **35**, doi:10.1029/2008GL033354 (2008).
- Maruo, M., Doi, T. and **Obata, H.,** "Onboard determination of submicromolar nitrate in seawater by anion-exchange chromatography with lithium chloride eluent" *Anal. Sci.* **22**, 1175–1178 (2006).
- Nakatsuka, S., Okamura, K., **Takeda, S.,** Nishioka, J., Firdaus, M. L., Norisuye, K. and Sohrin, Y., "Behaviors of dissolved and particulate Co, Ni, Cu, Zn, Cd and Pb during a mesoscale Fe-enrichment experiment (SEEDS II) in the western North Pacific" *Deep-Sea Res. II* **56**, 2822–2838 (2009).
- Nishioka, J., Ono, T., Saito, H., Nakatsuka, T., **Takeda, S.,** Yoshimura, T., Suzuki, K., Kuma, K., Nakabayashi, S., Tsumune, D., Mitsudera, H., Johnson, W. K. and Tsuda, A., "Iron supply to the western subarctic Pacific: Importance of iron export from the Sea of Okhotsk" *J. Geophys. Res.*, **112** C10012, doi:10.1029/2006JC004055 (2007).
- Nishioka, J., **Takeda, S.,** Kondo, Y., **Obata, H.,** Doi, T., Tsumune, D., Wong, C. S., Johnson, W. K. and Tsuda, A., "Changes in iron concentrations and bio-availability during an open ocean mesoscale iron enrichment in the western subarctic Pacific, SEEDS II" *Deep-Sea Res. II* **56**, 2796–2809 (2009).
- Obata, H.,** Yoshida, T. and Ogawa, H., "Determination of picomolar levels of platinum in estuarine waters: a comparison of cathodic stripping voltammetry and isotope dilution-inductively coupled plasma mass spectrometry" *Anal. Chim. Acta* **580**, 32–38 (2006).
- Obata, H.,** Alibo, D. S. and Nozaki, Y., "Dissolved aluminum, indium and cerium in the Japan Sea and the Sea of Okhotsk: Comparison to the marginal seas of the western North Pacific" *J. Geophys. Res.* **112**, C12003, doi:10.1029/2006JC003944 (2007).
- Obata, H.,** Doi, T., Hongo, Y., Alibo, D. S., Minami, H., Kato, Y. and Maruo, M., "Manganese, cerium, and iron in the Philippine, Celebes, and Sulu Seas" *Deep-Sea Res. II* **54**, 38–49 (2007).
- Obata, H.,** Shitashima, K., Isshiki, K. and Nakayama, E., "Iron, manganese and aluminum in upper waters of the western South Pacific Ocean and its adjacent seas" *J. Oceanogr.* **64**, 233–245 (2008).
- Oooki, A., Tsuda, A., Kameyama, S., **Takeda, S.,** Itoh, S., Suga, T., Tazoe, H., Okubo, A. and Yokouchi, Y., "Methyl halides in surface seawater and marine boundary layer of the Northwest Pacific" *J. Geophys. Res.* **115**, C10013, doi:10.1029/2009JC005703 (2010).
- Ozaki, H., **Obata, H.,** Naganobu, M. and Gamo, T., "Long-term bottom water warming in the northern Ross Sea" *J. Oceanogr.* **65**, 235–244 (2009).
- Saito, H., Tsuda, A., Nojiri, Y., Nishioka, J., **Takeda, S.,** Kiyosawa, H., Kudo, I., Noiri, Y., Ono, T., Taira, Y., Suzuki, K., Yoshimura, T. and Boyd, P. W., "Nutrient and phytoplankton dynamics during the stationary and declining phases of a phytoplankton bloom induced by iron-enrichment in the eastern subarctic Pacific" *Deep-Sea Res. II* **53**, 2168–2181 (2006).
- Saito, H., Tsuda, A., Nojiri, Y., Aramaki, T., Ogawa, H., Yoshimura, T., Imai, K., Kudo, I., Nishioka, J., Ono, T., Suzuki, K. and **Takeda, S.,** "Biogeochemical cycling of N and Si during the mesoscale iron-enrichment experiment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2852–2862 (2009).
- Sato, M., **Takeda, S.** and Furuya, K., "Effects of long-term sample preservation on flow cytometric analysis of natural populations of pico- and nanophytoplankton" *J. Oceanogr.* **62**, 903–908 (2006).
- Sato, M., **Takeda, S.** and Furuya, K., "Iron regeneration and organic iron(III)-binding ligand production during in situ zooplankton grazing experiment" *Mar. Chem.* **106**, 471–488 (2007).
- Sato, M., **Takeda, S.** and Furuya, K., "Responses of pico- and nanophytoplankton to artificial iron infusions observed during the second iron enrichment experiment in the western subarctic Pacific (SEEDS II)" *Deep-Sea Res. II* **56**, 2745–2754 (2009).
- Sato, M., Hashihama, F., Kitajima, S., **Takeda, S.** and Furuya, K. "Distribution of nano-sized cyanobacteria in the western and central Pacific Ocean" *Aquat. Microb. Ecol.* **59**, 273–282 (2010).
- Shiozaki, T., Kodama, T., **Takeda, S.** and Furuya, K., "Contribution of N₂ fixation to new production in the western North Pacific along 155°E" *Mar. Ecol. Prog. Ser.* **377**, 19–32 (2009).
- Shiozaki, T., Furuya, K., Kodama, T., Kitajima, S., **Takeda, S.,** Takemura, T. and Kanda, J., "New estimation of N₂ fixation in the western and central Pacific Ocean and its marginal seas" *Global*

- Biogeochem. Cycles* **24**, GB1015, doi:10.1029/2009GB003620 (2010).
- Takeda, S.**, Yoshie, N., Boyd, P. W. and Yamanaka, Y., "Modeling studies investigating the causes of preferential depletion of silicic acid relative to nitrate during SERIES, a mesoscale iron enrichment in the NE subarctic Pacific" *Deep-Sea Res. II* **53**, 2297–2326 (2006).
- Takeda, S.**, Ramaiah, N., Miki, M., Kondo, Y., Yamaguchi, Y., Arii, Y., Gomez, F., Furuya, K. and Takahashi, W., "Biological and chemical characteristics of high-chlorophyll, low-temperature water observed near the Sulu Archipelago" *Deep-Sea Res. II* **54**, 81–102 (2007).
- Tazoe, H., **Obata, H.**, Amakawa, H., Nozaki, Y. and Gamo, T., "Precise determination of the cerium isotopic composition of surface water in the Northwest Pacific Ocean and Tokyo Bay" *Mar. Chem.* **103**, 1–14 (2007).
- Tsuda, A., **Takeda, S.**, Saito, H., Nishioka, J., Kudo, I., Nojiri, Y., Suzuki, K., Uematsu, M., Wells, M. L., Tsumune, D., Yoshimura, T., Aono, T., Aramaki, T., Cochlan, W. P., Hayakawa, M., Imai, K., Isada, T., Iwamoto, Y., Johnson, W. K., Kameyama, S., Kato, S., Kiyosawa, H., **Kondo, Y.**, Levasseur, M., Machida, R., Nagao, I., Nakagawa, F., Nakanishi, T., Nakatsuka, S., Narita, A., Noiri, Y., **Obata, H.**, Ogawa, H., Oguma, K., Ono, T., Sakuragi, T., Sasakawa, M., Sato, M., Shimamoto, A., Takata, H., Trick, C. G., Watanabe, Y. Y., Wong, C. S. and Yoshie, N., "Evidence for the grazing hypothesis: Grazing reduces phytoplankton responses of the HNLC ecosystem to iron enrichment in the western subarctic Pacific (SEEDS II)" *J. Oceanogr.* **63**, 983–994 (2007).
- Tsumune, D., Nishioka, J., Shimamoto, A., Watanabe, Y. W., Aramaki, T., Nojiri, Y., **Takeda, S.**, Tsuda, A. and Tsubono, T., "Physical behaviors of the iron-fertilized patch in SEEDS II" *Deep-Sea Res. II* **56**, 2948–2957 (2009).
- Wong, C. S., Johnson, W. K., Sutherland, N., Nishioka, J., Timothy, D. A., Robert, M. and **Takeda, S.**, "Iron speciation and dynamics during SERIES, a mesoscale iron enrichment experiment in the NE Pacific" *Deep-Sea Res. II* **53**, 2075–2094 (2006).
- Yoshikawa, T., Miki, M., **Takeda, S.** and Furuya, K., "Spatial heterogeneity in photosynthesis—irradiance parameters of phytoplankton across a cyclonic eddy in the Antarctic Divergence zone along 140°E" *Geophys. Res. Lett.* **34**, L18605, doi:10.1029/2007GL030736 (2007).
- Yoshimura, T., Nishioka, J., Saito, H., **Takeda, S.**, Tsuda, A. and Wells, M. L., "Distributions of particulate and dissolved organic and inorganic phosphorus in North Pacific surface waters" *Mar. Chem.* **103**, 112–121 (2007).
- A03-2 Dynamics of biophilic elements and microbial processes in the surface ocean**
- Chiura, H. X., Uchiyama, N. and **Kogure, K.**, "Broad-host range gene transporter particles produced by *Aliivibrio fischeri*" *Microb. Environ.* **24**, 322–329 (2009).
- Fukuda, H., **Ogawa, H.**, Sohrin, R., Yamasaki, A. and Koike, I., "Sources of dissolved organic carbon and nitrogen in Otsuchi Bay on the Sanriku coast of Japan in the spring" *Coast. Mar. Sci.* **31**, 19–29 (2007).
- Hashihama, F., Horimoto, N., **Kanda, J.**, Furuya, K., Ishimaru, T. and Saino, T., "Temporal variation in phytoplankton composition related to water mass properties in the central part of Sagami Bay" *J. Oceanogr.* **64**, 23–37 (2008).
- Hashihama, F., Furuya, K., Kitajima, S., Takeda, S., Takemura, T. and **Kanda, J.**, "Macro-scale exhaustion of surface phosphate by dinitrogen fixation in the western subtropical North Pacific" *Geophys. Res. Lett.* **36**, doi:10.1029/2008GL036866 (2009).
- Hashihama, F., Hirawake, T., Kudoh, S., **Kanda, J.**, Furuya, K., Yamaguchi, Y. and Ishimaru, T., "Size fraction and class composition of phytoplankton in the Antarctic marginal ice zone along the 140°E meridian during February–March 2003" *Polar Sci.* **2**, 109–120 (2008).
- Hashihama, H., Sato, M., Takeda, S., **Kanda, J.** and Furuya, K., "Mesoscale decrease of surface phosphate and associated phytoplankton dynamics in the vicinity of the subtropical South Pacific islands" *Deep-Sea Res. I* **57**, 338–350 (2010).
- Hashihama, F. and **Kanda, J.**, "Automated colorimetric determination of trace silicic acid in seawater by gas-segmented continuous flow analysis with a liquid waveguide capillary cell" *La mer* (in press).
- Inoue, K., Nishimura, M., Nayak, B. B. and **Kogure, K.**, "Separation of marine bacteria according to buoyant density by use of the density-dependent cell sorting method" *Appl. Environ. Microbiol.* **73**, 1049–1053 (2007).
- Kamiya, E., Izumiyama, S., Nishimura, M., Mitchell, J. G. and **Kogure, K.**, "Effects of fixation and storage on flow cytometric analysis of marine bacteria" *J. Oceanogr.* **63**, 101–112 (2007).
- Kanda, J.**, "Vertical profiles of nitrate uptake obtained from in situ ¹⁵N incubation experiments in the western North Pacific" *J. Mar. Sys.* **71**, 63–78 (2008).
- Kanda, J.**, Itoh, T. and Nomura, M., "Vertical profiles of trace nitrate in surface oceanic waters of the North Pacific Ocean and East China Sea" *La mer* **45**, 69–80 (2007).
- Kitajima, S., Furuya, K., Hashihama, F., Takeda, S. and **Kanda, J.**, "Latitudinal distribution of diazotrophs and their nitrogen fixation in the tropi-

