

**In situ SHRIMP U-Pb
geochronology and
geochemistry of mafic dykes in
the Yilgarn Craton, Western
Australia and Bunger Hills,
East Antarctica**

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Large Igneous Provinces (LIPs) are believed to result from major mantle melting events. Mafic dyke swarms associated with LIPs are important for testing plume and non-plume related models for their formation as well as for understanding global tectonics and geodynamics. The Archean Yilgarn Craton in Western Australia and the Paleoproterozoic Bunger Hills cratonic block in East Antarctica are intruded by a large number of mafic and ultramafic dykes of different ages, orientations and magnetic signatures. Only a small fraction of these dykes have precise isotopic ages or systematic geochemical and paleomagnetic data. In the Yilgarn, previous studies have identified several dyke generations with two major suites at ca. 2.4 Ga and 1.2 Ga. At Bunger Hills, no precise isotope ages for mafic dykes exist but previous investigations suggest that five compositionally distinctive dyke suites may be found there. We present new in situ SHRIMP U-Pb geochronology and geochemistry for two previously unreported dyke suites in the southern Yilgarn and provide geochemistry and first high precision isotope age for one dyke suite at Bunger Hills.