MINGLING - MIXING PROCESSES IN THE HIGHIS ALKALINE ANOROGENIC MASSIF (ROMANIA)

TATU M., Geological Institute of Romania, Bucarest, Romania

The Apuseni Mountains represent the eastern extremity of Tisia teritory as broken fragment from the Apulian promontory. They formed during Alpine orogenesis (Middle Cretaceous-Miocene), but theirs lithotectonic units were accreted as distincts terranes during Carboniferous clossure of variscan ocean. Located in the south - western part of Apuseni Mountains the Highis alkaline massif is an example of complex coeval anorogenic magmatism which resulted by interaction between differentiation and mingling - mixing processes in deep crustal level. The complex consist of basic (gabbro - diorites, quartz diorites, dolerites, wehrlites) and granitoidic (granites, monzogranites, alkali - granites, quartz syenites) end members which present the sandwich type relationships; all plutonic assemblage was cutted by bimodal dyke swarms. Between them an important mixed volum like granodioritic in composition occurs. The various aspects of mafic magmatic enclaves (MME) are also occur in this domain. Resorption and manteling of K-feldspar by plagioclase, the presence of quartz drops with fine grained mafic mantle, compositionnaly zoned or accicular amphiboles and K-feldspar trails wich cross the mafic enclaves point to a mixing process. All these aspects suggest an evolution type rapakivi for this complex. Radiometric data, using U - Pb method on zircon have yielded a Permian age for Highis alkaline complex. The mafic - felsic magma interation is suggested in some diagrams in which the diferentiation trend is complicated by mixing imprint. All geochemical and mineralogical data suggest a direct evolution from mantle-enriched source related to lithospheric thinning.