

## Global environmental changes over the past ~360 Myr: Records of strata-bound ore deposits in the Japanese accretionary complexes

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There are many strata-bound ore deposits in the Japanese accretionary complexes. These deposits are mainly divided into three types; umber (Fe-Mn), Mn-rich, and volcanogenic massive sulfide (VMS; Besshi-type). The Mn-rich deposits are further divided into two subtypes that are associated with greenstone and NOT associated. These strata-bound deposits give us critical constraints for pelagic environmental changes over the past ~360 Myr. Oxide ore deposits such as umbers overlying N-MORB and Mn deposits related to hot-spot volcanism are interpreted to have precipitated in the modern-style oxygenated deep-sea. In contrast, Mn carbonate and VMS deposits likely precipitated in the stagnant, O<sub>2</sub>-deficient deep-sea during the Triassic and Jurassic periods probably when the atmospheric CO<sub>2</sub> concentrations were high and polar ice sheets did not form.