VALIDATION OF ANOMALOUS CONCENTRATION OF REE AND OTHER ASSOCIATED ELEMENTS IN GEOCHEMICAL DATA OF STREAM SEDIMENTS IN AND AROUND KEVDI AND TARVARIA AREAS, PANCHMAHALS AND VADODARA DISTRICT, GUJARAT

Sanjay Kumar Gupta*, Biswaranjan Mohanty* and N. Y. Bhatt
1RGD, GSI, WR, Jaipur
2Dept. of Geology, M.G. Science Institute, Ahmedabad
*E-mail: sanjay_gsi@yahoo.com

Abstract

Collection of stream sediment samples in a systematic grid pattern and their precise geochemical analysis, evaluation and interpretation are one of the most cost effective and quick methods to identify inhomogeneity in an area. Anomalous concentration of elements could be utilized for achieving multi-disciplinary objectives including targeting of mineral deposits. 136 stream sediment samples were collected and analyzed for 49 elements/oxides including REE. Correlation among the elements and elemental dispersion in the study area reveal significant anomalous concentration of REE’s in stream sediment samples and exhibits an overall U-Th-Pb-TREE association. These anomalous concentrations corroborate well with gamma radiation data recorded in the field using scintillator coupled with identification of monazite and xenotime by XRD studies of heavy minerals. Petrographic, EPMA studies and geochemistry of the underlying rocks were carried out to validate the anomalous concentration of REE and associated elements. Presence of monazite and xenotime, identified in XRD analysis was confirmed by EPMA study. In addition allanite, thorianite and synchisite were also identified in EPMA study within the variant of granite exposed in the south-eastern and north-western parts of the study area near Kevdi and Tarvari respectively.

Keywords: Godhra granite, Stream sediments, Statistical analysis, EPMA, REE