

MULTIFACETED MANIFESTATIONS OF MESOPROTEROZOIC ALKALINE (POTASSIC AND ULTRAPOTASSIC) MAGMATISM ACROSS THE INTRACRATONIC CUDDAPAH BASIN IN PENINSULAR INDIA : THE CUDDAPAH PROVINCE

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In the southern Peninsular India, mesoproterozoic (1000-1400Ma) intraplate alkaline magmatism finds multifaceted manifestations in and across the intracratonic Cuddapah basin, constituting an alkaline province which was recently rechristened as the Cuddapah (intrusive) province. This province, encompassing the entire eastern Dharwar craton of India, is known for hosting an array of potassic and ultrapotassic rocks like lamprophyre, kimberlite and lamproite. While more than 50 pipes of kimberlite are found emplaced in the Archaean basement west of Cuddapah basin, lamprophyres and the associated syenites are confined to the terrane east of the basin abutting the Eastern Ghat mobile belt. The centrally located Cuddapah basin itself hosts lamproites at few places which, when connected, forms a line marking the upsurge of ultrapotassic magma; this line assumes significance since it divides the Cuddapah province into two distinct segments of which the one falling west of the basin, is marked by kimberlite magmatism and the other on the eastern side is manifested by shoshonitic alkaline magmatism (shonkinite, lamprophyre and miaskitic syenite). From the Sr and Nd isotopic data, a contrasting isotopic mantle source has been identified for these Proterozoic lamproites (an enriched source) and kimberlites (a depleted source) indicating a Proterozoic isotopically heterogeneous lateral mantle in the eastern Dharwar craton.