

Petrogenetic evolution of pegmatites of the Shigar valley, Skardu, Gilgit-Baltistan, Pakistan

M. H. Agheem¹, M. T. Shah², T. Khan³ and H. Dars¹

¹*Centre for Pure and Applied Geology, University of Sindh, Jamshoro, Sindh, Pakistan*

²*National Centre of Excellence in Geology, University of Peshawar, Peshawar, Pakistan*

³*Department of Earth and Environmental Sciences, Bahria University, Islamabad, Pakistan*

mhagheem@yahoo.com

Shigar valley is one of those valleys of Gilgit-Baltistan region of Pakistan, which are famous for the occurrences of different gemstones. Pegmatites along with the metamorphic rocks are the host rocks of these gemstones. Field features and analytical data indicate that the pegmatites are not only different in their mineralogy and internal structure but their petrogenetic link to nearby plutonic units is also uncertain. On the basis of petrographic and field studies these pegmatites are distinguished as simple or zoned pegmatites. These pegmatites have further been divided into four sub-types on the basis of presence or absence of different accessory minerals and gemstones. However, these are genetically co-magmatic. The presence of gemstones within the cavities or vugs also shows that these pegmatites belong to the miarolitic type of pegmatites.

Petrogenetic studies of the Shigar valley pegmatites have been carried out on the basis of major, trace and rare earth element chemistry. Geochemical data indicate that these pegmatites are peraluminous S-type granitoids formed by the partial melting of the metapelites of the Karakoram Metamorphic Complex (KMC). Various post-collisional plutonic units in the form of Baltoro Plutonic Unit and the Mango Gusar are exposed in the surroundings of Shigar valley but field features, arial extension and geochemical data suggest that these pegmatites are separate magmatic pulses and have no association with the above mentioned plutonic units. Collisional tectonic setting caused by the collision of Indian plate with Eurasian plate could be responsible for the emplacement of these pegmatites.

Key words: Pegmatites, Shigar Valley, Baltistan, Karakoram