

Japan GEOTRACES National Report 2017

Hajime Obata

Scientific Meetings

- Marine Geochemistry symposium (26 – 27 March, Kochi)
 - GEOTRACES-Japan related
 - 19 oral presentations
- Annual Meeting of GSJ 2017 (13 - 15 Sep, Tokyo)
 - GEOTRACES session
 - (K. Norisuye, K.Yamaoka, K. Horikawa, M. Inoue, J. Zhang, H. Obata)
 - 16 oral and 6 poster presentations
- East Asia GEOTRACES Workshop

Regional

GEOTRACES:

New WESTPAC WG:

A framework for cooperative studies in the Western Pacific Marginal Seas:
Energy and materials exchange between land and open ocean

PI: J. ZHANG, 2017-2020

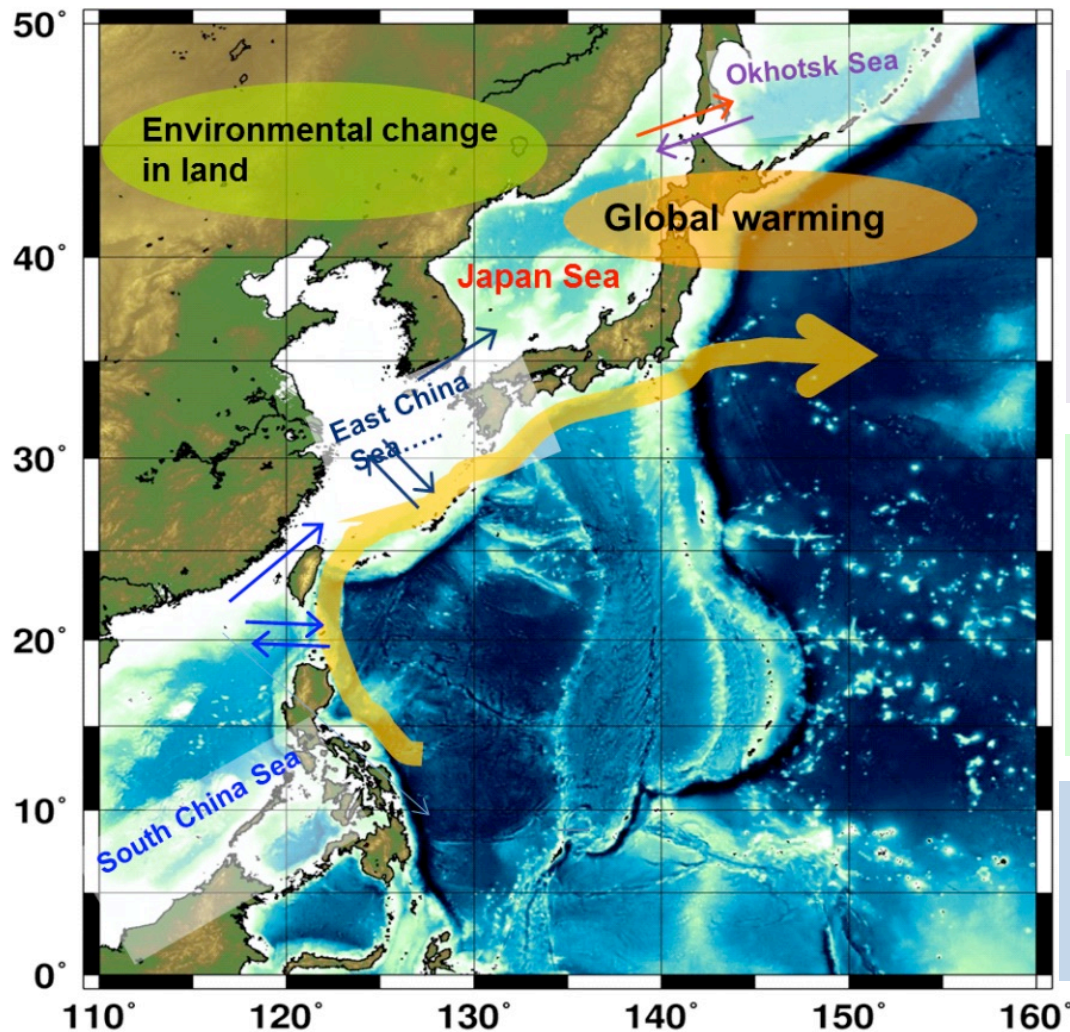
Treat the multi-marginal
seas and the western
boundary current
as a unified system

