

Proterozoic Polyphase Magmatism around Jaswantpura, Jalore district, southwestern Rajasthan, India

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A rapid growth and thickening of continental crust under orogenic and anorogenic conditions during 900-700 Ma around Southwestern part of Indian Shield is reported and correlated to early stages of Pan-African thermal event. Around Jaswantpura, Southwestern Rajasthan, India, well documented polyphase magmatism between 900 to 700 Ma is dominantly represented by two granitic episodes. The first episode (900-800 Ma) commenced with the intrusion of synorogenic, I-type collision granite (Erinpura granite). The second granitic episode (750-700 Ma) comprises of post-orogenic, A-type, rift related granite (Jalore and Siwana granite).

The Synorogenic Erinpura granite occur in two distinct phases varying in composition from granite to granodioritic and is enriched in SiO_2 , MgO , FeO^t , CaO and impoverished in alkalis.. The first phase is represented by coarse porphyritic biotite granite while, the another phase of Erinpura granite is fine grained, homophenous, occasionally showing porphyritic texture. The Siwana granite is sub-solvus, medium to coarse grained, peralkaline (high $\text{Na}_2\text{O} + \text{K}_2\text{O}$, Fe/Mg , Zr , Nb , Y , Zn and low Al_2O_3 , CaO & Sr) and are comprised of ferromagnesian minerals including aegirine, aegirine-augite and riebeckite. The second granitic episode is also represented by Jalore granite of hyper-solvus type, granite to granodioritic composition with rapakivi texture. Jalore granite has higher SiO_2 , Al_2O_3 and CaO than Siwana granite.