

## **30my building a granitic batholith: the Santana do Ipanema batholith, northeastern Brazil**

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The Pernambuco-Alagoas Domain, NE Brazil, is a complex tectonic feature that includes units from Archean to Ediacaran ages. It is marked by voluminous syn- and post-collisional Cyrogenian to Ediacaran granitic magmatism related to the Brasiliano collisional orogeny. The Santana do Ipanema granitic batholith (over 6000 km<sup>2</sup>) is one of the three large intrusions in this domain. The batholith is composed of over twenty plutons, with U-Pb zircon crystallization ages varying from 643 to 616 Ma. They consist of high-K calc-alkalic to shoshonitic metaluminous to peraluminous quartz monzonite, quartz syenite and granites and contain biotite ± amphibole as major mafic phases. Primary epidote is found in almost all, and clinopyroxene in two plutons. Rocks show overlapping major and trace element compositions, but Nd isotopes reveals two distinct groups: the oldest plutons (643-625 Ma) present  $\epsilon_{Nd}(t)$  slightly positive to negative, while plutons  $\leq$  621 Ma show more negative values. In both groups the older  $t_{DM}$  values, more negative  $\epsilon_{Nd}(t)$ . REE normalized patterns are less fractionated in the older plutons than in the younger ones, and show larger negative Eu anomaly. Geochemical variation amongst the various plutons suggest they derived from similar depths above plagioclase stability field. Probably magmas derived from remelting of lower crust, with larger older supracrustal material input with time. Crystallization ages indicate that the batholith was constructed over ~30 my, suggesting that it could have been formed by amalgamation of successive small magmatic additions that required millions of years to be completed, rather than formed by one single, large magma pulse.