学术报告

Highly precise $^{182}W/^{184}W$ isotopic compositions of ocean island basalts through MC-ICP-MS

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Dr. Katsuhiko SUZUKI, the Deputy Director and Principal Scientist of Research and Development Center for Submarine Resources, Japan Agency for Marine-Earth Science and Technology (JAMSTEC) got his PhD degree from University of Tokyo in 1993, and was awarded as Excellent Young Geochemist by Geochemical Society of Japan for "Development of Re-Os dating method for sulfide minerals" in 1999. He has been working in JAMSTEC since 2003 and mainly engaged in the study of Isotope Geochemistry. He has published more than 100 papers in Nature, Nature-C, Geology, EPSL, GCA, and so on.

ABSTRACT: ^{182}Hf-^{182}W system could give constraints on core-mantle differentiation, especially core segregation, in the very early Earth system. Recent improvements of analytical techniques of W isotope analyses using TIMS and MC-ICP-MS allow to obtain highly precise $^{182}W/^{184}W$ ratios of terrestrial rocks, which led to findings of ^{182}W anomalies (mostly positive) in old komatiites and young volcanic rocks.

In our study, high-precision W isotope ratio measurement with MC-ICP-MS has been developed. We furthermore corrected the measured W isotope ratios of samples with the standard solution processed by the same method as that of the samples. This technique led to the reproducible W isotopic compositions with reproducibility of several ppm. We have obtained negative $\mu^{182}W$ for the basalts with the high $^{3}He/^{4}He$ isotopic composition from the Loihi, Hawaii. As the Earth's core should have a negative $\mu^{182}W$ value of ca. -210, thus the Loihi samples we analyzed probably contain a component with a signature of core-mantle interaction.