



East Asia GEOTRACES Workshop

Trace Element and Isotope (TEI) study in the Northwestern Pacific and its marginal seas

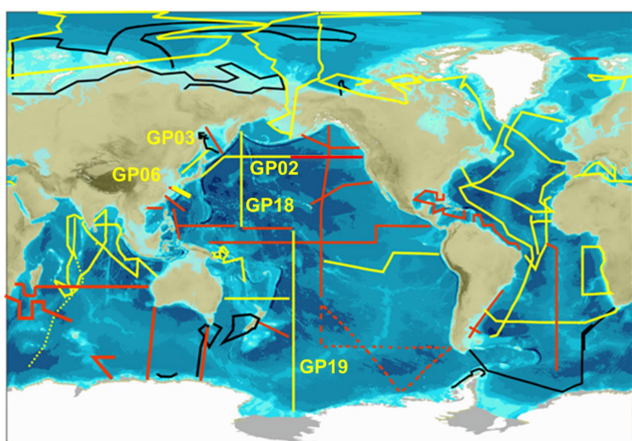
Sapporo, Hokkaido, Japan

16-18 January, 2017

About the workshop

GEOTRACES project covers global oceans, including the Northwestern Pacific Ocean (NWPO). However, regional distributions of trace elements and their isotopes (TEI) in seawaters in the NWPO are largely unknown. In the subarctic North Pacific, for example, a large area of high nutrient low chlorophyll (HNLC) exists where Fe is a limiting factor for phytoplankton growth. Here, some distributions of Fe are reported, but the processes of Fe supply have not been fully understood. This has impeded our understanding of the regional primary production, thus calling an urgent need of investigation on the biogeochemical cycles of TEI in seawater in the NWPO. The marginal seas in the Pacific Ocean, such as Bering Sea, Sea of Okhotsk and East China Sea are also important source areas that supply trace elements to the NWPO.

The NWPO and its marginal seas are located right next to East Asia, where is the most



populous region globally and thus transports tremendous amount of anthropogenic substances to its adjacent oceans. The major western boundary current of the North Pacific Ocean, the Kuroshio, flows exactly through the region between the marginal seas and the NWPO, passing by the eastern ends of Philippine and Taiwan and mixed with the seawater originated from the East and South China Seas, then going northeastern direction to form the Kuroshio extension. The dynamic Kuroshio system not only links the NWPO and its marginal sea but also

indicates the necessity for regional collaboration to fully understanding TEI cycling in the oceanic region.

The process studies in GEOTRACES programme provide an opportunity to understand the linkage of the biogeochemical cycles and fluxes of trace metals between these marginal seas and

open oceans. The trace element fluxes from the marginal seas in the region can highly influence on TEI cycling in open ocean. For example, the East China Sea and the South China Sea, receiving significant amount of lithogenic and anthropogenic substances by various pathways, may be important TEI sources in the adjacent NWPO. The major transport processes and fluxes for TEI in each individual marginal sea remain to be explored. In addition, some specific lithogenic or anthropogenic TEIs may provide useful proxies to understand the linkage of the biogeochemical cycles and fluxes of trace metals and other substances between the marginal seas and the NWPO.

In this workshop, we plan to invite GEOTRACES associated oceanographers in East Asia to evaluate a full picture of the current status of the studies in the oceanic region, and then to identify important scientific questions and directions for future regional collaborative studies. Particularly, we would like to encourage early-career scientists and graduate students to attend this meeting to promote long-term academic exchange in TEI oceanography research in East Asia.

Topics

- TEIs from marginal seas to open ocean
- Promotion of GEOTRACES in East Asia
- Future regional collaborative studies



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Workshop Agenda:

16 January 2017

9:00 -- 17:00

Plenary talks on international GEOTRACES (5 talks)

Science highlights (5-10 talks by senior scientists)

Plenary Speakers:

Greg Cutter (Old Dominion University)

2018 US GEOTRACES Pacific Meridional Transect: studying inputs and internal cycling across a wide variety of coastal to oceanic regimes

Phoebe Lam (University of California, Santa Cruz)

The distribution of particle concentration and composition in GEOTRACES: effects on scavenging

Eric Achterberg (Geomar-Helmholtz Centre for Ocean Research)

Trace metal cycling in the Atlantic Ocean. Inputs, distributions and biogeochemical effects

17 January 2017

9:00 – 17:00

Science topics (3-4 themes)

Keynote talk by senior scientists

18 January 2017

9:00 – 15:00

Science topics (1 theme)

Keynote talk by senior scientists

Short talk by early-career scientists (8-10 minutes, Q&A 3-5 minutes)

Discussion on future works in East Asia

Tour in the Institute of Low Temperature Science, Hokkaido University

Early-career scientists are invited to bring some slides and give a short talk (e.g., 8-10-minute).

Contact

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