Paper Number: 138

Sedimentology and Geochemistry of Carbonate Bearing-Argillites on the Southeastern Flank of Mount Cameroon (Likomba).

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Sedimentological, geochemical and petrographic studies were carried out on carbonate-bearing argillites outcropping at the southeastern flank of Mount Cameroon (Likomba) to determine the lithofacies and their associations, major element geochemistry and mineralogy. This was in an attempt to establish the relationship between the carbonate-argillites sequence and the Cameroon Volcanic Line (CVL), determine their provenance and predict a depositional model of the environment of deposition.

Outcrops and rock samples were carefully observed and described in the field. Major elements of the rocks were analyzed using XRF technique. Thermal analysis and thin section studies were carried out accompanied with the determination of insoluble components of the carbonates.

The carbonates are classed as biomicrites with siderite being the major carbonate mineral. Clay, quartz and pyrite constitute the major insoluble components of these rocks. Geochemical results depict a broad variation in their concentrations with silica and iron showing the highest concentrations and sodium and manganese with the least concentrations. In an attempt to account for the source of the iron, origin of siderite and the sediments, R-Mode analysis was used to discriminate the elemental associations, and two elemental associations were revealed: Fe_2O_3-MgO-Mn_2O_3 (72.56%) and TiO_2-SiO_2-Al_2O_3-K_2O (23.20%), indicating both Fe-enrichment event, the subsequent formation of the siderite and the contribution of the continental sediments to the formation of these rocks.

The rocks consist of cyclic iron-rich carbonates alternating with sideritic-shales and might have been formed as a result of variations in the sea conditions as well as variation in sediment influx resulting from transgression and regression sequences occurring in a shallow to slightly deep marine environments. The rocks lie unconformably beneath the CVL and are highly fractured due to the overburden of the overlying igneous rocks.