

GEOCHEMISTRY OF RECENT SEDIMENTS ALONG THE TECOLUTLA BEACH, VERACRUZ, MÉXICO: IMPLICATIONS FOR PROVENANCE

J.S. Armstrong-Altrin¹, Daniel Garcia², M.P. Jonathan¹, J. Madhavaraju³,
Kinardo Flores-Castro¹, and Cruz Ortiz Norma Liliana¹

¹ Centro de Investigaciones en Ciencias de la Tierra, Universidad Autónoma del Estado de Hidalgo, Ciudad Universitaria, Carretera Pachuca-Tulancingo km. 4.5, Pachuca, Hidalgo, 42184, México. **E-mail: john_arms@yahoo.com**

² Ecole des Mines, 158 cours Fauriel, F 42023 Saint-Etienne, France

³ Estacion Regional del Noroeste, Instituto de Geologia, Universidad Nacional Autónoma de México, Apart. Postal 1039, Hermosillo, Sónora 83000, México

Major, trace, and rare earth element compositions of beach sands of Tecolutla have been investigated to understand the source rock characteristics. The samples were separated as fine and medium grain sizes before geochemical analysis. Chemical composition is closely dependent on grain size, with Al₂O₃ increasing toward finer sands and SiO₂ toward medium sands. Using the SiO₂/Al₂O₃ and Fe₂O₃/K₂O ratios the sands are classified as arkose, litharenite, and greywacke types. The CIA (chemical index of alteration) values and A-CN-K (A = Al₂O₃; C = CaO; N = Na₂O; K = K₂O) diagram suggest their low weathering nature. The major element discriminant function diagram suggests that the sands were derived from Intermediate igneous provenance. The concentrations of the trace elements are generally low in comparison with average upper continental crust (UCC). The average relative concentration of trace elements lie between 0.1 and 1 except for Cu, with consistently higher relative concentration values (~ 0.74 – 6.00). In Chondrite normalized REE values the enrichment of LREE than HREE, and a negative Eu anomaly is observed.