

MULTIELEMENT ANALYSIS OF LAKE BAIKAL WATER BY HR-ICP-MS

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ABSTRACT

Twenty-four elements in Lake Baikal water were determined by HR-ICP-MS instrument, where two river water reference materials, JSAC 0302 and JAC 0032, were applied to verification of the accuracy of analysis. The concentrations of the analyte elements covered a range of nine orders of magnitude, from approximately 17 $\mu\text{g mL}^{-1}$ of Ca to less than 2 - 3 pg mL^{-1} of Cs. Lake Baikal water samples from various water depths showed similar chemical compositions to one another. The distribution of the elements in Lake Baikal water was compared with that in Lake Biwa water, which is the largest lake in Japan. Despite the general similarity in elemental distribution of the two lakes, U and Li were relatively enriched in Lake Baikal water while Y, Mn, and As were relatively enriched in Lake Biwa. Based on the enrichment factor of elements in lake waters, the relative low Li concentration in Lake Biwa water was suggested to be an anomaly, which might be attributed to the deposition of organic deposit that enriched Li.

Keywords : multielement analysis, lake water, HR-ICP-MS

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