

## Re-Os geochronology of the Besshi-type volcanogenic massive sulfide deposits

# Tatsuo Nozaki[1]; Yasuhiro Kato[1]; Katsuhiko Suzuki[2]

[1] Geosystem Eng., Univ. of Tokyo; [2] IFREE, JAMSTEC

<http://egeo1.geosys.t.u-tokyo.ac.jp/kato/>

Re-Os contents and isotopes of the Besshi-type Cu volcanogenic massive sulfide deposits from the Sanbagawa Belt are reported. Sedimentary ages of sulfide ore samples are also determined by Re-Os isochron method. Our targets are relatively large-scale representative Besshi-type deposits, including the Besshi and Sazare deposits from Ehime Prefecture and Iimori deposit from Wakayama Prefecture. We obtained the following results.

1. Re-Os contents of sulfide ore samples vary from 2.5 to 367 ppb and from 166 to 1211 ppt, respectively.  $^{187}\text{Re}/^{188}\text{Os}$  and  $^{187}\text{Os}/^{188}\text{Os}$  isotopic ratios greatly vary from 42 to 12164 and from 0.30 to 31.21, respectively. This very large variability of  $^{187}\text{Re}/^{188}\text{Os}$  isotopic ratios is suitable for age determination based on the isochron. The isochron ages of the Besshi-type deposits studied here are well constrained due to the large variability of  $^{187}\text{Re}/^{188}\text{Os}$  ratios.

2. The isochron ages of the Besshi-type deposits are generally between 150 and 160 Ma. Because the accretionary age of the Sanbagawa Belt is estimated to be 120 - 130 Ma by radiometric and radiolarian ages, the duration time from deposition to accretion is considered to be about 20 - 40 My. Therefore, a depositional environment of the Besshi-type deposits in the Sanbagawa Belt is very likely pelagic or hemipelagic.

3. These depositional ages are concurrent with the timing of a largely negative  $^{87}\text{Sr}/^{86}\text{Sr}$  excursion in the Late Jurassic seawater. This may suggest that the Besshi-type deposits of the Sanbagawa Belt were precipitated in an anoxic deep-sea where intense hydrothermal activity occurred and hydrothermal influx was dominant.