Members:

Japan, China, Indonesia
Malaysia, Philippines, Russia
South Korea, Thailand

1st workshop:

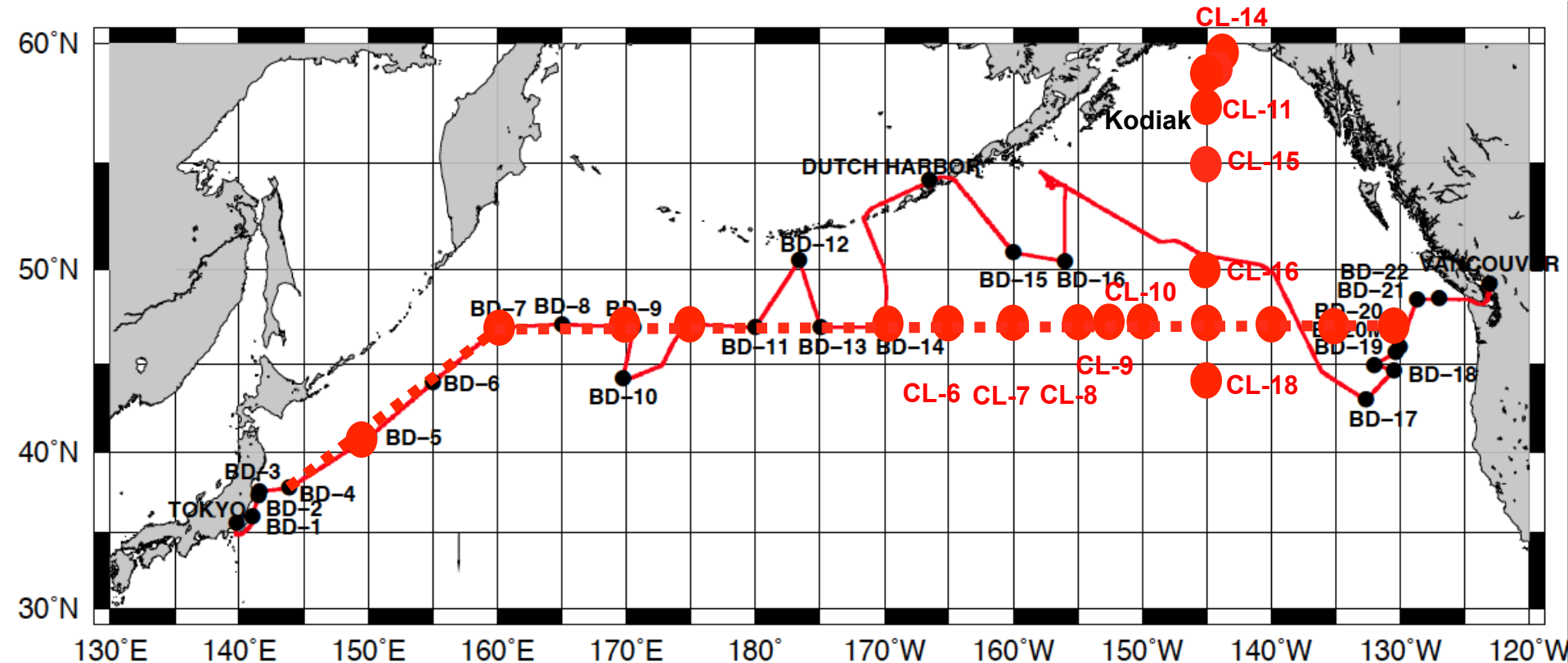
Oct. 28, 2017, Fukuoka, Japan



KH-17-3

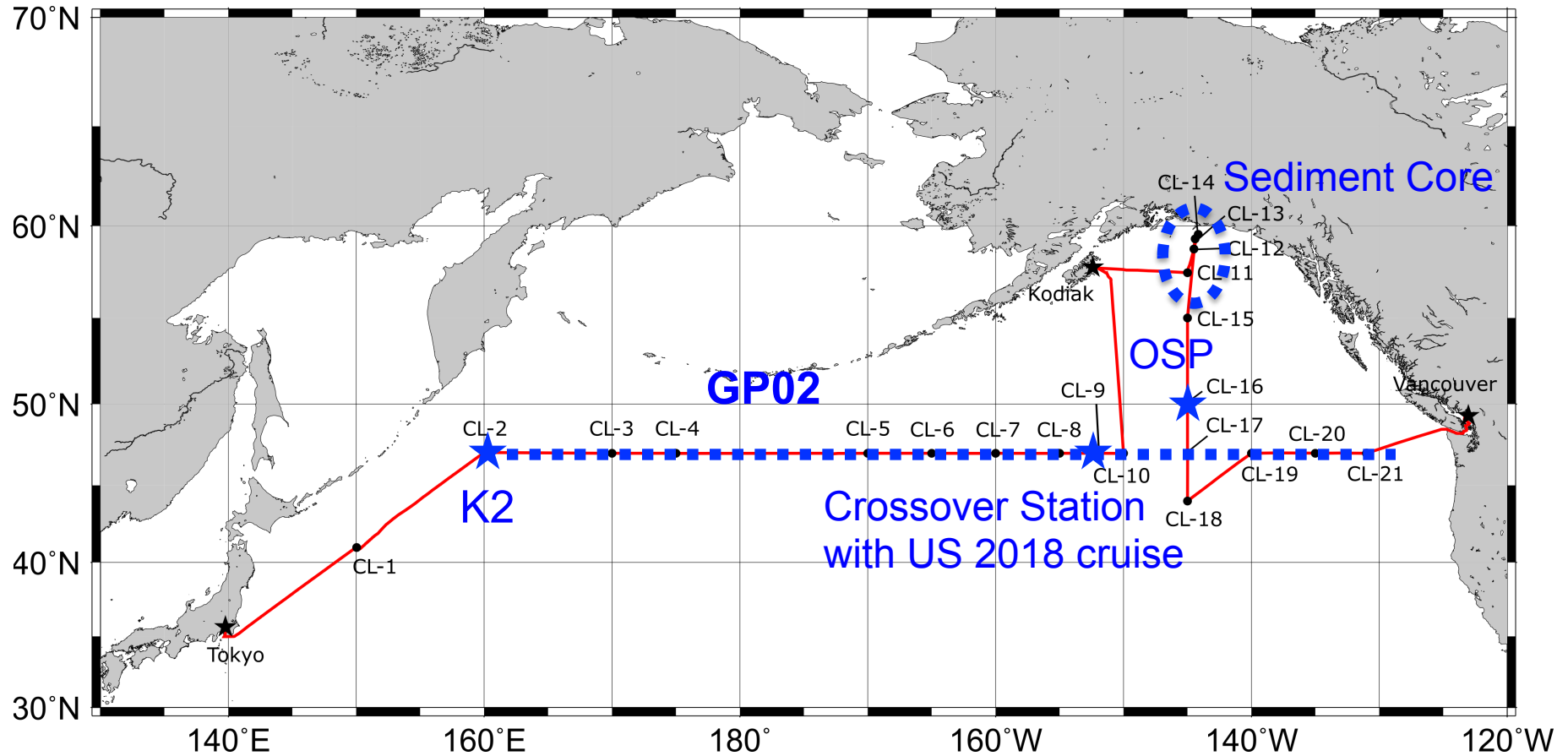


R/V Hakuho-maru



23 June – 07 August, 2017 (PI: H. Obata)
Tokyo – Kodiak – Vancouver

