

# **HOST ROCK GEOCHEMISTRY AND CHEMICAL COMPOSITION OF ORE FROM THE TAKARA VOLCANOGENIC MASSIVE SULFIDE CU-ZN DEPOSIT IN THE SOUTHERN FOSSA MAGNA, CENTRAL JAPAN**

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The Takara ore deposit is located in the northern end of the Southern Fossa Magna, central Japan. It is claimed that the Southern Fossa Magna was formed in the paleo Izu-Bonin arc system and emplaced into the present position as a result of the collision and accretion to Honshu arc. In spite of that the Takara ore deposit has been considered to be one of the Kuroko type deposits which were developed in northeastern Japan, our study concludes that the Takara ore deposit is different from typical Kuroko deposits, and probably formed on the bottom of the sea at the main arc, not at the back-arc basin or rift. Volcanic rocks of the Takara ore deposit area are compositionally bimodal according to SiO<sub>2</sub> content. The one has the typical characteristics of island arc tholeiitic rocks with depleted HFS elements while another one belongs to the calc-alkali rock series. The volcanic rocks are commonly altered and the assemblage of replacing minerals ranges from prehnite-pumpellyite facies to a transitional greenschist-amphibolite facies. The ore bodies occur at the boundary of these rocks, which indicate the transitional greenschist-amphibolite facies. Ore, mainly composed of pyrite and chalcopyrite, from the Kuroko deposits shows higher Co/Pb, Ni/Pb and Mn/Pb ratios than that of the Besshi type deposits, and that of Takara ore deposit is in between them. Conversely, Kuroko, chiefly composed of sphalerite and galena, from the Kuroko deposits shows low Cu/Pb, Zn/Pb, Cd/Pb, Co/Pb, Mn/Pb and Ni/Pb ratios while that of Takara ore deposit are high.