

Diversity in the granites of Nalgonda region of EDC: Evidence for the Neoproterozoic crustal growth processes

SOUMYA SHUKLA* AND M. RAM MOHAN

CSIR- National Geophysical Research Institute,
Hyderabad.

(*Correspondence: soumyashukla2008@gmail.com)

Nalgonda region forms NE part of the Neoproterozoic Eastern Dharwar Craton. Field observations reveal differences in texture, grain size, colour and deformation features reflecting the typology of granites. Degree of hybridization is varying from north to south in the study area. Mineralogical and textural studies differentiate five variants of granites; biotite-, amphibole-, K-feldspar-, plagioclase- rich and perthitic. Major elemental systematics suggest that these granites are primarily metaluminous and calc-alkaline. Variations in the Sr and Y compositions, REE fractionation and Eu anomalies are indicative of shallow to deeper depths of melting. These granites are divisible into all four variants (TTG, biotite- two mica, sanukitoids and hybrid granites) of the recent Neoproterozoic granites classification diagram [1]. Most abundant among them are the biotite-, two-mica granites, followed by those of sanukitoid affinity. Each group has distinct petrogenetic history and source characteristics. HFSE depletions relative to LILE and other trace elemental systematics are indicative of possible role of convergent margin tectonics in the evolution of these granites. Such diversity of granites in the study area implies the onset of modern-style plate tectonics during the Neoproterozoic.

[1] Laurent, O., Martin, H., Moyen, J.-F. and Doucelance, R (2014), *Lithos* **205**, 208-235.