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Cruises

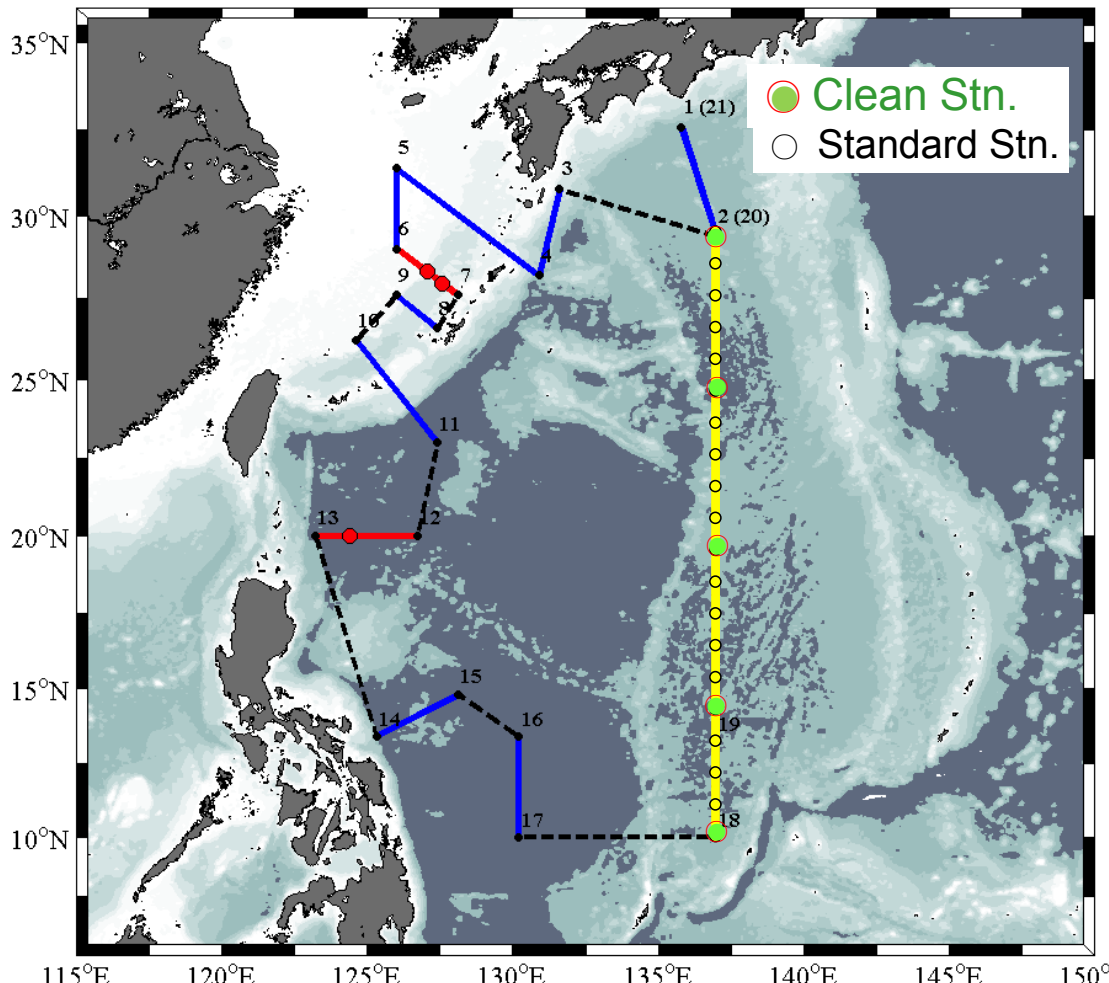
- Two GEOTRACES-related Hakuho-maru cruises will be applied for 2019 – 2021.
 - 1) GP18 section cruise at 155°E
(PI: H. Obata)
 - 2) process study cruise (PI: J. Zhang)

GEOTRACES process study:

(proposal for 2019)

-Material exchanges between the marginal seas and the subtropical western Pacific, and transport via the Kuroshio (PI: Jing ZHANG)

-Interdisciplinary study on boundary mixing processes and material transport between basins in the western Pacific subtropical gyre.



Ship time proposal for Hakuho-Maru

Key issues:

