Archean and Proterozoic geology of Brazil: an overview

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Archean crust appears mainly in cratonic areas, although the oldest fragment was recorded in the Brasiliano Borborema Province. In the São Francisco Craton 3.42 Ga old TTG suites were involved in 3.1-3.3 Ga crust forming events and reworked during 2.8-2.9 Ga amalgamation events. Granitoid and basic intrusions and granulite metamorphism mark late Archean sialization. In the Amazon Craton 2.9-3.0 Ga old greenstones and tonalite were intruded by 2.87-2.85 Ga TTG, high-grade metamorphism and migmatisation. Late Archean stabilization is recorded in platform covers, granite intrusions, deformation, metamorphism, and metasomatism. Early Paleoproterozoic extension opened large basins, the closure of which during the ca. 2.15 Ga old Transamazonian collage and other orogenies lead to the amalgamation of continental crust preserved in cratons or later reworked in Neoproterozoic fold belts. Late Paleoproterozoic tafrogenesis is recorded in many areas by bimodal volcanics, continental to marine sediments and A-type intrusions. 1.4-1.5 Ga old magmatic arc rocks and 1.2-1.0 orogeny are recorded in western Amazonia as part of Rodinia amalgamation. Rodinia break up lead to formation of large ocean basins, which were closed during Brasiliano orogeny with the main arc events recorded at 930, 860, 760, and 640 Ma ago in central Brazil, and 900-850 and 750-700 Ma in the Dom Feliciano Belt, the latest orogenic events being the 580-540 Ma Rio Doce orogeny and 530-520 Pampean orogeny.