

## Where are the Kuroko deposits forming? -Tectonic setting of the hydrothermal systems in the Izu-Bonin Arc -

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Kuroko deposits, one of the submarine hydrothermal ore deposits were yielded in the northeast Japan Arc at around 15-13 Ma. Fujioka (1983) summarized the tectonic setting and paleo-environment of those Kuroko deposits and compared the environment with those of the present-day Izu-Bonin Arc suggesting the Izu-Bonin arc-backarc system is a candidate of the present-day Kuroko formation.

Many geologists and geophysicists started surveys to find a submarine hydrothermal activity in the Izu-Bonin Arc and until early 1990s the Kuroko type metal deposits were found at several active hydrothermal sites such as Wednesday, Thursday and Kasuga seamounts almost along the Izu-Bonin volcanic front. Iizasa and others (1999) discovered a huge hydrothermal system called, Sunrise ore deposit, at the Myojin knoll that is located at the volcanic front about 300 km south of Tokyo. Another huge hydrothermal system was found recently at the Bayonnaise knoll, which is located 8 miles southwest of the Sunrise ore and 10 miles west of the volcanic front. The Bayonnaise knoll is a dome with a caldera on its summit and surrounds the Myojin Depression together with other domes that are related to the formation of the hydrothermal deposits. The configuration of these domes at the Myojin Depression is quite similar to those of the Hokuroku depression at the northeast Japan Arc.

The present-day Izu-Bonin arc-backarc hydrothermal vent system is the analogue of the Kuroko deposits from the geological and geochemical points of view. Along the Izu-Bonin Arc system several backarc depressions are recognized. They have such common features as rifted structure with arc parallel normal faults, thick sediment covers and high heat flow values. The age of these depressions is estimated to be 0-6 Ma based on the ODP drilling and sediment thickness. The Kuroko deposits will be forming at the backarc depressions of the Izu-Bonin arc as has first pointed out by Fujioka (1983).