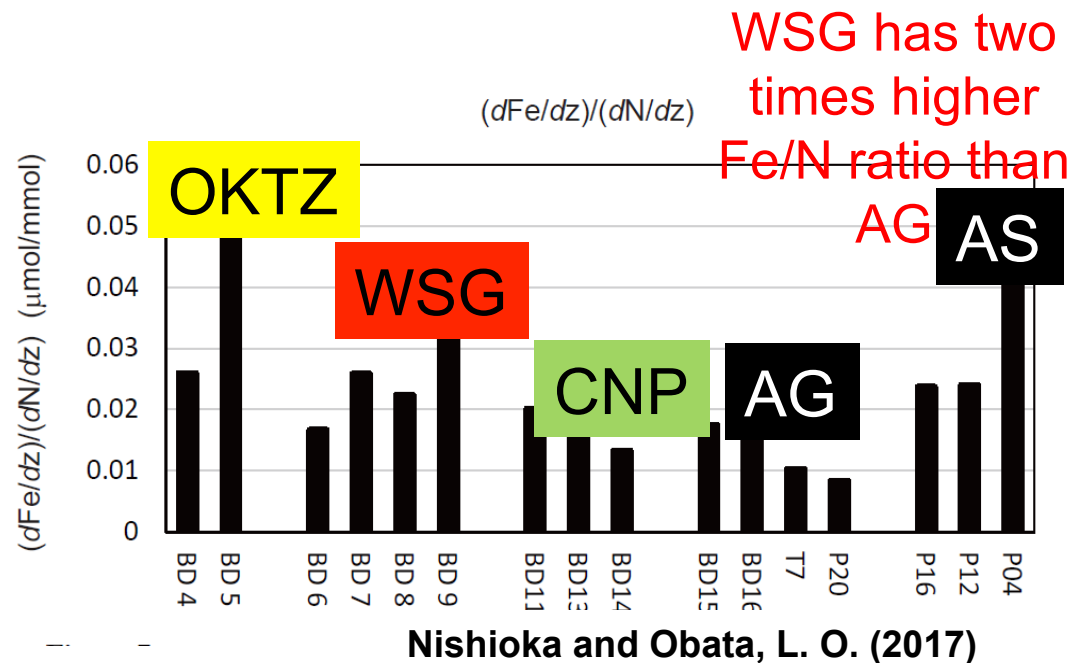
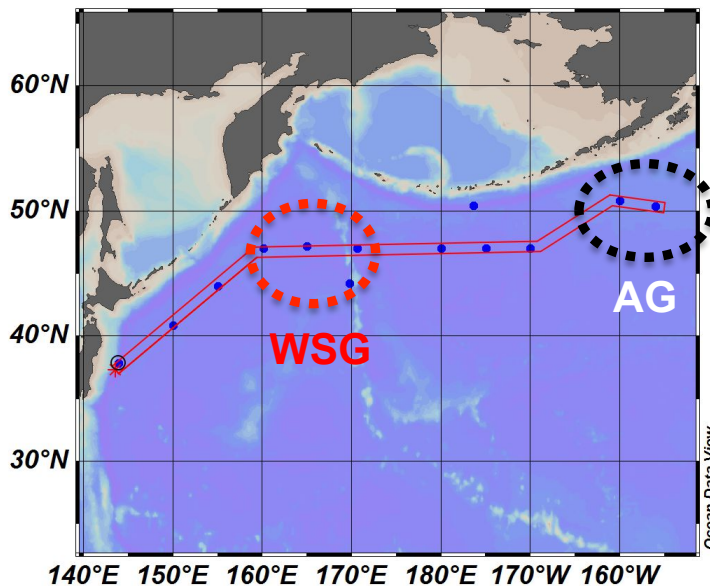
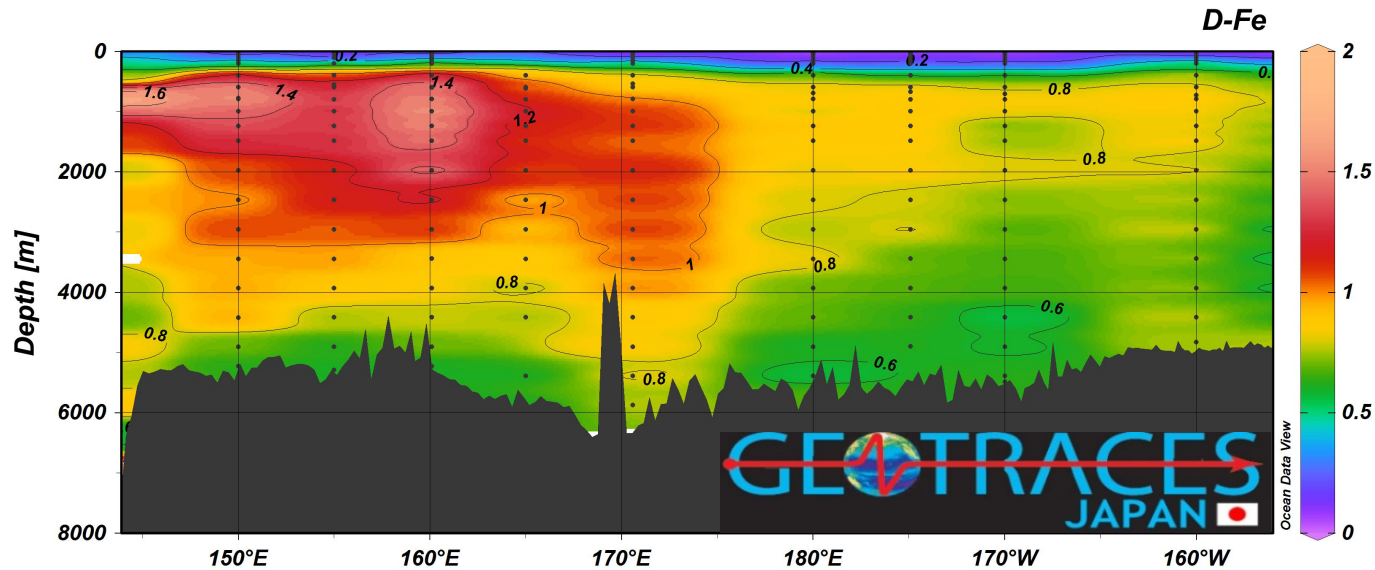
- GEOTRACES studies,
- Basin exchanges,
- Kuroshio transport/changes
- Nutrients/micro nutrients
- Atmospheric input ...