- cal and subtropical western North Pacific" *Limnol. Oceanogr.* **54**, 537–547 (2009).
- Nishimura, M., Shimakita, T., Matsuzaki, T., Tashiro, Y. and **Kogure, K.**, "Automatic counting of FISH-labeled microbes by an LED illuminated detecting apparatus" *Fish. Sci.* **74**, 405–410 (2008).
- Radhakrishnan, G., Yamamoto, M., Maeda, H., Nakagawa, A., KatareGopalrao, R., Okada, H., Nishimori, H., Wariishi, S., Toda, E., **Ogawa, H.** and Sasaguri, S., "Intake of dissolved organic matter from seawater inhibits atherosclerosis progression" *Biochem. Biophys. Res. Commun.* **387**, 25–30 (2009).
- Saito, H., Tsuda, A., Nojiri, Y., Aramaki, T., **Ogawa, H.**, Yoshimura, T., Imai, K., Kudo, I., Nishioka, J., Ono, T., Suzuki, K. and Takeda, S., "Biogeochemical cycling of N and Si during the mesoscale iron-enrichment experiment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2852–2862 (2009).
- Sato, M., **Hashihama, E.**, Kitajima, S., Takeda, S. and Furuya, K., "Distribution of nano-sized cyanobacteria in the Pacific Ocean" *Aquat. Microb. Ecol.* (in press).
- Sawabe, T., Koizumi, S., Fukui, Y., Nakagawa, S., Ivanova, E. P., Kita-Tsukamoto, K., **Kogure, K.** and Thompson, F. L., "Mutation is the main driving force in the diversification of the *Vibrio splendidus* clade" *Microb. Environ.* **24**, 281–285 (2009).
- Seo, Y., Ikemoto, E., Yoshida, A. and **Kogure, K.**, "Particle capture by marine bacteria" *Aquat. Microb. Ecol.* **49**, 243–253 (2007).
- Shibata, A., Yasui, H., Fukuda, H., **Ogawa, H.**, Kikuchi, T., Toda, T. and Taguchi, S., "Fate of the bacterial cell envelope component, lipopolysaccharide, that is sequentially mediated by viruses and flagellates" *Coast. Mar. Sci.* **33**, 39–45 (2009).
- Soumya, H., Neogi, S. B., **Kogure, K.**, Chatterjee, S., Chowdhury, N., Hinenoya, A., Asakura, M. and Yamasaki, S., "Development of a hemolysin gene-based multiplex PCR for simultaneous detection of *Vibrio campbellii*, *Vibrio harveyi* and *Vibrio parahaemolyticus*" *Lett. Appl. Microbiol.* **50**, 146–152 (2010).
- Suzumura, M.**, "Persulfate chemical wet oxidation method for the determination of particulate phosphorus in comparison with a high-temperature dry combustion method" *Limnol. Oceanogr.: Methods* **6**, 619–629 (2008).
- Tanaka, Y., Miyajima, T., Koike, I., Hayashibara, T. and **Ogawa, H.**, "Imbalanced coral growth between organic tissue and carbonate skeleton caused by nutrients enrichment" *Limnol. Oceanogr.* **52**, 1139–1146 (2007).
- Tanaka, Y., Miyajima, T., Koike, I., Hayashibara, T. and **Ogawa, H.**, "Production of dissolved and particulate organic matter by the reef-building corals *Porites cylindrica* and *Acropora pulchra*" *Bull. Mar. Sci.* **82**, 237–245 (2008).
- Tanaka, Y., Miyajima, Y., Umezawa, Y., Hayashibara, T., **Ogawa, H.** and Koike, I., "Net release of dissolved organic matter by the scleractinian coral *Acropora pulchra*" *J. Exp. Mar. Biol. Ecol.* **377**, 101–106 (2009).
- Tanaka, Y., Miyajima, T. and **Ogawa, H.**, "Bacterial degradability of dissolved organic carbon in coral mucus" *Proc. 11th Int. Coral Reef Symp.* (in press).
- Yamada, N. and **Suzumura, M.**, "Effects of seawater acidification on hydrolytic enzyme activities" *J. Oceanogr.* **66**, 233–241 (2010).
- Yoshida, N., Nishimura, M., Inoue, K., Yoshizawa, S., Kamiya, E., Taniguchi, A., Hamasaki K. and **Kogure, K.**, "A new approach to the analysis of nanoplankton community structure using flow sorting and molecular analysis" *Microb. Environ.* **24**, 297–304 (2009).
- Yoshimura, T., **Ogawa, H.**, Imai, K., Aramaki, T., Nojiri, Y., Nishioka, J. and Tsuda, A., "Dynamics and elemental stoichiometry of carbon, nitrogen, and phosphorus in particulate and dissolved organic pools during a phytoplankton bloom induced by in situ iron enrichment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2863–2874 (2009).
- Yoshizawa, S., Wada, M., Kita-Tsukamoto, K., Yokota, A. and **Kogure, K.**, "*Vibrio azureus* sp. nov., a luminous marine bacterium isolated from seawater" *Int. J. Syst. Evol. Microb.* **59**, 1645–1649 (2009).
- Yoshizawa, S., Wada, M., Kita-Tsukamoto, K., Yokota, A. and **Kogure, K.**, "*Photobacterium aquimaris* sp. nov., luminous marine bacteria isolated from seawater" *J. Syst. Evol. Microb.* **59**, 1438–1442 (2010).

A03-3 Ecosystem response to the dust input in the western Pacific, and its feedback

- Aoyama, M., Becker, S., Dai, M., Daimon, H., Gordon, L., Kasai, H., Kerouel, R., Kress, N., Masten, D., Murata, A., Nagai, N., **Ogawa, H.**, Ota, H., **Saito, H.**, Saito, K., Shimizu, T., Takano, H., **Tsuda, A.**, Yokouchi, K. and Youenou, A., "Recent comparability of oceanographic nutrient data: Results of a 2003 intercomparison exercise using reference materials" *Anal. Sci.* **23**, 1151–1154 (2007).
- Boyd, P. W., Jickells, T., Law, C. S., Blain, S., Boyle, E. A., Buesseler, K. O., Coale, K. H., Cullen, J. J., de Baar, H. J. W., Follows, M., Harvey, M., Lancelot, C., Levasseur, M., Pollard, R., Rivkin, R. B., Sarmiento, J., Schoemann, V., Smetacek, V., Takeda, S., **Tsuda, A.**, Turner, S. and Watson, A. J., "Mesoscale iron-enrichment experiments

