



Professional Branch Geological Society of Hong Kong



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The Marampa Iron Ore Project, Sierra Leone, West Africa: Insights from Structural Mapping and U-Pb Geochronology

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Venue: Seminar Room, 2/F, Mariners' Club, Middle Road, Tsim Sha Tsui

Date and Time: 6:30 pm, 26 March 2010 (Friday)

Synopsis

The Marampa Iron Ore project is located 90 km northeast of Freetown, the capital of Sierra Leone, where Cape Lambert Resources is currently exploring for specularite hematite iron ore. In 2009, SRK Consulting was commissioned to undertake regional mapping of the entire tenement and develop a structural model of the deposit. Representative samples were also taken for petrography and U-Pb geochronological analysis.

The mineralised specularite-hematite schists form part of the Marampa Group, which occurs within the Rokel-Kasila Belt. The Belt is a metamorphic belt that developed during the late-Neoproterozoic collision between the West African and Amazonia Cratons. It comprises four belt-parallel zones, from west to east the granulite-facies Kasila Group, the amphibolite-facies Marampa Group, reworked Archaean basement known as the "Kenema Assemblage" and the sub-greenschist-facies Rokel River Group.

The specularite-hematite schist in places form several 100-m-thick accumulations. Field mapping reveals that the specularite-hematite schist has undergone at least four phases of deformation. Iron oxide minerals are represented by specularite-hematite (up to 60 modal%) and subordinate magnetite (usually < 2-3 modal%) and were formed as part of the prograde metamorphism.

The new U-Pb zircon ages indicate that the Kenema Assemblage comprises units with ages 3.11, 2.90 and 2.85 Ga. This suggests that the accretion in the south western part of the West African Craton may have begun in 3.11 Ga and experienced significant growth and plutonism during the Leonian (3.05-2.95 Ga) and Liberian (2.85-2.70 Ga) events.

The absence of Archaean detrital zircons in the Marampa schist suggests that the Marampa Group was deposited far from either the Archaean West African Craton or the Kenema Assemblage. This, together with the presence of ultramafic and mafic units, indicates that the Marampa Group might have formed in an ocean basin and iron-rich sediments are speculated to have derived from seafloor volcanism. Our discordia lower intercepts, although imprecise, support a metamorphic event which occurred in the latest Neoproterozoic or earliest Cambrian.

About the Speaker

Gavin is currently a consulting geologist with SRK Consulting (Australasia), based in Perth, Western Australia. He obtained his undergraduate and Master's degrees from University of Hong Kong and a PhD from Oxford University. Gavin has extensive experience in field and structural mapping and interpretation as well as a broad knowledge of geochemical and geochronological data analysis.

Gavin has worked on numerous deposit styles including lode gold, sediment-hosted Cu-Co, iron ore, uranium and coal. He has previously worked in Niger, Sierra Leone, Tibet, Cyprus, Syria, New Zealand and Australia. His expertise also includes using a variety of GIS, Remote Sensing and 3D geological software packages. He recently has also been involved in IPO documents preparation, valuation and due diligence.

Registration and Enquiries

Prior registration is not required.

Please email any enquiries to gshkpb@gmail.com

CPD certificate will be distributed after the seminar.