- Vertical mixing processes
- Internal waves
- Western boundary current

Publications (30 in 2016-2017)

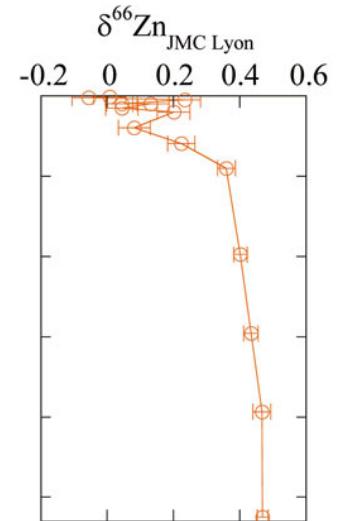
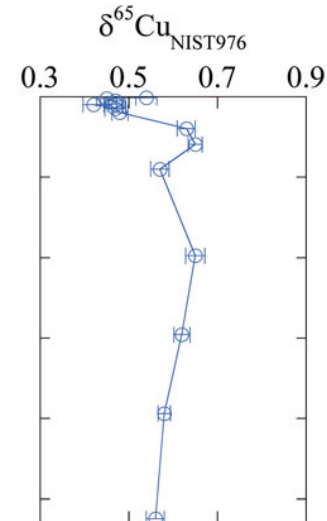
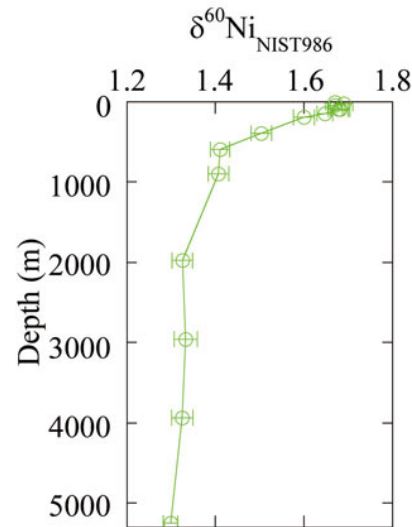
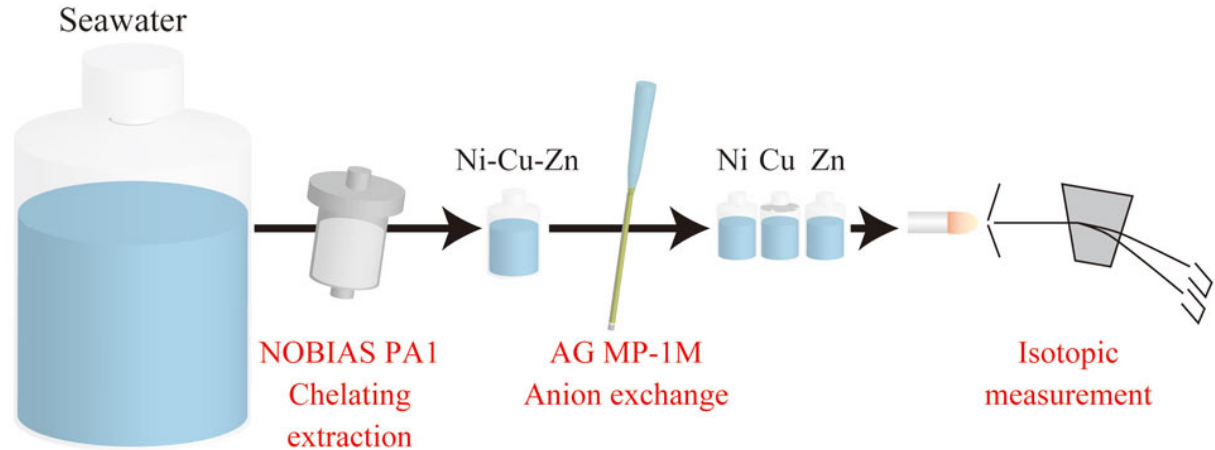
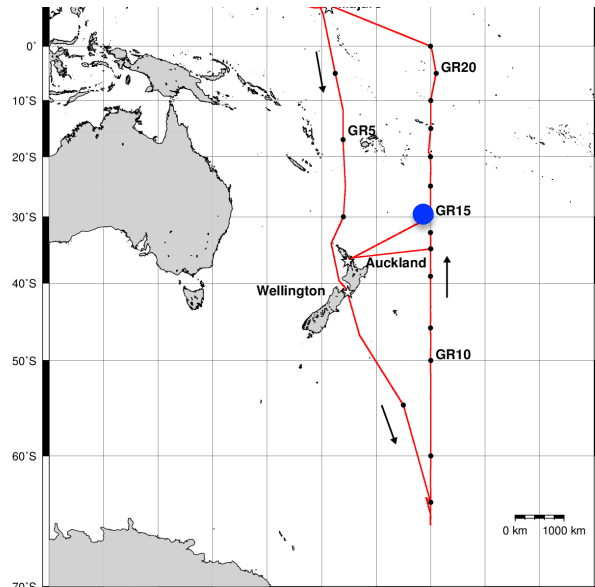
- Nishioka, J. and H. Obata (2017): Dissolved iron distribution in the western and central subarctic Pacific - HNLC water formation and biogeochemical processes -. *Limnology and Oceanography*, DOI: 10.1002/lno.10548.
- Takano, S. M. Tanimizu, T. Hirata, K.-C. Shin, Y. Fukami, K. Suzuki and Y. Sohrin (2017): A simple and rapid method for isotopic analysis of nickel, copper, and zinc in seawater using chelating extraction and anion exchange. *Analytica Chimica Acta*, **967**, 1-11.
- Zheng, L. T. Minami, S. Takano, H. Minami, Y. Sohrin (2017): Distribution and stoichiometry of Al, Mn, Fe, Co, Ni, Cu, Zn, Cd, and Pb in seawater around the Juan de Fuca Ridge. *Journal of Oceanography*, **73**, 1-17.
