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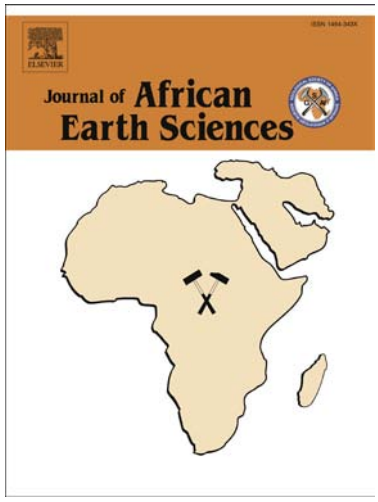

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PII: S1464-343X(14)00237-4
DOI: http://dx.doi.org/10.1016/j.jafrearsci.2014.07.019
Reference: AES 2109

To appear in: *African Earth Sciences*

Received Date: 6 May 2014
Revised Date: 21 July 2014
Accepted Date: 22 July 2014

Please cite this article as: Anhaeusser, C.R., Archaean greenstone belts and associated granitic rocks – a review, *African Earth Sciences* (2014), doi: http://dx.doi.org/10.1016/j.jafrearsci.2014.07.019

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Archaean greenstone belts and associated granitic rocks – a review

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ABSTRACT

Archaean greenstone belts and associated granitic rocks comprise some of the most diverse rock types on the Earth's surface and were formed during the early stages of the develoment of the planet from Eoarchaean to Neoarchaean times - a period extending back from about 4000 to 2500 million years ago. Because of their great age, these rocks have received unprecedented attention from a wide spectrum of Earth scientists striving to learn more about the evolution of the Earth, including its crust, hydrosphere, atmosphere, the commencement of life, and the nature and distribution of mineral deposits. The knowledge gained thus far has accumulated incrementally, beginning with solid field-based studies, the latter being supplemented with increasingly advanced technological developments that have enabled scientists to probe fundamental questions of Earth history. Archaean granite-greenstone terranes display considerable variability of lithologies and geotectonic events, yet there are unifying characteristics that distinguish them from other geological environments. Most greenstone belts consist of a wide variety of volcanic and sedimentary rocks that reflect different evolutionary conditions of formation and all have invariably been influenced by subsequent geotectonic factors, including the intrusion of ultramafic, mafic and granitic complexes, resulting in widespread deformation, metamorphism, metasomatism, as well as mineralization. Geochemical and isotopic age determinations have shown how complex these ancient rocks are and efforts at understanding the nature and evolution of the hydrosphere, atmosphere and primitive life have made Archaean terranes

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