Multielemental determination of concentrations and stable isotope ratios of trace metals in the South Pacific Ocean

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Trace metals in seawater are becoming critical parameters in oceanography as trace nutrients for organisms, tracers in the modern ocean, and proxies in paleoceanography [1]. The international study programme GEOTRACES is based on intercalibrated methods and revealing global distributions and temporal variations of trace metals in the ocean (http://www.geotraces.org). GEOTRACES has published the second Intermediate Data Product (IDP2017) in the last August. We have been developing new methods for multielemental determination of concentrations and stable isotope ratios of trace metals, contributing to GEOTRACES. For example, we have developed the one-step preconcentration of Al, Mn, Fe, Co, Ni, Cu, Zn, Cd, and Pb in seawater using NOBIS Chelate-PA1 resin [2, 3], realizing analysis of metal stoichiometry. Also, we have developed methods for isotopic analysis of Cu, Ni, and Zn in seawater [4, 5], deepening our knowledge on circulation of the trace metals in the ocean by using stable isotope ratios as well as concentrations. GEOTRCES Japan conducted the KH-14-6 cruise to observe the sectional distribution of trace metals along 170˚W in the South Pacific Ocean. In this presentation, we will report our new data of this cruise.

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