

Climatic variation along the Mahawelli River Sri Lanka using river sediments

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Climate is a critical issue in geochemical processes. The river sediments of Mahawelli, Sri Lanka show clear variation with the change of the climatic conditions. Thus, sediments of the river has been collected and XRF analysis was carried out to determine As, Pb, Zn, Cu, Ni, Cr, V, Sr, Y, Nb, Zr, Th, Sc, Fe₂O₃, TiO₂, MnO, CaO, P₂O₅ and total sulfur contents. Almost all the elements of sediments along the Mahawelli River show a clear clustering with the change of the climatic zones: the wet zone, intermediate zone and the dry zone. The elements Pb, Th, Sc, Y, Nb, Zr, F, Br, Fe₂O₃, MnO, TiO₂ and P₂O₅ change in wet, intermediate and dry zones, Cr has a difference only in the wet and dry zones and As and Cu only in the wet zone indicating the influence of climate to the weathering and mobility of elements. The rocks show high weathering due to the presence of an oxidized environment due to the presence of high Fe₂O₃ and TiO₂ contents especially in the wet zone. The heavy mineral associated element accumulation in the dry zone indicates the weathering activities in the wet and the Intermediate zones and the downstream accumulation in the dry zone. Thus, the effect of climatic conditions is immense towards the geochemical processes. Key words: Climate, Geochemistry, Weathering.