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## Petrographical features of the Shilu Fe-polymetallic ore deposit in Hainan Province, South China: implication for ore-deposit type

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The Shilu Fe-polymetallic hematite-rich deposit is situated in the western Hainan Province of South China. This deposit is characterized by upper Fe-rich ores and lower Co-Cu-rich ores, which are mainly hosted within a dominantly metamorphosed submarine siliciclastic and carbonate sedimentary succession of the Proterozoic Shilu Group that has been metamorphosed to greenschist to amphibolite facies. Two types of metamorphosed BIFs, i. e. the quartz itabirites which contain alternating hematite-rich microbands with quartz-rich microbands, and the amphibolitic itabirites which comprise alternating millimeter- to a few tens meter-scale, Fe oxide (magnetite, hematite)-rich bands with calcsilicate (garnet + amphibole + pyroxene + epidote)-rich mesobands to microbands, have been identified within the Shilu Group. A Fe-Co-Cu-rich sulfide facies, represented by the stratabound Co-Cu ores, also characterizes alternating Co-bearing pyrite + Co-bearing pyrrhotite + chalcopyrite macro- to mesobands

dominantly with dolomite + calcite  $\pm$  amphibole and minor with sericite + chlorite + quartz macro- to mesobands. The relic oolitic, pelletoid, colloidal and psammitic textures, and bedding structures which most likely represent primary sedimentary structures often observed in the Shilu itabirites. Hereby, the precursor precipitates to the Shilu deposit are interpreted as Fe-Co-Cu-(Si)-rich chemical sediments intercalated or mixed with variable amounts of detrital components. Input of the Fe, Si, Co and Cu from a mixed source of weathered landmass and sea-floor-derived hydrothermal fluids into a continental margin marine basin separated from an open ocean in fluctuating redox state caused primary sedimentation of the Shilu itabirites and Co-Cu ores via hydrogeneous-sedimentary processes. Further, we consider the Shilu deposit as a BIF (banded iron formation) ore deposit-type (Lake-Superior).

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