

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN SOUTH KOREA

April 1st, 2018 to March 31st, 2019

GEOTRACES-related research is continuing in South Korea in a second year. We conducted 2 cruises (Indian Ocean and East/Japan Sea) with trace element clean sampling based on our new research vessel, R/V *Isabu* (2017~) of Korea Institute of Ocean Science and Technology (KIOST). As a new participant of GEOTRACES works, we also tried a inter-comparison work in crossover station in Indian Ocean based on together with a setup a new infrastructure (new clean laboratory and seaFAST ICP-MS for only seawater measurements) in new campus of KIOST. Major funding source of these works are part of research projects (2019-2022) of KIOST. The details of preliminary results of this works are as below:

Cruises

- Two cruises were conducted in Indian Ocean and East/Japans Sea

We get a new radioactive tracer ^{234}Th data together with dissolved/particulate trace element in the water column of Indian Ocean during a 2 cruises (2018-2019). The trace element measurements are still ongoing. Here, we got a radioactive tracer ^{234}Th data by a onboard measurements of dissolved-/particulate ^{234}Th .

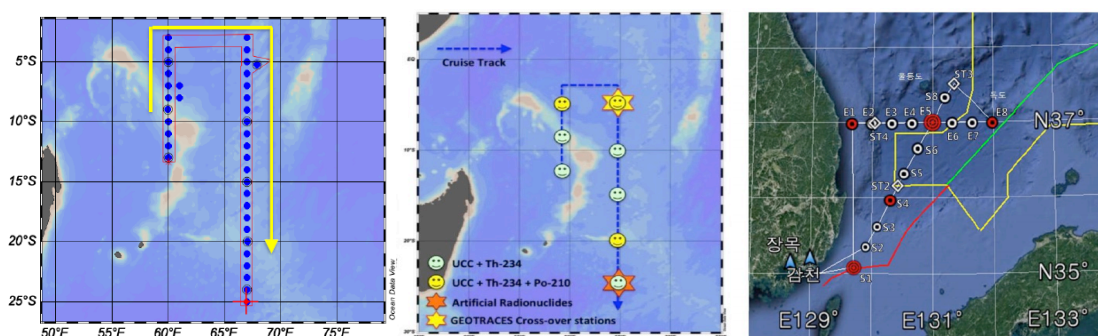


Figure 20. The entire cruise track (with blue dots of sampling station) of R/V *Isabu* in Indian Ocean section cruise (Apr. 2018) (Left) and trace element clean sampling stations (Center) in this cruise. The entire sampling stations of East/Japan Sea (Mar. 2019) cruise (white dots) together with trace element clean sampling stations (red dots) (Right).

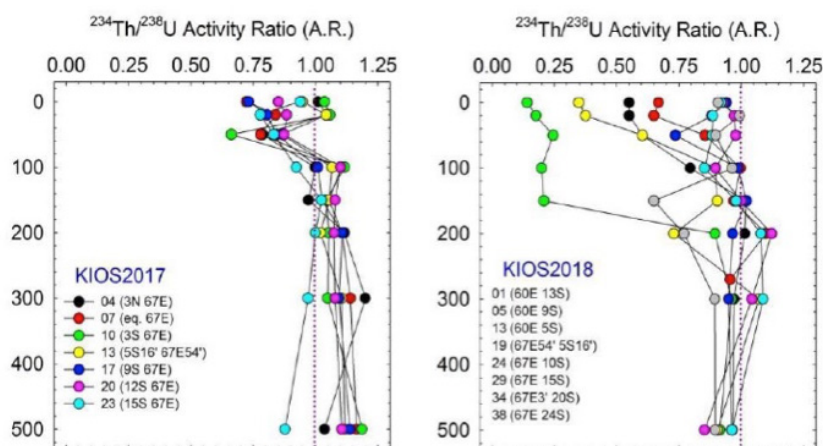


Figure 21. The preliminary results of ^{234}Th deficiency in the upper column of Indian Ocean in 2017 and 2018.