- Obata, H., J. Nishioka, T. Kim, K. Norisuye, S. Takeda, Y. Wakuta, T. Gamo (2017): Dissolved iron and zinc in Sagami Bay and the Izu-Ogasawara Trench. *Journal of Oceanography*, **73**, 333-344.
- Nomura, T, A. Sakaguchi, P. Steier, R. Eigl, A. Yamakawa, T. Watanabe, K. Sasaki, T. Watanabe, R. Golser, Y. Takahashi and H. Yamano (2017): Reconstruction of the temporal distribution of U-236/ U-238 in the Northwest Pacific Ocean using a coral core sample from the Kuroshio Current area. *Marine Chemistry*, **190**, 28-34.
- Kumamoto, Y., M. Aoyama, Y. Hamajima, H. Nagai, T. Yamagata, Y. Kawai, E. Oka, A. Yamaguchi, K. Imai, A. Murata (2017): Fukushima-derived radiocesium in the western North Pacific in 2014. *Journal of Radioanalytical and Nuclear Chemistry*, 311, 1209-1217.
- Hain, K., T. Faestermann, L. Fimiani, L. Golser, J. Gómez-Guzmán, G. Korschinek, F. Kortmann, C. L. von Gostomski, P. Ludwig, P. Steier, H. Tazoe and M. Yamada (2017): Plutonium isotopes (²³⁹–²⁴¹Pu) dissolved in Pacific Ocean waters detected by accelerator mass spectrometry: No effects of the Fukushima Accident observed. *Environmental Science and Technology*, **51**, 2031-2037.

