[EJ] Evening Poster | S (Solid Earth Sciences) | S-RD Resources, Mineral Deposit & Resource Exploration

[S-RD33]Resource Geology

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Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Ore deposits consisting of supracrustal concentrated valuable elements and minerals result from the Earth's dynamics including magmatism, hydrothermal activity, metamorphism, and weathering. The formation of ore deposits is also closely associated with global environmental changes and biological evolution in the Earth's history. Involvement of different academic fields in Earth Science including Geology, Petrology, Mineralogy, and Microbiology is required to understand the genesis of ore deposits. The filed of Resource Geology is essential not only for efficient exploration and development of ore deposits but also for better understanding and assessment of hazardous elements that may be caused by resources development. This session widely covers various topics of field investigation and observation, laboratory experiments, theoretical calculation, development of analytical methods and others related to the supracrustal migration and concentration of elements.

[SRD33-P11]A Raman spectroscopic study on sphalerite from seafloor hydrothermal deposit

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Keywords:seafloor hydrothermal deposit, Laser Raman spectroscopy, sphalerite

Sphalerite, zinc sulfide mineral (ZnS), is one of the major constituent minerals of hydrothermal sulfide deposit such as vein type deposit, skarn deposit and volcanogenic massive sulfide (VMS) deposit on land as well as deep-sea hydrothermal sulfide deposit. Since sphalerite contains several mole percent of iron, this mineral formula was sometimes depicted as (Zn,Fe)S. Mole fraction of iron in sphalerite grains obtained from seafloor hydrothermal deposits exhibit a wide variety along with occurrence and sulfur fugacity of hydrothermal fluid. Iron contents in sphalerite grains are usually measured directly by electron probe micro analyzer (EPMA). Recently, the laser Raman spectroscopy method has been applied to sphalerite grains to estimate their iron contents. Based on the previous data, intensities in the Raman peaks around 300 cm^{-1}, 330 cm^{-1} and 350 cm^{-1} change with their iron contents. Sphalerite with low iron contents shows weak two peaks at the Raman spectroscopy around 300 cm^{-1} and 330 cm^{-1}, whereas high-iron sphalerite grain has conspicuous peak around 350 cm^{-1}.
In the present study, we applied the laser Raman spectroscopy method to modern seafloor hydrothermal sulfide deposit in the Okinawa Trough and Izu-Bonin area to comprehend spectroscopic features of sphalerite and their difference among several hydrothermal sites.