- 1993–2005: synthesis and future directions” *Science* **315**, 612–617 (2007).
- Hara, Y., Obata, H., Doi, T., Hongo, Y., Gamo, T., Takeda, S. and **Tsuda, A.**, “Rare earth elements in seawater during an iron-induced phytoplankton bloom of the western subarctic Pacific (SEEDS-II)” *Deep-Sea Res. II* **56**, 2839–2851 (2009).
- Hasegawa, T., Kasai, H., Ono, T., **Tsuda, A.** and **Ogawa, H.**, “Dynamics of dissolved and particulate organic matter during the spring bloom in the Oyashio region of the western subarctic Pacific Ocean” *Appl. Environ. Microbiol.* (in press).
- Hattori-Saito, A., Nishioka, J., Ono, T., McKay, R. M. L. and **Suzuki, K.**, “Iron deficiency in micro-sized diatoms in the Oyashio region of the western subarctic Pacific during spring” *J. Oceanogr.* **66**, 117–132 (2010).
- Hayakawa, M., **Suzuki, K.**, **Saito, H.**, Takahashi, K. and Ito, S., “Differences in cell viabilities of phytoplankton between spring and late summer in the northwest Pacific Ocean” *J. Exp. Mar. Biol. Ecol.* **360**, 63–70 (2008).
- Higgins, J. L., Kudo, I., Nishioka, J., **Tsuda, A.** and Wilhelm, S. W., “The response of the virus community to the SEEDS II mesoscale iron fertilization” *Deep-Sea Res. II* **56**, 2788–2795 (2009).
- Hirata, T., Hardman-Mountford, N. J., Brewin, R. J. W., Aiken, J., Barlow, R., **Suzuki, K.**, Isada, T., Howell, E., Hashioka, T., Noguchi-Aita, M. and Yamanaka, Y., “Synoptic relationships quantified between surface chlorophyll-*a* and diagnostic pigments specific to phytoplankton functional types” *Biogeosciences* **118**, 156–170 (2011).
- Isada, T., Hattori-Saito, A., **Saito, H.**, Ikeda, T. and **Suzuki, K.**, “Primary productivity and its bio-optical modeling in the Oyashio region, NW Pacific during the spring bloom 2007” *Deep-Sea Res. II* **57**, 1653–1664 (2010).
- Ito, S., Yoshie, N., Okunishi, T., Ono, T., Okazaki, Y., Kuwata, A., Hashioka, T., Rose, K. A., Megrey, B. A., Kishi, M. J., Nakamachi, M., Shimizu, Y., Kakehi, S., **Saito, H.**, Takahashi, K., Tadokoro, K., Kusaka, A. and Kasai, H., “Application of an automatic approach to calibrate the NEMURO nutrient-phytoplankton-zooplankton food web model in the Oyashio region” *Prog. Oceanogr.* **87**, 186–200 (2010).
- Iwamoto, Y., Narita, Y., **Tsuda, A.** and Uematsu, M., “Single particle analysis of oceanic suspended matter during the SEEDS II iron fertilization experiment” *Mar. Chem.* **113**, 212–218 (2009).
- Iwamoto, Y., Yumimoto, K., Toratani, M., **Tsuda, A.**, Miura, K., Uno, I. and Uematsu, M., “Biogeochemical implications of increased mineral particle concentrations in surface waters of the northwestern North Pacific during an Asian dust event” *Geophys. Res. Lett.* **38**, doi:10.1029/2010GL045906 (2010).
- Jing, H. M., Liu, H. B., **Suzuki, K.**, Sohrin, R. and Nishioka, J., “Community compositions of Bacteria and Archaea in the Sea of Okhotsk during summer” *Aquat. Microb. Ecol.* **61**, 179–189 (2010).
- Kameyama, S., Tsunogai, U., Nakagawa, F., Sasakawa, M., Komatsu, D. D., Ijiri, A., Yamaguchi, J., Horiguchi, T., Kawamura, H., Yamaguchi, A. and **Tsuda, A.**, “Enrichment of alkanes within a phytoplankton bloom during an in situ iron enrichment experiment in the western subarctic Pacific” *Mar. Chem.* **115**, 92–101 (2009).
- Kameyama, S., Tanimoto, H., Inomata, S., Tsunogai, U., Ooki, A., Takeda, S., Obata, H., **Tsuda, A.** and Uematsu, M., “High-resolution measurement of multiple volatile organic compounds dissolved in seawater using equilibrator inlet-proton transfer reaction-mass spectrometry (EI-PTR-MS)” *Mar. Chem.* **122**, 59–73 (2010).
- Kasai, H., Nakano, Y., Ono, T. and **Tsuda, A.**, “Seasonal change of oceanographic conditions and chlorophyll *a* vertical distribution in the southwestern Okhotsk Sea during the non-iced season” *J. Oceanogr.* **66**, 13–26 (2009).
- Kataoka, T., **Suzuki, K.**, Hayakawa, M., Kudo, I., Higashi, S. and **Tsuda, A.**, “Temporal changes in community composition of heterotrophic bacteria during in situ iron enrichment in the western subarctic Pacific (SEEDS-II)” *Deep-Sea Res. II* **56**, 2779–2787 (2009).
- Kataoka, T., Hodoki, Y., **Suzuki, K.**, **Saito, H.** and Higashi, S., “Tempo-spatial patterns of bacterial community composition in the western North Pacific Ocean” *J. Mar. Sys.* **77**, 197–207 (2009).
- Kataoka, T., Hodoki, Y., **Suzuki, K.**, **Saito, H.** and Higashi, S., “Detection of UVBR-sensitive and -tolerant bacteria in surface waters of the western North Pacific” *J. Photochem. Photobiol. B: Biol.* **95**, 108–116 (2009).
- Kishi, M. J., Eslinger, D. L., Kashiwai, M., Megrey, B. A., Ware, D. M., Werner, F. E., Aita-Noguchi, M., Azumaya, T., Fujii, M., Hashimoto, S., Huang, D., Iizumi, H., Ishida, Y., Kang, S., Kantakov, G. A., Kim, H.-c., Komatsu, K., Navrotsky, V. V., Smith, S. L., Tadokoro, K., **Tsuda, A.**, Yamamura, O., Yamanaka, Y., Yokouchi, K., Yoshie, N., Zhang, J., Zuenko, Y. I. and Zvansky, V. I., “NEMURO—A lower trophic level model for the North Pacific marine ecosystem” *Ecol. Model.* **202**, 12–25 (2007).
- Kobari, T., Moku, M. and **Takahashi, K.**, “Seasonal appearance of expatriated boreal copepods in the Oyashio-Kuroshio mixed region” *ICES J. Mar. Sci.* **65**, 469–476 (2008).
- Kobari, T., Steinberg, D. K., Uyeda, A., **Tsuda, A.**, Silver, M. W. and Kitamura, M., “Impacts of the ontogenetically migrating copepods to carbon flux

- in the western subarctic Pacific Ocean" *Deep-Sea Res. II* **55**, 1648–1660 (2008).
- Konno, U., Tsunogai, U., Komatsu, D. D., Daita, S., Nakagawa, F., **Tsuda, A.**, Matsui, T., Eum Y. J. and **Suzuki, K.**, "Determination of total N₂ fixation rates in the ocean taking into account both the particulate and filtrate fractions" *Biogeosciences* **7**, 2369–2377 (2010).
- Kudo, I., Noiri, Y., Nishioka, J., Taira, Y., Kiyosawa, H. and **Tsuda, A.**, "Phytoplankton community response to Fe and temperature gradient in the NE (SERIES) and NW (SEEDS) subarctic Pacific Ocean" *Deep-Sea Res. II* **53**, 2201–2213 (2006).
- Kurihara, M. K., Kimura, M., Iwamoto, Y., Narita, Y., Ooki, A., Eum, Y. J., **Tsuda, A.**, **Suzuki, K.**, Tani, Y., Yokouchi, Y., Uematsu, M. and Hashimoto, S., "Distributions of short-lived iodocarbons and biogenic trace gases in the open ocean and atmosphere in the western North Pacific" *Mar. Chem.* **118**, 156–170 (2010).
- Liu, H., **Suzuki, K.**, Nishioka, J., Sohrin, R. and Nakatsuka, T., "Phytoplankton growth and microzooplankton grazing in the Sea of Okhotsk during late summer of 2006" *Deep-Sea Res. I* **56**, 561–570 (2009).
- Liu, H. B., Chen, M. R., **Suzuki, K.**, Wong, C. K. and Chen, B. Z., "Mesozooplankton selective feeding in subtropical coastal waters revealed by HPLC pigment analysis" *Mar. Ecol. Prog. Ser.* **407**, 111–123 (2010).
- Lizotte, M., Levasseur, M., Kudo, I., **Suzuki, K.**, **Tsuda, A.**, Kiene, R. P. and Scarratt, M. G., "Iron-induced alterations of bacterial DMSP metabolism in the western subarctic Pacific during SEEDS-II" *Deep-Sea Res. II* **56**, 2889–2898 (2009).
- Marchetti, A., Sherry, N. D., Kiyosawa, H., **Tsuda, A.** and Harrison, P. J., "Phytoplankton processes I: changes in biomass and community composition due to a mesoscale iron enrichment in the NE subarctic Pacific" *Deep-Sea Res. II* **53**, 2095–2113 (2006).
- Nagao, I., Hashimoto, S., Suzuki, K., Toda, S., Narita, Y., **Tsuda, A.**, **Saito, H.**, Kudo, I., Kato, S., Kajii, Y. and Uematsu, M., "Responses of DMS in the seawater and atmosphere to iron enrichment in the subarctic western North Pacific (SEEDS II)" *Deep-Sea Res. II* **56**, 2899–2917 (2009).
- Nishioka, J., Ono, T., **Saito, H.**, Nakatsuka, T., Takeda, S., Yoshimura, T., **Suzuki, K.**, Kuma, K., Nakabayashi, S., Tsumune, D., Mitsudera, H., Johnson, W. K. and **Tsuda, A.**, "Iron supply to the western subarctic Pacific: Importance of iron export from the Sea of Okhotsk" *J. Geophys. Res.*, **112**, C10012, doi:10.1029/2006JC004055 (2007).
- Nishioka, J., Takeda, S., Kondo, Y., Obata, H., Doi, T., Tsumune, D., Wong, C. S., Johnson, W. K., Sutherland, N. and **Tsuda, A.**, "Changes in iron concentrations and bio-availability during an open ocean mesoscale iron enrichment in the western subarctic Pacific, SEEDS II" *Deep-Sea Res. II* **56**, 2796–2809 (2009).
- Nishioka, J., Ono, T., **Saito, H.**, Sakaoka, K. and Yoshimura, T., "Oceanic iron supply mechanisms which support the spring diatom bloom in the Oyashio region, western subarctic Pacific" *J. Geophys. Res.* **116**, C02021, doi:10.1029/2010JC006321 (2011).
- Ooki, A., **Tsuda, A.**, Kameyama, S., Takeda, S., Itoh, S., **Suga, T.**, Tazoe, H., Okubo, A. and Yokouchi, Y., "Methyl halides in surface seawater and marine boundary layer of the Northwest Pacific" *J. Geophys. Res.* **115**, C10013, doi:10.1029/2009JC005703 (2010).
- Saito, H.**, Ota, T., **Suzuki, K.**, Nishioka, J. and **Tsuda, A.**, "Role of heterotrophic dinoflagellate Gyrodinium sp. in the fate of an iron-enrichment induced diatom bloom" *Geophys. Res. Lett.* **33**, L09602, doi:10.1029/2005GL025366 (2006).
- Saito, H.**, **Tsuda, A.**, Nojiri, Y., Nishioka, J., Takeda, S., Kiyosawa, H., Kudo, I., Noiri, Y., Ono, T., Taira, Y., **Suzuki, K.**, Yoshimura, T. and Boyd, P. W., "Nutrients and phytoplankton dynamics during the stationary and declining phases of a phytoplankton bloom induced by iron-enrichment in the eastern subarctic Pacific" *Deep-Sea Res. II* **53**, 2168–2181 (2006).
- Saito, H.**, **Tsuda, A.**, Nojiri, Y., Aramaki, T., Ogawa, H., Yoshimura, T., Imai, K., Kudo, I., Nishioka, J., Ono, T., **Suzuki, K.** and Takeda, S., "Biogeochemical cycling of N and Si during the mesoscale iron-enrichment experiment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2852–2862 (2009).
- Sasakawa, M., Tsunogai, U., Kameyama, S., Nakagawa, F., Nojiri, Y. and **Tsuda, A.**, "Carbon isotopic evidence for the origin of excess methane in subsurface seawater" *J. Geophys. Res.* **113**, C03012, doi:10.1029/2007JC004217 (2008).
- Shimode, S., Hiroe, Y., Hidaka, K., Takahashi, K. and **Tsuda, A.**, "Life history and ontogenetic vertical migration of *Neocalanus gracilis* (Dana) in the western North Pacific" *Aquat. Biol.* **7**, 295–306 (2009).
- Sugie, K., Kuma, K., Fujita, S., Ushizaka, S., **Suzuki, K.** and Ikeda, T., "Importance of intracellular Fe pools on growth of marine diatoms in unialgal cultures and the Oyashio region during spring" *J. Oceanogr.* **67**, 183–196 (2011).
- Suzuki, K.**, **Saito, H.**, Isada, T., Hattori, A., Kiyosawa, H., Nishioka, J., McKay, R. M. L., Kuwata, A. and **Tsuda, A.**, "Community structure and photosynthetic physiology of phytoplankton in the northwest subarctic Pacific during an in situ iron fertilization experiment (SEEDS II)" *Deep-Sea Res. II* **56**, 2733–2744 (2009).

