Large Iron Deposits of Magmatic Origin in China

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The complicated tectonic setting of China controlled the formation of some types of magmatic iron deposits. They are: (1)Anorthosite-hosted V-Ti magnetite deposit of Mesoprotero-zoic age. Orebodies are of ore magma-injected type, consist-ing of magnetite-pyroxene-apatite association, as Damiao de-posit, Hebei Province. (2)Gabbroid-associated Fe-V-Ti deposit of Carboniferous age, occurred in West Sichuan Rift Valley. Ores are characterized of banded structure originated from magmatic crystallizing differentiation. (3) Diorite-hosted mag-netite-hematite ore deposit of Mesozoic age. They are skarn and ore magma-injected type and occurred in intrusive contact zone. Examples are the Han-Xin iron deposit in Hebei and Daye iron deposit in Hubei Province. (4) Volcanic-subvolcanic rock-related iron deposits. Orebodies mainly belong to ore-magma-injected type. The mineral association is apatite-mag-netite-actinolite (altered from diopside). Iron deposits in Nan-jing-Wuhu volcanic basin of late Mesozoic age are examples.

All these iron deposits have the following similar features: (1) They occurred in pericontinental or intracontinental rift; (2) Ores are associated with mafic-intermediate, Na-rich magmatic rock series; (3) Ore-related magma after multiple differentiation formed composite rock bodies with multiple-stage mineralization, composing a complete rock-forming and ore-forming series; (4) Two types of ore-forming elements association: Fe-V-Ti-P type related to magma of mantle origin and Fe-Co-Cu-Au type related to magma of mixed mantle-crust origin. In short, the occurrence of ore magma-injected iron ores is of special metallogenic

significance.