

## **Geochemistry and mechanic emplacement of Late proterozoic dyke swarms, Eastern Desert , Egypt.**

**By: Hussein A. Hegazy**

**Email: [hegazy 512000@yahoo.com](mailto:hegazy512000@yahoo.com)**

**Geology Department, Faculty of Science, Assiut University, Assiut, Egypt**

Geologic and geochemical data of intraplate Late Pan-African ( $493\pm 7$ Ma) dykes assemblage in the Eastern Desert of Egypt are presented. The dyke swarms consist of a bimodal mafic-felsic suite of transitional alkaline to subalkaline chemistry and exhibit a broad compositional range. Geochemical studies show that they can be subdivided into three distinct chemical groups with two distinct compositional gaps and correlate fairly well with other occurrences of late Pan –African dykes in Egypt. This bimodal suite bears a genetic relation to corresponding rock types in the study area.

These dykes trend predominantly in NW and NNW directions and less frequently in NW and N orientations; parallel to the major fracture pattern and lineament trends. Despite of the small geographic area and limited time interval in which the dykes were extruded, their complex geochemistry requires multiple sources together with varying amounts of open system fractionation assimilation. It is believed that the crystallization of the studied dykes follow the one-step emplacement either in open or closed system under both brittle and ductile crustal conditions. The time(ts) required to solidify these types of dykes is generally longer in the acidic than the basic variety.