- Suzuki, K., Kuwata, A., Yoshie, N., Shibata, A., Kawanobe, K. and Saito, H., "Population dynamics of phytoplankton, heterotrophic bacteria, and viruses during the spring bloom in the western subarctic Pacific" *Deep-Sea Res. I* **58**, 575–589 (2011).
- Tada, Y., Taniguchi, A., Nagao, I., Miki, T., Uematsu, M., **Tsuda, A.** and Hamasaki, K., "Major phylogenetic groups of marine bacteria differ in growth response to natural phytoplankton blooms in the western North Pacific" *Appl. Environ. Microbiol.* **77**, 4055–4065 (2011).
- Takahashi, K., Kuwata, A., Saito, H. and Ide, K., "Grazing impact of the copepod community in the Oyashio region, western subarctic Pacific Ocean" *Prog. Oceanogr.* **78**, 222–242 (2008).
- Tatebe, H., Yasuda, I., Saito, H. and Shimizu, Y., "Horizontal transport of the calanoid copepod *Neocalanus* in the North Pacific: The influences of the current system and the life history" *Deep-Sea Res. I* **57**, 409–419 (2010).
- Tsuda, A.**, Saito, H., Nishioka, J., Ono, T., Noiri, Y. and Kudo, I., "Mesozooplankton response to iron enrichment during the diatom bloom and bloom decline in SERIES (NE Pacific)" *Deep-Sea Res. II* **53**, 2281–2296 (2006).
- Tsuda, A.**, Takeda, S., Saito, H., Nishioka, J., Kudo, I., Nojiri, Y., Suzuki, K., Uematsu, M., Wells, M. L., Tsumune, D., Yoshimura, T., Aono, T., Aramaki, T., Cochlan, W. P., Hayakawa, M., Imai, K., Isada, T., Iwamoto, Y., Johnson, W. K., Kameyama, S., Kato, S., Kiyosawa, H., Kondo, Y., Levasseur, M., Machida, R., Nagao, I., Nakagawa, F., Nakanishi, T., Nakatsuka, S., Narita, A., Noiri, Y., Obata, H., Ogawa, H., Oguma, K., Ono, T., Sakuragi, T., Sasakawa, M., Sato, M., Shimamoto, A., Takata, H., Trick, C. G., Watanabe, Y. Y., Wong, C. S. and Yoshie, N., "Evidence for the Grazing Hypothesis: Grazing Reduces Phytoplankton Responses of the HNLC Ecosystem to Iron Enrichment in the western subarctic Pacific (SEEDS II)" *J. Oceanogr.* **63**, 983–994 (2007).
- Tsuda, A.**, Saito, H., Machida, R. J. and Shimode, S., "Meso- and microzooplankton responses to an in situ iron fertilization experiment (SEEDS-II) in the northwest subarctic Pacific" *Deep-Sea Res. II* **56**, 2767–2778 (2009).
- Tsuda, A.**, Fukami, K., Kiyosawa, H., Suzuki, K., Takeda, S., Nishioka, J., Takahashi, M., Johnson, K. and Wong, C. S., "Response of lower trophic organisms to nutrient input and effects on carbon budget: a mesocosm experiment" *Plankton Benthos Res.* **5**, 144–155 (2010).
- Tsumune, D., Nishioka, J., Shimamoto, A., Watanabe, Y. W., Aramaki, T., Nojiri, Y., Takeda, S., **Tsuda, A.** and Tsubono, T., "Physical behaviors of iron fertilized patch in SEEDS II" *Deep-Sea Res. II* **56**, 2948–2957 (2009).
- Uematsu, M., **Tsuda, A.**, Wells, M. L. and Saito, H., "Introduction to subarctic iron enrichment for ecosystem dynamics study II (SEEDS II)" *Deep-Sea Res. II* **56**, 2731–2732 (2009).
- Yoshida, O., Inoue, H., Watanabe, S., Suzuki, K. and Noriki, S., "Dissolved methane distribution in the South Pacific and the Southern Ocean in austral summer" *J. Geophys. Res.* **116**, C07008, doi:10.1029/2009JC006089 (2011).
- Yoshie, N., Suzuki, K., Kuwata, A., Nishioka, J. and Saito, H., "Temporal and spatial variations of phytoplankton photosynthetic physiology during the spring bloom in the western subarctic Pacific" *Mar. Ecol. Prog. Ser.* **399**, 39–52 (2010).
- Yoshimura, T., Nishioka, J., Saito, H., Takeda, S., **Tsuda, A.** and Wells, M. L., "Distributions of particulate and dissolved organic and inorganic phosphorus in North Pacific surface waters" *Mar. Chem.* **103**, 112–121 (2007).
- Yoshimura, T., Ogawa, H., Imai, K., Aramaki, T., Nojiri, Y., Nishioka, J. and **Tsuda, A.**, "Dynamics and elemental stoichiometry of carbon, nitrogen, and phosphorus in particulate and dissolved organic pools during a phytoplankton bloom induced by in situ iron enrichment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2863–2874 (2009).
- Yoshimura, T., Nishioka, J., Suzuki, K., Hattori, H., Kiyosawa, H. and Watanabe, Y. W., "Impacts of elevated CO₂ on organic carbon dynamics in nutrient-depleted Okhotsk Sea surface waters" *J. Experim. Mar. Biol. Ecol.* **395**, 191–198 (2010).
- A03-4 Mechanism on abrupt change of primary productivity by air-sea interaction using satellite remote sensing and numerical modeling**
- Aoki, S., Fukai, D., Hirawake, T., Ushio, S., Rintoul, S. R., Hasumoto, H., Ishimaru, T., Sasaki, H., Kagimoto, T., Sasai, Y. and Mitsudera, H., "A series of cyclonic eddies in the Antarctic Divergence off Adelie Coast" *J. Geophys. Res.* **112**, C05019, doi:10.1029/2006JC003712 (2007).
- Buesseler, K. O., Trull, T. W., Steinberg, D. K., Silver, M. W., Siegel, D. A., **Saitoh, S.-I.**, Lamborg, C. H., Lam, P. J., Karl, D. M., Jiao, N. Z., Honda, M. C., Elskens, M., Dehairs, F., Brown, S. L., Boyd, P. W., Bishop, J. K. B. and Bidigare, R. R., "VERTIGO (VERTical Transport In the Global Ocean): a study of particle sources and flux attenuation in the North Pacific" *Deep-Sea Res. II* **55**, 1522–1539 (2008).
- Chuda, T., Niino, H., Yoneyama, K., Katsumata, M. and Tsukamoto, O., "A statistical analysis of surface heat flux enhancements due to precipitating clouds observed in the tropical Western Pacific" *J. Meteor. Soc. Japan* **86**, 439–457 (2008).

