

AGE CONSTRAINTS FOR THE MAIN MAGMATIC EVENTS DURING ASSEMBLY OF THE ARCHAEOAN KAAPVAAL CRATON, SOUTHERN AFRICA.

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The Kaapvaal Craton of southern Africa is now widely regarded as having been assembled mainly in the Palaeo- and Mesoarchaeon and comprises several terranes each with a distinctive magmatic history and tectonic character. Delineation of these terranes, and limits to the timing and duration of the principal magmatic events within them, is advancing well with the application of U-Pb zircon dating and craton-wide, deep-sounding geophysical studies. In the eastern portion of the craton, the well-exposed Barberton terrane preserves at least two crust-forming events; a Palaeoarchaeon magmatic arc (granite-greenstone belt) formed at 3,51-3,44 Ga, which collided with a Mesoarchaeon belt developed at 3,230-3,105 Ga. The Murchison terrane, exposed along the northern portion of the craton, preserves an entirely different (granite-greenstone) crust-forming event at 3,09-2,97 Ga. The west-central portion of the craton, represented in part by the Amalia terrane, also formed in the Mesoarchaeon (at around 3,1-3,0 Ga) but the region is poorly exposed and its assembly may be more complex. Neoarchaeon magmatic activity was restricted to intrusion of discrete S- and I-type granitoids, principally at around 2,8 and 2,7 Ga. In addition, an unusual, voluminous, rapakivi granite - anorthosite - rhyolite igneous province intruded into the northwestern portion of the craton at 2,78 Ga. The geotectonic setting for the Neoarchaeon granitoid intrusions is not known, although magmatism occurred sporadically throughout the craton.