

Construction of an orogenic composite batholith: The Santana do Mundaú batholith, northeastern Brazil

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The Santana do Mundaú batholith, intrusive into the Pernambuco-Alagoas Domain, NE Brazil, is an example of a composite batholith constructed during the Brasiliano collisional Neoproterozoic orogeny. Whole-rock chemistry and Sr, and Nd isotope data of the two major intrusions, the pre- to early collisional Santana do Mundaú (SMP) (syenite-syenogranite), and the syn- to-late- collisional Chã Preta (CPP) (syenogranite- monzogranite) indicate that although sharing some geochemical characteristics, they are derived from distinct source rocks. The granitic rocks are high-K calc-alkalic to shoshonitic, metaluminous to slightly peraluminous, have low Nb (up to 25ppm) and Rb/Sr (up to 0.6), and have overlapping chondrite-normalized REE (discrete negative to positive Eu anomaly) and MORB-normalized patterns (Ta-Nb, P, Ti depletions, in an overall pattern similar to that for subduction-related granitoids). Plutons have distinct (⁸⁷Sr/⁸⁶Sr)_i (0.70437 - 0.70519 in the SMP, and 0.70539-0.70556 in the CPP) and Nd signatures (εNd -2.51 to 0.00 in the SMP; -9.53 to -9.37 in the CPP) with t_{DM} ranging from 1.3 to 1.0 Ga (SMP) and 2.0-1.0 (CPP). Overall, these data point to derivation from lower crustal mafic rock, with a strong, older, ensialic component for the CPP. This is compatible with an important change in the source rock during convergence/ collision, related to the Brasiliano orogeny.