- Endoh, T., Matsuno, T., Yoshikawa, Y., Tatsuyama, Y. and Ishizaka, J., "Observations of wind-driven deepening of the surface mixing layer in the Tsushima Strait" *J. Oceanogr.* **65**, 273–279 (2009).
- Fukui, Y., **Saitoh, S.-I.**, and Sawabe, T., "Environmental determinants correlated to *Vibrio harveyi*-mediated death of marine gastropods" *Environ. Microbiol.*, doi:10.1111/j.1462-2920.2009.02052.x (2010).
- Fukushima, H., Toratani, M., Murakami, H., Deschamps, P.-Y., Frouin, R. and Tanaka, A., "Evaluation of ADEOS-II GLI ocean color atmospheric correction using SIMBADA handheld radiometer data" *J. Oceanogr.* **63**, 533–543 (2007).
- Hashihama, F., Hirawake, T., Kudoh, S., Kanda, J., Furuya, K., Yamaguchi, Y. and Ishimaru, T., "Size fraction and class composition of phytoplankton in the Antarctic marginal ice zone along the 140°E meridian during February–March 2003" *Polar Sci.* **2**, 109–120 (2008).
- Hirawake, T., Takao, S., Horimoto, N., Ishimaru, T., Yamaguchi, Y. and Fukuchi, M., "A phytoplankton absorption-based primary productivity model for remote sensing in the Southern Ocean" *Pol. Biol.* **34**, 291–302 (2011).
- Hutahaean, A. A., Hosaka, T., Takahashi, D., Leong, S., Mino, Y., Morimoto, A., Ishizaka, J. and Saino, T., "Development of algorithms for estimating the seasonal nitrate profiles in the upper water column of Sagami Bay, Japan" *La mer* **48**, 1–16 (2010).
- Iida, T. and **Saitoh, S.-I.**, "Temporal and spatial variability of chlorophyll concentrations in the Bering Sea using empirical orthogonal function (EOF) analysis of remote sensing data" *Deep-Sea Res. II* **54**, 2657–2671 (2007).
- Ishida, H., Watanabe, Y. W., Ishizaka, J., Nakano, T., Nagai, N., Watanabe, Y., Shimamoto, A., Maeda, N. and Magi, M., "Possibility of recent changes in vertical distribution and size composition of chlorophyll-*a* in the western North Pacific region" *J. Oceanogr.* **65**, 179–186 (2009).
- Jin, M., Deal, C., Wang, J., Alexander, V., Gradinger, R., **Saitoh, S.-I.**, Iida, T., Wan, Z. and Stabeno, P., "Ice-associated phytoplankton blooms in the southeastern Bering Sea" *Geophys. Res. Lett.* **34**, L06612, doi:10.1029/2006GL028849 (2007).
- Katano, T., Kaneda, A., Kanzaki, N., Obayashi, Y., Morimoto, A., Onitsuka, G., Yasuda, H., Mizutani, S., Kon, Y., Hata, K., Takeoka, H. and Nakano, S., "Distribution of prokaryotic picophytoplankton from Seto Inland Sea to the Kuroshio region, with special reference to 'Kyucho' events" *Aquat. Microb. Ecol.* **46**, 191–201 (2007).
- Kitayama, S., Kuma, K., Manabe, E., Sugie, K., Takata, H., Isoda, Y., Toya, K., **Saitoh, S.-I.**, Takagi, S., Kamei, Y. and Sakaoka, K., "Controls on iron distributions in the deep water column of the North Pacific Ocean: Iron(III) hydroxide solubility and marine humic-type dissolved organic matter" *J. Geophys. Res.* **114**, C08019, doi:10.1029/2008JC004754 (2009).
- Kiyofuji, H., Hokimoto, T. and **Saitoh, S.**, "Predicting the spatial and temporal chlorophyll-*a* distribution in the Sea of Japan based on SeaWiFS ocean color satellite data" *IEEE Geosci. Remote Sens. Lett.* **5**, doi:10.1109/LGRS.2005.861931 (2006).
- Lihan, T., **Saitoh, S.-I.**, Iida, T., Hirawake, T. and Iida, K., "Satellite-measured temporal and spatial variability of the Tokachi River plume" *Estuar. Coast. Shelf Sci.* **78**, 237–249 (2008).
- Matsuoka, A., Huot, Y., Shimada, K. and **Saitoh, S.-I.**, "Bio-optical characteristics of the Western Arctic Ocean: Implications for ocean color algorithm" *Can. J. Remote Sens.* **33**, 503–518 (2007).
- McMinn, A., Hattori, H. and Hirawake, T., "Preliminary investigation of Okhotsk Sea ice algae; taxonomic composition and photosynthetic activity" *Polar Biol.* **31**, 1011–1015 (2008).
- Mizobata, K., Wang, J. and **Saitoh, S.-I.**, "Eddy-induced cross-slope exchange maintaining summer high productivity of the Bering Sea shelf break" *J. Geophys. Res.* **111**, C10017, doi:10.1029/2005JC003335 (2006).
- Mizobata, K., **Saitoh, S.-I.** and Wang, J., "Summer biochemical enhancement in relation to the mesoscale eddy at the shelf break in the vicinity of the Pribilof Islands" *Deep-Sea Res. II* (2008).
- Mizobata, K., Shimada, K., Woodgate, R., **Saitoh, S.-I.** and Wang, J., "Estimation of heat flux through the eastern Bering Strait" *J. Oceanogr.* (in press).
- Mizobata, K., **Saitoh, S.-I.** and Wang, J., "Summer biochemical enhancement in relation to the mesoscale eddy at the shelf break in the vicinity of the Pribilof Islands" *Deep-Sea Res. II* (in press).
- Morimoto, A., "Evaluation of tidal error in altimetry data in the Asian marginal seas" *J. Oceanogr.* (2009).
- Morimoto, A., Takikawa, T., Onitsuka, G., Watanabe, A., Moku, M. and Yanagi, T., "Seasonal variation of horizontal material transport through the eastern channel of the Tsushima Straits" *J. Oceanogr.* **65**, 61–71 (2009).
- Morimoto, A., Kojima, S., Jan, S. and Takahashi, D., "Movement of the Kuroshio axis to the northeast shelf of Taiwan during typhoon events" *Estuar. Coast. Shelf Sci.* **82**, 547–552 (2009).
- Morimoto, A., Isoda, Y., Tameishi, T. and Moriwaki, S., "Seasonal variation in Tsushima Warm Current paths over the shelf off the San'in coast, Japan" *Cont. Shelf Res.* **29**, 1437–1447, doi:10.1016/j.csr.2009.03.017 (2009).
- Morimoto, A., Watanabe, A., Onitsuka, G., Takikawa, T., Moku, M. and Yanagi, T., "Interannual varia-

- tions in material transports through the eastern channel of the Tsushima/Korea Straits" *Prog. Oceanogr.* (accepted).
- Mugo, R., **Saitoh, S.-I.**, Nihira, A. and Kuroyama, T., "Habitat characteristics of skipjack tuna (*Katsuwonus pelamis*) in the western North Pacific: a remote sensing perspective" *Fish. Oceanogr.* **19**, 382–396 (2010).
- Murakami, H., Sasaoka, K., Hosoda, K., Fukushima, H., **Toratani, M.**, Frouin, R., Mitchell, B. G., Kahru, M., Deschamps, P. Y., Clark, D., Flora, S., Kishino, M., **Saitoh, S.**, Asanuma, I., Tanaka, A., Sasaki, H., Yokouchi, K., Kiyomoto, Y., Saito, H., Dupouy, C., Siripong, A., Matsumura, S. and **Ishizaka, J.**, "Validation of ADEOS-2 GLI ocean color products using in-situ observations" *J. Oceanogr.* **62**, 373–393 (2006).
- Mustapha, M. A., **Saitoh, S.-I.** and Lihan, T., "Satellite-measured seasonal variations in primary production in the scallop-farming region of the Okhotsk Sea" *ICES J. Mar. Sci.* **66**, 1557–1569 (2009).
- Muzzneena, A. M. and **Saitoh, S.-I.**, "Observations of sea ice interannual variations and spring bloom occurrences at the Japanese scallop farming area in the Okhotsk Sea using satellite imageries" *Estuar. Coast. Shelf Sci.* **77**, 577–588 (2008).
- Nakanishi, M. and **Niino, H.**, "Development of an improved turbulence closure model for the atmospheric boundary layer" *J. Meteor. Soc. Japan* **87**, 895–912 (2009).
- Nihashi, S., Ohshima, K. I., Tamura, T., Fukamachi, Y. and **Saitoh, S.-I.**, "Thickness and production of sea ice in the Okhotsk Sea coastal polynya from AMSR-E" *J. Geophys. Res.*, doi:10.1029/2008JC005222 (2009).
- Noguchi, T. and **Niino, H.**, "Multi-layered diffusive convection. Part 1. Spontaneous layer formation" *J. Fluid Mech.* **651**, 443–464 (2011).
- Noguchi, T. and **Niino, H.**, "Multi-layered diffusive convection. Part 2. Dynamics of layer evolution" *J. Fluid Mech.* **651**, 465–481 (2011).
- Okamoto, S., **Hirawake, T.** and **Saitoh, S.-I.**, "Interannual variability in the magnitude and timing of the spring bloom in the Oyashio region" *Deep-Sea Res. II*, doi:10.106/j.dsr2.2010.03.005 (2010).
- Onitsuka, G., **Morimoto, A.**, Takikawa, T., Watanabe, A., Moku, M., Yoshikawa, Y. and Yanagi, T., "Enhanced chlorophyll associated with island-induced cyclonic eddies in the eastern channel of the Tsushima Straits" *Estuar. Coast. Shelf Sci.* **81**, 401–408 (2009).
- Pramot, S., **Morimoto, A.** and Yanagi, T., "Seasonal variation of sea surface current in the Gulf of Thailand" *Coast. Mar. Sci.* **34**, 91–102 (2010).
- Radiarta, I. N. and **Saitoh, S.-I.**, "Satellite-derived measurements of spatial and temporal chlorophyll *a* variability in Funka Bay, southwestern Hokkaido, Japan" *Estuar. Coast. Shelf Sci.* **79**, 400–408 (2008).
- Radiarta, I. N. and **Saitoh, S.-I.**, "Biophysical models for Japanese scallop, *Mizuhopecten yessoensis*, aquaculture site selection in Funka Bay, Hokkaido, Japan using remotely sensed data and geographic information system" *Aquaculture Int.*, doi:10.1007/s10499-008-9212-8 (2008).
- Radiarta, I. N. and **Saitoh, S.-I.**, "Biophysical models for Japanese scallop, *Mizuhopecten yessoensis*, aquaculture site selection in Funka Bay, Hokkaido, Japan using remotely sensed data and geographic information system" *Aquaculture Int.*, doi:10.1007/s10499-008-9212-8 (2009).
- Radiarta, I. N., **Saitoh, S.-I.** and Miyazono, A., "GIS-based multicriteria evaluation models for identifying suitability sites for Japanese scallop (*Mizuhopecten yessoensis*) aquaculture in Funka Bay, southwestern Hokkaido, Japan" *Aquaculture* **284**, 127–135 (2008).
- Radiarta, I. N., **Saitoh, S.-I.** and Yasui, H., "Aquaculture site selection for Japanese kelp (*Laminaria japonica*) in southern Hokkaido, Japan, using satellite remote sensing and GIS-based models" *ICES J. Mar. Sci.* **68**, 773–780 (2011).
- Saba, V. S., Friedrichs, M. A. M., Carr, M. E., Antoine, D., Armstrong, R. A., Asanuma, I., Aumont, O., Bates, N. R., Behrenfeld, M. J., Bennington, V., Bopp, L., Bruggeman, J., Buitenhuis, E. T., Church, M. J., Ciotti, A. M., Doney, S. C., Dowell, M., Dunne, J., Dutkiewicz, S., Gregg, W., Hoepffner, N., Hyde, K. J. W., **Ishizaka, J.**, Kameda, T., Karl, D. M., Lima, I., Lomas, M. W., Marra, J., McKinley, G. A., Melin, F., Moore, J. K., Morel, A., O'Reilly, J., Salihoglu, B., Scardi, M., Smyth, T. J., Tang, S. L., Tjiputra, J., Uitz, J., Vichi, M., Waters, K., Westberry, T. K. and Yool, A., "The challenges of modeling depth-integrated marine primary productivity over multiple decades: A case study at BATS and HOT" *Global Biogeochem. Cycles* **24**, GB3020, doi:10.1029/2009GB003655 (2010).
- Saba, V. S., Friedrichs, M. A. M., Antoine, D., Armstrong, R. A., Asanuma, I., Behrenfeld, M. J., Ciotti, A. M., Dowell, M., Hoepffner, N., Hyde, K. J. W., **Ishizaka, J.**, Kameda, T., Marra, J., Melin, F., Morel, A., O'Reilly, J., Scardi, M., Smith, W. O., Smyth, T. J., Tang, S., Uitz, J., Waters, K. and Westberry, T. K., "An evaluation of ocean color model estimates of marine primary productivity in coastal and pelagic regions across the globe" *Biogeoscience* **8**, 489–503 (2011).
- Saito, R., Yamaguchi, A., **Saitoh, S.-I.**, Kuma, K. and Imai, I., "East-west comparison of the zooplankton community in the subarctic Pacific during summers of 2003–2006" *J. Plankton Res.* **33**, 145–160 (2011).

