Distribution of manganese deposits from Mesozoic to recent: its relation to deep-water circulation

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Occurrence, age, mineralogy, chemistry and host rock lithology of manganese deposits within accretionary complexes in Japan and Late Cretaceous to recent DSDP/ODP cores are carefully reviewed and analyzed. Deep-sea manganese nodules within Late Cretaceous to recent deposits formed under oxic deep-water environment with global scale deep-water circulation, being ultimately due to significant temperature gradient between high and low latitudes. On the other hand, Mesozoic stratiform manganese deposits are considered to originate from the inflow of oxic seawater into stagnant anoxic- high Mn seawater. The role of global deep-water circulation for the formation of manganese deposits will be discussed.