A sub-polar marginal sea controls oceanic iron cycles in the North Pacific



Simultaneous analysis of Ni, Cu and Zn isotopes in seawater

**GP19
KH-14-6**



Vertical profiles of $\delta^{60}\text{Ni}$, $\delta^{65}\text{Cu}$, and $\delta^{66}\text{Zn}$ at GR15 station (30.00°S, 170.00°W) in the subtropical South Pacific

Funding

- GEOTRACES Japan (Grant-in-Aid for Sci. Res. A, overseas academic research, Japan Society for the Promotion of Science)
 - PI: Toshi Gamo
 - Total ¥ 33.3 M (From 2016 to 2020)
 - For GEOTRACES studies and travel fees etc.
- Ocean Mixing Processes: Impact on Biogeochemistry, Climate and Ecosystem (OMIX) (Grant-in-Aid for Sci. Res. in Innovative Areas)
 - PI: Ichiro Yasuda,
 - J. Nishioka & H. Obata ¥ 73 M (From 2015 to 2019)
 - J. Zhang ¥ 10 M (From 2015 to 2019)

GEOTRACES

section cruise GP18

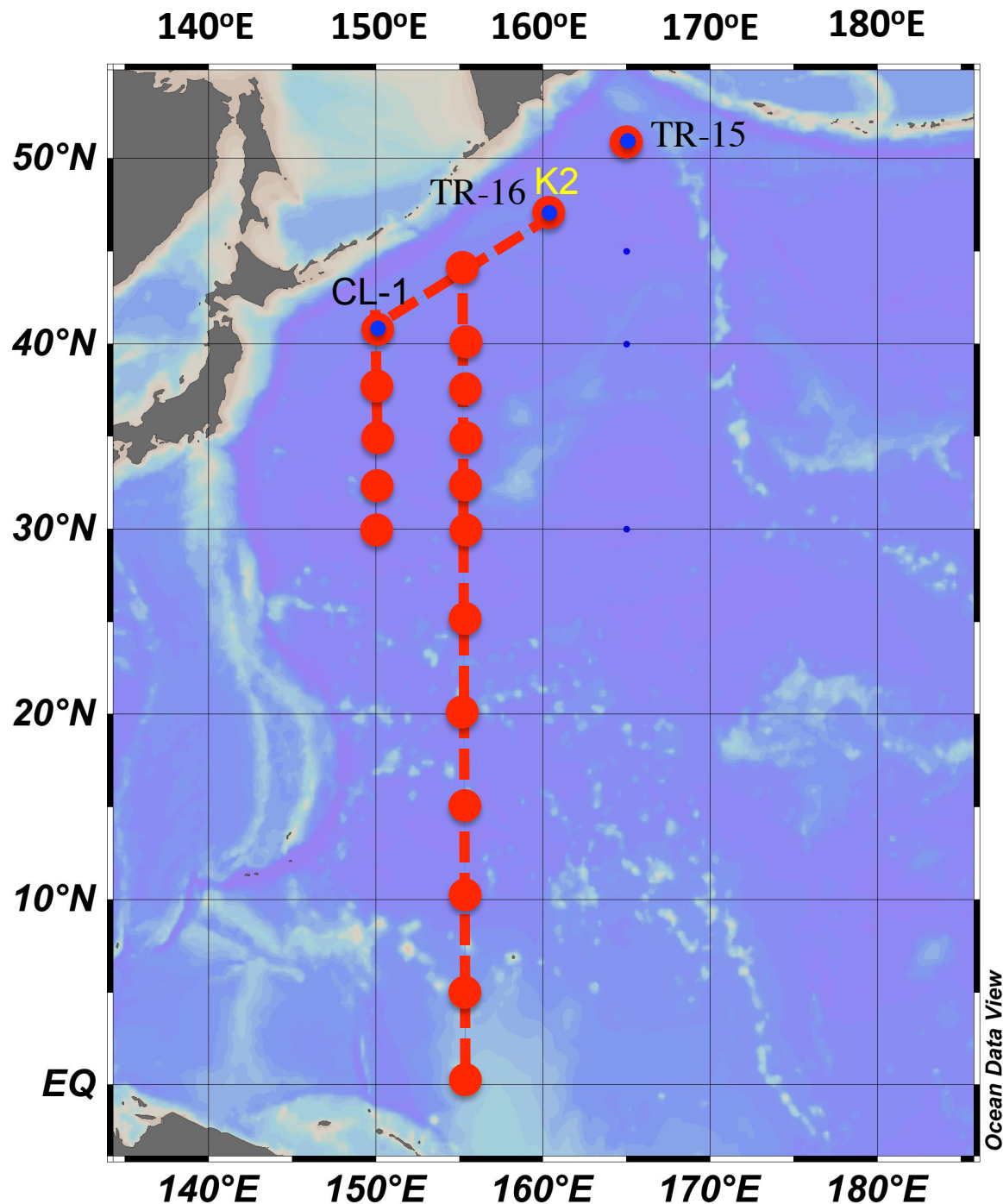
(proposal for 2020)

-TEIs transported from the marginal seas to the western Pacific.

-(PI: Hajime Obata)

-Transport process in the intermediate layers (e.g., North Pacific Intermediate Water)

-Transport process in surface layers (e.g., Oyashio current, Kuroshio current)



Cruises

– KH-17-3: section GP02

- 23 Jun. – 9 Aug. 2017 (PI: H. Obata)



R/V Hakuho-maru