- Saitoh, S.-I., Mugo, R., Radiarta, I. N., Asaga, S., Takahashi, F., Hirawake, T., Ishikawa, Y., Awaji, T., In, T. and Shima, S., "Some operational uses of satellite remote sensing and marine GIS for sustainable fisheries and aquaculture" *ICES J. Mar. Sci.* **68**, 687–695 (2011).
- Sasaki, H., Siswanto, E., Nishiuchi, K., Tanaka, K., Hasegawa, T. and Ishizaka, J., "Mapping the low salinity Changjiang Diluted Water using satellite-retrieved colored dissolved organic matter (CDOM) in the East China Sea during high river flow season" *Geophys. Res. Lett.* **35**, doi:10.1029/2007GL032637 (2008).
- Sasaki, H., Tanaka, A., Iwataki, M., Touke, Y., Siswanto, E., Tan, C. K. and Ishizaka, J., "Optical properties of the Red Tide in Isahaya Bay, southwestern Japan: Influence of chlorophyll *a* concentration" *J. Oceanogr.* **64**, 511–523 (2008).
- Seki, O., Nakatsuka, T., Kawamura, K., Saitoh, S. and Wakatsuchi, M., "Time-series sediment trap record of alkenones from the western Sea of Okhotsk" *Mar. Chem.* **104**, 253–265 (2007).
- Shibata, T., Tripathy, S. C. and Ishizaka, J., "Phytoplankton pigment change as a photoadaptive response to light variation caused by tidal cycle in Ariake Bay, Japan" *J. Oceanogr.* **66**, 831–843 (2010).
- Siswanto, E., Ishizaka, J., Morimoto, A., Tanaka, K., Okamura, K., Kristijono, A. and Saino, T., "Ocean physical and biogeochemical responses to the passage of Typhoon Meari in the East China Sea observed from Argo float and multiplatform satellites" *Geophys. Res. Lett.* **35**, doi:10.1029/2008GL035040 (2008).
- Siswanto, E., Morimoto, A. and Kojima, S., "Enhancement of phytoplankton primary productivity in the southern East China Sea following episodic typhoon passage" *Geophys. Res. Lett.* **36**, L11603, doi:10.1029/2009GL037883 (2009).
- Sojisuoporn, P., Morimoto, A. and Yanagi, T., "Seasonal variation of sea surface current in the Gulf of Thailand" *Coast. Mar. Sci.* (accepted).
- Suzuki, S., Niino, H. and Kimura, R., "The mechanism of upper-oceanic vertical motions forced by a moving typhoon" *Fluid Dyn. Res.* **43**, doi:10.1088/0169-5983/43/2/025504 (2011).
- Suzuki, T., Mori, H., Ishizaka, J. and Katayama, K., "Biomass and distribution of filamentous cyanobacteria, *Trichodesmium* spp., in spring in the East China Sea" *Plankton Benthos Res.* **2**, 175–183 (2007).
- Takahashi, D., Guo, X., Morimoto, A. and Kojima, S., "Biweekly periodic variation of the Kuroshio axis Northeast of Taiwan as revealed by ocean high frequency radar" *Cont. Shelf Res.* **29**, 1896–1907 (2009).
- Takikawa, T., Morimoto, A., Onitsuka, G., Watanabe, A. and Moku, M., "Characteristics of water mass under the surface mixed layer in Tsushima Straits and the southwestern Japan Sea in autumn" *J. Oceanogr.* **64**, 585–594 (2008).
- Takikawa, T., Onitsuka, G., Fukudome, K., Yoon, J. H., Morimoto, A., Moku, M. and Watanabe, A., "Cyclonic eddy detected in downstream of Tsushima Islands in November 2007" *Estuary Coast* **34**, 775–784 (2011).
- Toratani, M., "Primary production enhancement by typhoon Ketsana in 2003 in western North Pacific" *Proc. SPIE* **7150**, doi:10.1117/12.806426 (2008).
- Toratani, M., Fukushima, H., Murakami, H. and Tanaka, A., "Atmospheric correction scheme for GLI with absorptive aerosol correction" *J. Oceanogr.* **63**, 525–532 (2007).
- Tripathy, S. C., Ishizaka, J., Fujiki, T., Shibata, T., Okamura, K., Hosaka, T. and Saino, T., "Assessment of carbon- and fluorescence-based primary productivity in Ariake Bay, southwestern Japan" *Estuar. Coast. Shelf Sci.* **87**, 163–173 (2010).
- Vijayan, A. K., Yoshikawa, T., Watanabe, S., Sasaki, H., Matsumoto, K., Saitoh, S.-I., Takeda, S. and Furuya, K., "Influence of non-photosynthetic pigments on light absorption and quantum yield of photosynthesis in the western equatorial Pacific and the subarctic North Pacific" *J. Oceanogr.* **65**, 245–258 (2009).
- Wang, J., Hu, H., Mizobata, K. and Saitoh, S.-I., "Seasonal variations of sea ice and ocean circulation in the Bering Sea: A model-data fusion study" *J. Geophys. Res.* **114**, doi:10.1029/2008JC004727 (2009).
- Zainuddin, M., Kiyofuji, H., Saitoh, K. and Saitoh, S., "Using multi-sensor satellite remote sensing and catch data to detect ocean hot spots for albacore (*Thunnus alalunga*) in the northwestern North Pacific" *Deep-Sea Res. II* **53**, 419–431 (2006).
- Zainuddin, M., Saitoh, K. and Saitoh, S.-I., "Albacore tuna fishing ground formation in relation to oceanographic conditions in the northwestern North Pacific using remotely sensed satellite data" *Fish. Oceanogr.* **17**, 61–73 (2008).

A03-Supporting research

- Chiba, S., Aita, N. M., Tadokoro, K., Saino, T., Sugisaki, H. and Nakata, K., "From climate regime shifts to plankton phenology: synthesis of recent progress in retrospective studies of the western North Pacific" *Prog. Oceanogr.* **77**, 112–126 (2008).
- Chiba, S., Sugisaki, H., Nonaka, M. and Saino, T., "Geographical shift of zooplankton communities and decadal dynamics of the Kuroshio-Oyashio Currents in the western North Pacific" *Glob. Change Biol.*, doi:10.1111/j.1365-2486.2009.01890.x (2009).

