

Characterization of heavy placer minerals on urban over bridge for correlation with neo-contaminates: Case study

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Abstract;

Rare earth elements are emerging as a neo-contaminant as their application increasing in modern technology. Southwest India knows for world class deposits and mining. Present study involves as seasonal wise collection of samples deposits on over bridges in City of Thiruvananthapuram, Southwest India and detailed analysis using Heavy liquid separation, microscopic analyser, XRD and MP-AES. Total Heavy placer in general is ranging from 2% to 17% and higher concentration observed on over bridges located in placer minerals transport routes and beneficiation industrial area. Seasonal variation result indicating higher Heavy placers on rainy season compared to dry seasons. heterogeneous heavy mineral assemblage noticed, and common heavy minerals are Ilmenite, Rutile, Zircon, Monazite, Sillimanite and high quartz. microscopic studies indicating surface damages on heavy placer that indicating an anthropogenic activity. XRF analysis indicating that TiO_2 , and Fe_2O_3 are major oxide in bulk samples. XRD analysis revealed multi-modal mineral assemblage. MP-AES analysis indicating that Higher REE content that may arise from occurrence of REE bearing minerals such as Monazite and Zircon. Overall Study indicating that over bridge sand samples will give insight of higher occurrence of REEs that basically derived from anthropogenic in nature. It may help to build a point source contamination spot determination

Keywords: REEs, Neo-Contamination, Zircon, Monazite