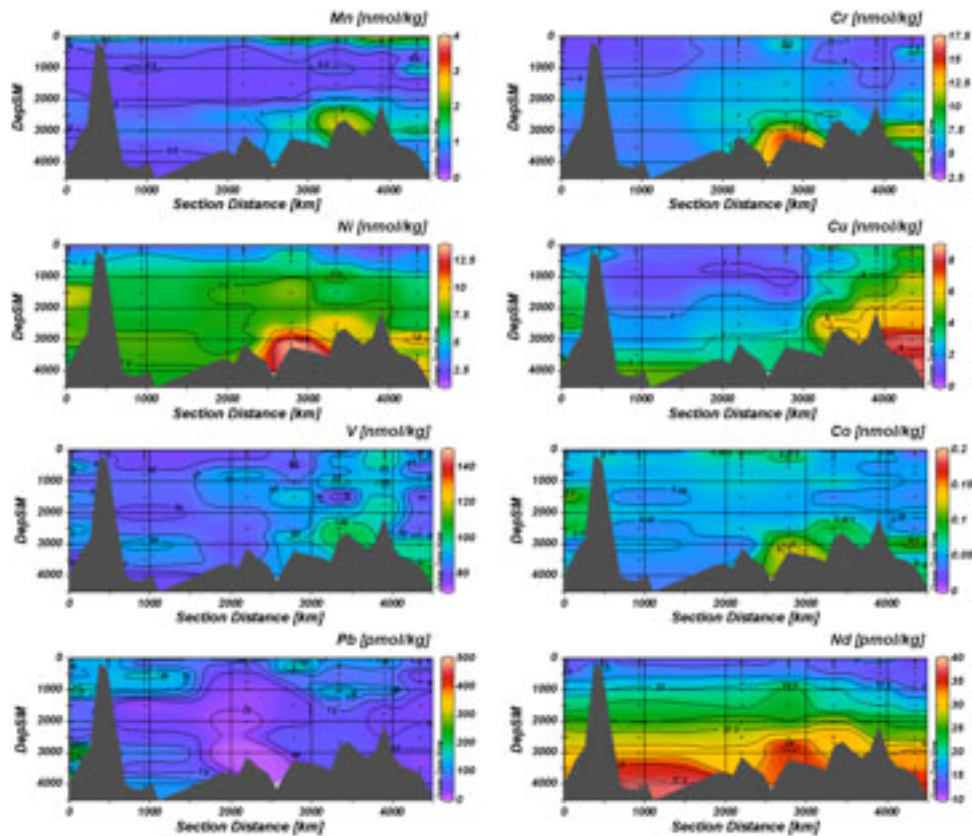


Figure 22. The preliminary results of dissolved trace elements in the Indian Ocean in 2018.

Other GEOTRACES activities

- The results of intercomparison works

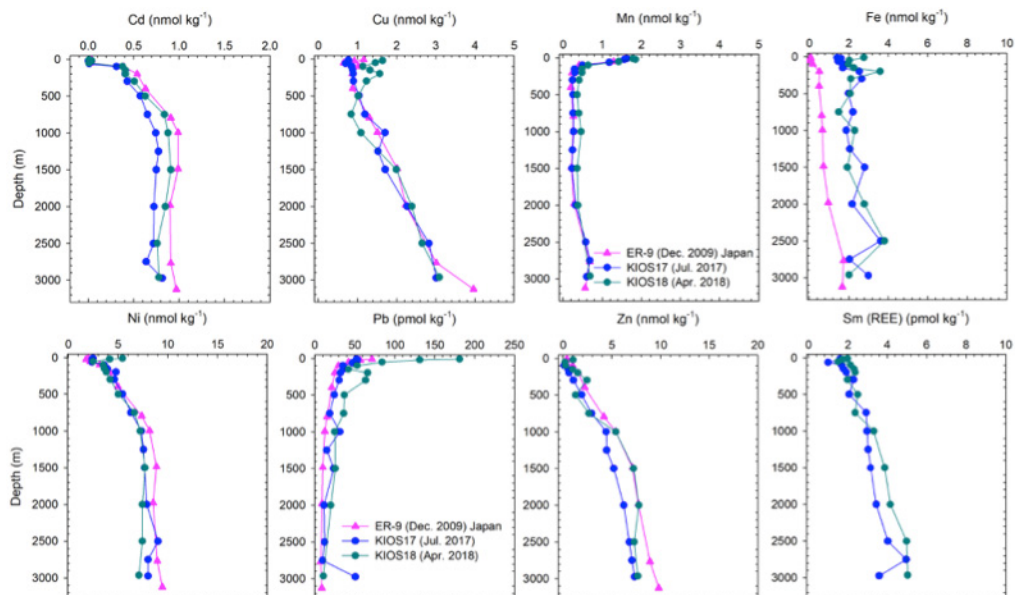


Figure 23. Inter-comparison results in Indian Ocean cross over station (69.54° E 5.16° S). Pink dots denote the result of previous results from Japanese GEOTRACES cruise (2009 – 2010) and blue- and green dots denote the result from this study, 2017 and 2018 cruises of R/V Isabu, respectively.

- we also tried to setup a new infrastructure (new clean laboratory and seaFAST ICP-MS for only seawater measurements) in new campus of KIOST @ Busan



Figure 24. New clean room facility and newly equipped seaFAST ICP-MS in KIOST

GEOTRACES presentations in international conferences

- Kim, I., Lee, H. M., Kim, C., Kim, S. H., & Rho, T. K. (2018, December). Latitudinal distributions of ^{234}Th in the upper western Indian Ocean. In AGU 2018 Fall Meeting.

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