- Glibert, P. M., Azanza, R., Burford, M., **Furuya, K.**, Abal, E., Al-Azri, A., Al-Yamani, F., Andersen, P., Anderson, D. M., Beardall, J., Berg, G. M., Brand, L., Bronk, D., Brookes, J., Burkholder, J. M., Cembella, A., Cochlan, W. P., Collier, J., Collos, Y., Diaz, R., Doblin, M., Drennen, T., Dyhrman, S., Fukuyo, Y., Furnas, M., Galloway, J., Granéli, E., Ha, D. V., Hallegraeff, G., Harrison, J., Harrison, P. J., Heil, C. A., Heimann, K., Howarth, R., Jauzein, C., Kana, A. A., Kana, T. M., Kim, H., Kudela, R., Legrand, C., Mallin, M., Mulholland, M., Murray, S., O'Neil, J., Pitcher, G., Qi, Y., Rabalais, N., Raine, R., Seitzinger, S., Salomon, P. S., Solomon, C., Stoecker, D. K., Usup, G., Wilson, J., Yin, K., Zhou, M. and Zhu, M., "Ocean urea fertilization for carbon credits poses high ecological risks" *Mar. Pollut. Bull.* **56**, doi:10.1016/j.marpolbul (2008).
- Gomez, F. and **Furuya, K.**, "Kofoidinium, Spatulodinium and other kofoidiniaceans (Noctilucales, Dinophyceae) in the Pacific Ocean" *Eur. J. Protistol.*, **43**, 115–124 (2007).
- Hamasaki, K.**, Taniguchi, A., Tada, Y., Long, R. A. and Azam, F., "Actively growing bacteria in the Inland Sea of Japan identified by combined bromodeoxyuridine immunocapture and denaturing gradient gel electrophoresis" *Appl. Environ. Microbiol.* **73**, 2787–2798 (2007).
- Hashihama, F., Horimoto, N., Kanda, J., **Furuya, K.**, Ishimaru, T. and Saino, T., "Temporal variation in phytoplankton composition related to water mass properties in the central part of Sagami Bay" *J. Oceanogr.* **64**, 23–37 (2008).
- Hashihama, F., **Furuya, K.**, Kitajima, S., Takeda, S., Takemura, T. and Kanda, J., "Macro-scale exhaustion of surface phosphate by N₂ fixation in the western North Pacific" *Geophys. Res. Lett.* **36**, L03610 (2009).
- Hashihama, F., Sato, M., Takeda, S., Kanda, J. and **Furuya, K.**, "Mesoscale decrease of surface phosphate and associated phytoplankton dynamics in the vicinity of the subtropical South Pacific islands" *Deep-Sea Res. I* **57**, 338–350 (2010).
- Hattori-Saito, A., **Nishioka, J.**, **Ono, T.**, McKay, R. M. L. and Suzuki, K., "Iron deficiency in micro-sized diatoms in the Oyashio region of the western subarctic Pacific during spring" *J. Oceanogr.* **66**, 105–115 (2010).
- Higgins, J. L., Kudo, I., **Nishioka, J.**, Tsuda, A. and Wilhelm, S. W., "The response of the virus community to the SEEDS II mesoscale iron fertilization" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.06.005 (2009).
- Itoh, S., Yasuda, I., Nakatsuka, T., **Nishioka, J.** and Volkov, Y. N., "Fine- and microstructure observations in the Urup Strait, Kuril Islands, during August of 2006" *J. Geophys. Res.* **115**, C08004, doi:10.1029/2009JC005629 (2010).
- Iwataki, M.**, Kawami, H. and Matsuoka, K., "*Cochlodinium fulvescens* sp. nov. (Gymnodiniales, Dinophyceae), a new chain-forming unarmored dinoflagellate from Asian coasts" *Phycol. Res.* **55**, 231–239 (2007).
- Kanamori, S., Benson, C. S., Truffer, M., **Matoba, S.**, Solie, D. J. and Shiraiwa, T., "Seasonality of snow accumulation at Mount Wrangell, Alaska, USA" *J. Glaciology* **54**, 273–278 (2008).
- Kitajima, S., **Furuya, K.**, Hashihama, F., Takeda, S. and Kanda, J., "Latitudinal distribution of diazotrophs and their nitrogen fixation in the tropical and subtropical western North Pacific" *Limnol. Oceanogr.* **54**, 537–547 (2009).
- Kondo, Y., Takeda, S. and **Furuya, K.**, "Distribution and speciation of dissolved iron in the Sulu Sea and its adjacent waters" *Deep-Sea Res. II* **54**, 60–80 (2007).
- Kondo, Y., Takeda, S., **Nishioka, J.**, Obata, H., **Furuya, K.**, Johnson, W. K. and Wong, C. S., "Organic iron (III) complexing ligands during an iron enrichment experiment in the western subarctic North Pacific" *Geophys. Res. Lett.* **35**, L12601, doi:10.1029/2008GL033354 (2008).
- Kudo, I., Noiri, Y., Cochlan, W. P., Suzuki, K., Aramaki, T., **Ono, T.** and Nojiri, Y., "Primary productivity, bacterial productivity and nitrogen uptake in response to iron enrichment during the SEEDS II" *Deep-Sea Res. II* **56**, 2755–2766 (2009).
- Liu, H., Suzuki, K., **Nishioka, J.**, Sohrin, R. and Nakatsuka, T., "Phytoplankton growth and microzooplankton grazing in the Sea of Okhotsk during late summer of 2006" *Deep-Sea Res. I* **56**, 561–570, doi:10.1016/j.dsr.2008.12.003 (2009).
- Masuda, T., **Furuya, K.**, Kohashi, N., Sato, M., Takeda, S., Uchiyama, M., Horimoto, N. and Ishimaru, T., "Lagrangian observation of phytoplankton dynamics at an artificially enriched subsurface water in Sagami Bay, Japan" *J. Oceanogr.* **66**, 801–813 (2010).
- Miki, M., Ramaiah, N., Takeda, S. and **Furuya, K.**, "Phytoplankton dynamics associated with the monsoon in the Sulu Sea as revealed by pigment signature" *J. Oceanogr.* **64**, 663–673 (2008).
- Nagata, T., Tamburini, C., Arístegui, J., Baltar, F., Bochdanský, A. B., Fonda-Umani, S., **Fukuda, H.**, Gogou, A., Hansell, D. A., Hansman, R. L., Herndl, G. J., Panagiotopoulos, C., Reinthaler, T., Sohrin, R., Verdugo, P., Yamada, N., Yamashita, Y., Yokokawa, T. and Bartlett, D. H., "Emerging concepts on microbial processes in the bathypelagic ocean—ecology, biogeochemistry, and genomics" *Deep-Sea Res. II* **57**, 1519–1536 (2010).
- Nakatsuka, S., Okamura, K., Takeda, S., **Nishioka, J.**, Firdaus, M. L., Norisuye, K. and Sohrin, Y., "Behaviors of dissolved and particulate Co, Ni,

- Cu, Zn, Cd, and pB during a mesoscale Fe enrichment experiment (SEEDS II) in the western north Pacific" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.06.008 (2009).
- Nishioka, J., Ono, T., Saito, H., Nakatsuka, T., Takeda, S., Yoshimura, T., Suzuki, K., Kuma, K., Nakabayashi, S., Tsumune, D., Mitsudera, H., Johnson, W. K. and Tsuda, A.,** "Iron supply to the western subarctic Pacific: Importance of iron export from the Sea of Okhotsk" *J. Geophys. Res.*, **112** C10012, doi:10.1029/2006JC004055 (2007).
- Nishioka, J., Takeda, S., Kondo, Y., Obata, H., Doi, T., Tsumune, D., Wong, C. S., Johnson, W. K. and Tsuda, A.,** "Changes in iron concentrations and bio-availability during an open ocean mesoscale iron enrichment experiment in the western subarctic Pacific, SEEDS II" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.06.006 (2009).
- Nishioka, J., Ono, T., Saito, H., Sakaoka, K. and Yoshimura, T.,** "The annual cycle of surface iron and the source of iron supporting the spring diatom bloom in the Oyashio region, western subarctic Pacific" *J. Geophys. Res.* **116**, C02021, doi:10.1029/2010JC006321 (2011).
- Nomura, D., **Nishioka, J., Granskog, M. A., Krell, A., Matoba, S., Toyota, T., Hattori, H. and Shirasawa, K.,** "Nutrient distribution in sea ice in the southern Sea of Okhotsk" *Mar. Chem.* (in press).
- Ono, T., Shiomoto, A. and Saino, T.,** "Recent decrease of summer nutrients concentrations and future possible shrinkage of the subarctic North Pacific High-Nutrient Low-Chlorophyll region" *Global Biogeochem. Cycles* **22**, GB3027, doi:10.1029/2007GB003092 (2008).
- Ooki, A., **Nishioka, J., Ono, T.** and Noriki, S., "Size dependence of iron solubility of Asian mineral dust particles" *J. Geophys. Res.* **114**, doi:10.1029/2008JD010804 (2009).
- Saito, H., Tsuda, A., Nojiri, Y., Aramaki, T., Ogawa, H., Yoshimura, T., Imai, K., Kudo, I., **Nishioka, J., Ono, T., Suzuki, K. and Takeda, S.,** "Biogeochemical cycling of N and Si during the mesoscale iron-enrichment experiment in the western subarctic Pacific (SEEDS-II)" *Deep-Sea Res. II* **56**, 2852–2862 (2009).
- Sato, M., Takeda, S. and **Furuya, K.,** "Iron regeneration and organic iron(III)-binding ligand production during in situ zooplankton grazing experiment" *Mar. Chem.* **106**, 471–488 (2007).
- Sato, M. and **Furuya, K.,** "Pico- and nanophytoplankton dynamics during the decline phase of the spring bloom in the Oyashio region" *Deep-Sea Res. II* **57**, 1643–1652 (2010).
- Sato, M., Yoshikawa, T., Takeda, S. and **Furuya, K.,** "Application of the size-fractionation method to simultaneous estimation of clearance rates by heterotrophic flagellates and ciliates of pico- and nanophytoplankton" *J. exp. Mar. Biol. Ecol.* **349**, 334–343 (2007).
- Shibata, A., Yasui, H., **Fukuda, H.,** Ogawa, H., Kikuchi, T., Toda, T. and Taguchi, S., "Fate of the bacterial cell envelope component, lipopolysaccharide, that is sequentially mediated by viruses and flagellates" *Coast. Mar. Sci.* **33**, 39–45(2009).
- Shiozaki, T., **Furuya, K.,** Kodama, T. and Takeda, S., "Contribution of N₂ fixation to new production in the western North Pacific along 155°E" *Mar. Ecol. Prog. Ser.* **377**, 19–32 (2009).
- Shiozaki, T., **Furuya, K.,** Kitajima, S., Kodama, T., Takeda, S. and Kanda, J., "New estimation of N₂ fixation in the western and central Pacific Ocean and its marginal seas" *Global Biogeochem. Cycles* **24**, GB1015 (2010).
- Sohrin, R., Imazawa, M., **Fukuda, H.** and Suzuki, Y., "Full-depth profiles of prokaryotes, heterotrophic nanoflagellates, and ciliates along a transect from the equatorial to the subarctic central Pacific Ocean" *Deep-Sea Res. II* **57**, 1537–1550 (2010).
- Suzuki, K., Saito, H., Isada, T., Hattori-Saito, A., Kiyosawa, H., **Nishioka, J.,** McKay, R. M. L., Kuwata, A. and Tsuda, A., "Community structure and photosynthetic physiology of phytoplankton in the northwest subarctic Pacific during in situ iron fertilization experiment (SEEDS-II)" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.06.001 (2009).
- Tada, Y., Taniguchi, A. and **Hamasaki, K.,** "Phylotype-specific productivity of marine bacterial populations in eutrophic seawater, as revealed by bromodeoxyuridine immunocytochemistry combined with fluorescence in situ hybridization" *Microb. Environ.* **24**, 315–321 (2009).
- Tada, Y., Taniguchi, A. and **Hamasaki, K.,** "Phylotype-specific growth rates of marine bacteria measured by bromodeoxyuridine immunocytochemistry and fluorescence in situ hybridization" *Aquat. Microb. Ecol.* **59**, 229–238 (2010).
- Tada, Y., Taniguchi, A., Nagao, I., Miki, T., Uematsu, M., Tsuda, A. and **Hamasaki, K.,** "Major phylogenetic groups of marine bacteria differ in growth response to natural phytoplankton blooms in the western North Pacific" *Appl. Environ. Microbiol.* **77**, 4055–4065 (2011).
- Tada, Y., Taniguchi, A. and **Hamasaki, K.,** "Phylotype-specific growth rates of marine bacteria measured by bromodeoxyuridine immunocytochemistry and fluorescence in situ hybridization" *Aquat. Microb. Ecol.* (in press).
- Takeda, S., Ramaiah, N., Miki, M., Kondo, Y., Yamaguchi, Y., Arii, Y., Gómez, F., **Furuya, K.** and Takahashi, W., "Biological and chemical characteristics of high-chlorophyll, low-temperature

