

Asia GEOTRACES Workshop

Sources/sinks and internal cycling of mercury and other TEIs in the Northwest Pacific Ocean

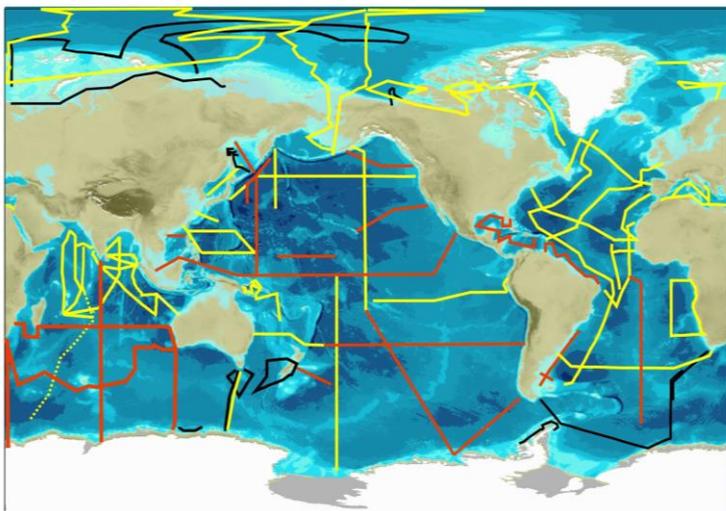
Qingdao, Shandong, China

December 8-10, 2019

About the workshop

GEOTRACES project covers global oceans, including the Northwestern Pacific Ocean (NWPO). However, the knowledge on regional distributions and internal cycling of trace elements and their isotopes (TEIs) in seawaters in the NWPO is still limited.

For example, mercury (Hg) cycling in the oceans has drawn extensive public concerns because of the production of methylmercury (MeHg) in the marine environments. The produced MeHg can then be biomagnified via food chain, bioaccumulated to high concentrations in organisms at high trophic levels and pose great threat to human health. Some efforts have been made on investigating the distribution and cycling of Hg in the Pacific Ocean. East Asia is the largest source region for Hg. Large amounts of Hg were discharged into the ocean via riverine input and atmospheric deposition, highlighting the importance of this region in Hg studies. However, there is lack of studies on the distribution and cycling of Hg in the NWPO. Few mercury data following the GEOTRACES protocols were reported in this region and controlling processes and factors for Hg cycling in the NWPO are largely unknown.



As major GEOTRACES ocean interfaces, exchange between atmosphere and surface water, sediments and the overlying water column significantly influence the net sources and sinks for dissolved TEIs in seawater, as well as the internal cycling of TEIs in the NWPO. However, little is known about net supplies of TEIs from sediments and atmosphere as well as the key processes and key areas for the supplies in the NWPO. The marginal seas in the NWPO, such as Bering Sea, Sea of Okhotsk, East

China Sea, and South China Sea, receive significant amount of lithogenic and anthropogenic substances from fluvial input and submarine groundwater discharge. These marginal seas are also

important source areas that supply trace elements to the NWPO, which can highly influence TEIs cycling in open ocean. The major transport processes and fluxes for TEIs in each individual marginal sea remain to be explored. The major western boundary current of the NWPO, 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 TEIs cycling in the oceanic region.

An Asia GEOTRACES Workshop, organized by Ocean University of China, will be held in Qingdao on December 8-10, 2019. In this workshop, we plan to invite GEOTRACES scientists in Asia as well as other regions to evaluate a full picture of the current status of the studies on the major sources/sinks and internal cycling processes of TEIs in seawater (emphasized on mercury) in the NWPO, and to generate a future regional collaboration and action plan for Asia GEOTRACES.

Topics

1) Mercury in the NWPO (Part I)

- Contributions of Asia marginal seas to mercury in the Pacific Ocean
- Mercury speciation and cycling in the NWPO
- Mercury international inter-calibration and strengthening the capability of marine Hg analysis and study in the Asia
- Discussion on the Part II: Mercury international inter-calibration during the testing cruise via *“Dongfanghong III”*

2) TEIs fluxes and processes at ocean interfaces

- Atmospheric deposition
- Continental run-off (e.g. fluvial input and submarine groundwater discharge)
- Interaction between marginal seas and Kuroshio water
- Sediment-water boundary

Organizers

Jingling Ren, Yanbin Li, Qian Liu, Jing Zhang, Meixun Zhao

Venue and Accommodation

The workshop will be held in Badaguan Hotel (Shanhaiguan Road 19, Qingdao, Shandong). The workshop organizer has contracted a special rate with the Badaguan Hotel (380 RMB per night (tax

included)) and can book the rooms for the attendees if needed (please fill out the pre-registration form and send it to Ms. Yan Wang (wangyan2843@ouc.edu.cn) before November 15, 2019).

Abstract Submission and Pre-registration

There is no registration fee for this workshop. Deadline for the pre-registration and abstract submission is November 15, 2019 (please send the filled pre-registration form and the abstract to Ms. Yan Wang (wangyan2843@ouc.edu.cn) before November 15, 2019).

Workshop Agenda

December 8, Registration

December 9, Sessions and Discussion

December 10, Sessions and Discussion

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This workshop is supported by the Ocean University of China.

