

## **GEOCHEMICAL EVALUATION OF DEPOSITIONAL ENVIRONMENT OF PARH LIMESTONE, SOUTHERN PAB RANGE, BALOCHISTAN, PAKISTAN**

**Sadaf Naseem, Shahid Naseem, and Shamim Ahmed Sheikh**

*Department of Geology, University of Karachi, University Road, Karachi.*

*E-mail: [sadaf\\_naseem@hotmail.com](mailto:sadaf_naseem@hotmail.com); [sngео@sat.net.pk](mailto:sngео@sat.net.pk); [sheikhgeo@yahoo.com](mailto:sheikhgeo@yahoo.com)*

Geochemical studies of Parh Limestone, through major and trace element analyses, were made to evaluate its depositional environment. Parh Limestone represents Upper Cretaceous period in the Kirthar and Sulaiman provinces of Lower Indus Basin. The Parh Limestone of Turonian-Santonian age is well exposed in NNWSSE trending Pab Range of Balochistan, which merges into Kirthar Fold Belt northwards. The Indian Plate motion, sea-level fluctuations and volcanism were the main controlling factors responsible for the distribution of elements during the deposition of Parh Limestone. During the cycle of deposition of Parh Limestone the distribution of Mn and terrigenous material (clay) revealed High Stand System at the beginning (Turonian, 91m.y.), which later turned into Low Stand System and finally terminated as Transgressive System with a very broad shelf environment (Maximum Flooding Surface). The Al/Mn+Fe+Al ratio of the Parh Limestone revealed slow rate of drifting initially and high rate at latter stages due to high rate of sea-floor spreading. The Ca/Mg, Ca/Fe, Mg/Fe ratios suggested hemipelagic environment of deposition. The contents of Ba, Zn and Co were higher than the average abundance in the limestone reflecting partial influence of igneous activity at the time of deposition. The composition of an igneous sill, at the base of Parh Limestone demonstrates oceanfloor tholeiites, affiliated with Mid Oceanic Ridge Basalts (MORB).