

CORRELATION OF THE BROCKMAN AND KURUMAN IRON FORMATIONS, USING HIGH-PRECISION GEOCHEMISTRY AND U-PB SHRIMP GEOCHRONOLOGY.

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It has long been established that a close relationship exists between the Australian and African continents. Both continents are major components of Gondwanaland and have comparable tectonic histories and stratigraphic records. Since the mid 1970's, numerous researchers have commented on the similarity between the Archaean and Palaeoproterozoic architecture of the Pilbara (W. Australia) and Kaapvaal (South Africa) Cratons. The correlation of the Hamersley and Transvaal stratigraphy is most striking, but the Archaean greenstone belts of the two Cratons are also similar. This suggests that they were either once fragments of a Vaalbara supercontinent or that global processes synchronised events in unrelated terranes. Comparisons of the Hamersley and Transvaal Provinces have identified parallels in basin development and metallogeny (eg. crocidolite, iron and manganese deposits). The basins are recognised as having the same geotectonic setting resulting in similar stratigraphic records and depositional environments. Earlier correlations were hindered by poor geochronological constraints. This study has focused on correlating members within the Brockman and Kuruman Iron Formations. By using high-precision geochronology of geochemically fingerprinted, zircon-rich tuff bands in both IFs, we test correlations between units across two Palaeoproterozoic continents at a level of detail not previously achieved.