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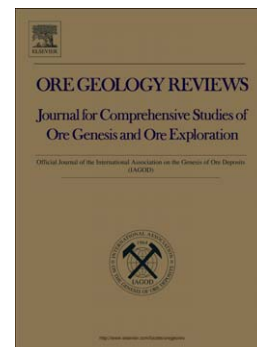
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# Metallogenesis and ore controls of Cenozoic porphyry Mo deposits in the Gangdese belt of southern Tibet

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## Abstract

The Gangdese is a newly explored porphyry copper ore belt in China. Except for the Cu ( $\pm$  Mo  $\pm$  Au) porphyry deposits there are some Mo ( $\pm$  Cu  $\pm$  W) porphyry and skarn deposits in this belt. Two pulses of molybdenite mineralization are recognized in the central Lhasa subterrane with ancient continent crust, including the Paleocene–Eocene (65–52 Ma) porphyry Mo and skarn Mo–W deposits formed during the rollback of Neo–Tethyan oceanic slab in collisional setting, and Miocene (21–15 Ma) porphyry Mo–Cu deposits generated in the postcollisional setting. The Gangdese copper deposits also occur during these two periods but are distributed in the southern Lhasa subterrane dominated by juvenile crust through mantle-derived magmatism resulting from Neo–Tethyan ocean lithosphere subduction. The intrusions related to molybdenite mineralization have relatively lower bulk-rock  $\epsilon_{\text{Nd}}(t)$  and higher  $(^{87}\text{Sr}/^{86}\text{Sr})_i$  values, lower zircon  $\epsilon_{\text{Hf}}(t)$  values and older Hf model ages, lower molybdenite Re contents, and more radiogenic Pb isotopes than the coeval copper related

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