- water observed near the Sulu Archipelago" *Deep-Sea Res. II* **54**, 81–102 (2007).
- Taniguchi, A. and **Hamasaki, K.**, "Community structures of actively growing bacteria shift along a north-south transect in the western North Pacific" *Environ. Microbiol.* **10**, 1007–1017 (2008).
- Tsumune, D., **Nishioka, J.**, Shimamoto, A., Watanabe, Y. W., Aramaki, T., Nojiri, Y., Takeda, S., Tsuda, A. and Tsubono, T., "Physical behaviors of the iron-fertilized patch in SEEDS II" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.07.004 (2009).
- Vijayan, A. K., Yoshikawa, T., Watanabe, S., Sasaki, H., Matsumoto, K., Takeda, S. and **Furuya, K.**, "Influence of non-photosynthetic pigments on light absorption and quantum yield of photosynthesis in the western equatorial Pacific and the subarctic North Pacific" *J. Oceanogr.* **65**, 245–258 (2009).
- Watanabe, Y. W., **Nishioka, J.**, Shigemitsu, S., Mimura, A. and Nakatsuka, T., "Increases of alkalinity and pH in the Okhotsk Sea during the 1990s and 2000s" *Geophys. Res. Lett.*, doi:10.1029/2009GL038520 (2009).
- Yamagishi, H., Tohjima, Y., Mukai, H. and **Sasaoka, K.**, "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**, 3325–3335 (2008).
- Yoshida, N., Nishimura, M., Inoue, K., Yoshizawa, S., Kamiya, E., Taniguchi, A., **Hamasaki, K.** and Kogure, K., "Analysis of nanoplankton community structure using flow sorting and molecular techniques" *Microb. Environ.* **24**, 297–304 (2009).
- Yoshikawa, T. and **Furuya, K.**, "Phytoplankton photosynthetic parameters and primary production in Japan Sea and the East China Sea: Toward improving primary production models" *Cont. Shelf Res.* **28**, 962–976 (2008).
- Yoshikawa, T., Watanabe, S., Miki, M., Takeda, S. and **Furuya, K.**, "Spatial heterogeneity in photosynthesis-irradiance parameters of phytoplankton across a cyclonic eddy in the Antarctic Divergence zone along 140°E" *Geophys. Res. Lett.* **34**, L18605, doi:10.1029/2007GL030736 (2007).
- Yoshimura, T., **Nishioka, J.** and Nakatsuka, T., "Iron nutritional status of the phytoplankton assemblage in the Okhotsk Sea during summer" *Deep-Sea Res. I* **57**, 1454–1464 (2010).
- Yoshimura, Y., Ogawa, H., Imai, K., Aramaki, T., Nojiri, Y., **Nishioka, J.** and Tsuda, A., "Dynamics and elemental stoichiometry of carbon, nitrogen, and phosphorus in particulate and dissolved organic pools during a phytoplankton bloom induced by in situ iron enrichment in the western subarctic Pacific (SEED II)" *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.06.011 (2009).
- A04: Modelling of Interaction between Ocean and Atmosphere**
- A04-1 Responses of marine ecosystem to weather disturbances of synoptic scale**
- Aita, M. N., **Yamanaka, Y.** and Kishi, M. J., "Interdecadal variation of the lower trophic ecosystem in the northern Pacific between 1948 and 2002, in a 3-D implementation of the NEMURO model" *Ecol. Modell.* **202**, doi:10.1016/j.ecolmodel.2006.07.045 (2007).
- Fujii, M. and **Yamanaka, Y.**, "Effects of storms on primary productivity and air-sea CO₂ exchange in the subarctic western North Pacific: a modeling study" *Biogeosciences* **52**, 1189–1197 (2008).
- Fujii, M., **Yamanaka, Y.**, Nojiri, Y., Kishi, M. J. and Chai, F., "Comparison of seasonal characteristics in biogeochemistry among the subarctic North Pacific stations described with a NEMURO-based marine ecosystem model" *Ecol. Modell.* **202**, doi:10.1016/j.ecolmodel.2006.02.046 (2007).
- Hashioka, T. and **Yamanaka, Y.**, "Ecosystem change in the western North Pacific associated with global warming obtained by 3-D NEMURO" *Ecol. Modell.* **202**, doi:10.1016/j.ecolmodel.2006.05.038 (2007).
- Hashioka, T. and **Yamanaka, Y.**, "Seasonal and regional variations of phytoplankton groups by top-down and bottom-up controls obtained by a 3-D ecosystem model" *Ecol. Modell.* **202**, doi:2005.12.002 (2007).
- Hirata, T., Hardman-Mountford, N. J., Brewin, R. J. W., Aiken, J., Barlow, R., Suzuki, K., Isada, T., Howell, E., Hashioka, T., Noguchi-Aita, M. and **Yamanaka, Y.**, "Synoptic relationships quantified between surface chlorophyll-*a* and diagnostic pigments specific to phytoplankton functional types" *Biogeosciences* **118**, 156–170 (2011).
- Matsumoto, K., Hashioka, T. and **Yamanaka, Y.**, "Effect of temperature-dependent organic carbon decay on atmospheric pCO₂" *J. Geophys. Res.* **112**, G02007 (2007).
- Misumi, K., Yamanaka, Y. and Tajika, E., "Numerical simulation of atmospheric and oceanic biogeochemical cycles to an episodic CO₂ release event: implications for the cause of mid-Cretaceous Ocean Anoxic Event-1a" *Earth Planet. Sci. Lett.* **286**, 316–323 (2009).
- Nakayama, N., Yamanaka, Y. and Gamoto, T., "The O₂ utilization rate in the deep water of the Philippine Sea; giving an O₂ isotopic fractionation factor" *J. Oceanogr.* **64**, 451–457 (2008).
- Shigemitsu, M., **Yamanaka, Y.**, Watanabe, Y. W., Maeda, N. and Noriki, S., "Seasonal characteristics of the nitrogen isotope biogeochemistry of settling particles in the western subarctic Pacific: a model study" *Earth Planet. Sci. Lett.* **293**, 180–190 (2010).

- Shigemitsu, M., Watanabe, Y. W., **Yamanaka, Y.**, Kawakami, H. and Honda, M. C., "Relationship between sinking organic matter and minerals in the shallow zone of the western subarctic Pacific" *J. Oceanogr.* **66**, 697–708 (2010).
- Uno, I.**, Uematsu, M., Hara, Y., He, Y. J., Ohara, T., Mori, A., Kamaya, T., Murano, K., Sadanaga, Y. and Bandow, H., "Numerical study of the atmospheric input of anthropogenic total nitrate to the Marginal Seas in the western North Pacific region" *Geophys. Res. Lett.* **34**, L17817, doi:10.1029/2007GL030338 (2007).
- Yamamoto, A., **Yamanaka, Y.** and Tajika, E., "Modeling of methane bubbles released from sea-floor gas hydrate: Condition required for methane emission to the atmosphere" *Earth Planet. Sci. Lett.* **284**, 590–598 (2009).
- Yoshie, N., **Yamanaka, Y.**, Rose, K. A., Eslinger, D. L., Ware, D. M. and Kishi, M. J., "Parameter sensitivity study of the NEMURO lower trophic level marine ecosystem model" *Ecol. Modell.* **202**, doi:10.1016/j.ecolmodel.2006.07.043 (2007).
- A04-Supporting research**
- Fujii, M.** and Chai, F., "Influences of initial plankton biomass and mixed-layer depths on the outcome of iron-fertilization experiments" *Deep-Sea Res. II* **56**, 2936–2947 (2009).
- Fujii, M.**, Chai, F., Shi, L., Inoue, H. Y. and Ishii, M., "Seasonal and interannual variability of oceanic carbon cycling in the western and central tropical-subtropical Pacific: A physical-biogeochemical modeling study" *J. Oceanogr.* **65**, 689–701 (2009).
- Ishikawa, Y.**, **Awaji, T.**, **Toyoda, T.**, In, T., Nishina, K., Nakayama, T., Shima, S. and Masuda S., "High-resolution synthetic monitoring by a 4-dimensional variational data assimilation system in the northwestern North Pacific" *J. Mar. Sys.*, doi:10.1016/j.jmarsys.2009.02.016 (in press) (2009).
- Masuda, S., Shikama, Y., **Awaji, T.**, **Ishikawa, Y.** and **Toyoda, T.**, "The role of westerly wind bursts in the ENSO recharge paradigm" *J. Geophys. Res.* **114**, doi:10.1029/2008JC004953 (2009).
- Nishihama, Y. and **Ikeda, M.**, "Kuroshio, Extension variability explored through assimilation of TOPEX/POSEIDON altimeter data into a quasi-geostrophic model" *J. Oceanogr.* **63**, 879–895 (2007).
- Sasaki, Y. N., **Minobe, S.**, Schneider, N., Kagimoto, T., Nonaka, M. and Sasaki, H., "Decadal sea level variability in the South Pacific in a global eddy-resolving ocean model hindcast" *J. Phys. Oceanogr.* **38**, 1731–1747 (2008).
- Smith, S. L.**, "Untangling the uncertainties about combined effects of temperature and concentration on nutrient uptake rates in the ocean" *Geophys. Res. Lett.* **37**, L11603, doi:10.1029/2010GL043617 (2010).
- Smith, S. L.**, Yoshie, N. and Yamanaka, Y., "Physiological acclimation by phytoplankton explains observed changes in Si and N uptake rates during the SERIES iron-enrichment experiment" *Deep-Sea Res. I* **57**, 394–408 (2010).
- Sumata, H., **Minobe, S.**, Motoi, T. and Chan, W. L., "A semi-analytical model of barotropic and baroclinic flows for an open Panama Gateway" *Dyn. Atmos. Oceans* **50**, 55–77 (2010).
- Tanaka, A.**, "Numerical model based on successive order of scattering method for computing radiance distribution of underwater light fields" *Opt. Express* **18**, 10127–10136 (2010).
- Valsala, K. V., Maksyutov, S. and **Ikeda, M.**, "Design and validation of an offline Oceanic Tracer Transport Model for Carbon Cycle study" *J. Clim.* **21**, 2752–2769, doi:10.1175/2007JCLI2018 (2008).