

## **Petrogenesis of Harrat Al-Rufa'yat Basaltic Field and the Associated Volcano-Group, NE-Jordan**

**Authors :** Hassan Alfugaha

**Abstract :** The Pleistocene volcanism in northeastern Jordan is represented by basaltic scoria, cones and flows and covers approximately 12.000 km<sup>2</sup>. Geochemical parameters such as Mg/Mg+Fe+2 and high Ti contents indicate that the corresponding magmas are of primary origin. Trace elements of primary magma show low variable abundances of compatible and incompatible elements, which reflect a homogenous source. They are under-saturated with respect to its silica content. These volcanic rocks belong to the alkaline to sub-alkaline rocks series. The rocks are mainly alkali basalts containing 46.1-50.0 wt.% SiO<sub>2</sub> and 2.6-4.8 wt.% alkali oxides. Mantle xenoliths entrained in late Cenozoic volcanic rocks erupted throughout northeastern Jordan provide information about the evolution of the Lithospheric mantle, which could represent a potential source for Arabian intraplate volcanism. Xenoliths carried to the surface by magma in Northeast Jordan did not equilibrate with the melts, indicating that the transport from the mantle to the surface was rapid.

**Keywords :** petrogenesis, volcano-group, Harrat Al-Rufa'yat, NE-Jordan

**Conference Title :** ICGG 2025 : International Conference on Geology and Geophysics

**Conference Location :** Sydney, Australia

**Conference Dates :** April 24-25, 2025