

## ANORTHOSITES OF THE EARTH AND MOON.

O.A.Bogatikov, M.S.Markov, M.K.Suchanov. Inst. Ore Deposits Geology, Petrography, Mineralogy and Geochemistry, USSR Acad. of Sci., Moscow, Inst. of Geology, USSR Acad., Moscow.

Anorthosites of the Earth participate are components of two formations: anorthosite-gabbro-noritic and anorthosite-rapakivigranitic. The first of them is represented by the most ancient massifs of anorthosites - anorthosites formed at the early stages of Earth development, closely associated with the areas of granulitic complexes.

The results of cluster analysis showed that the Moon rocks from the ANT group most closely resembled the rocks of anorthosite-gabbro-noritic formation.

Anorthosites of early stages of Earth development were most likely formed from the dry magma. This is indicated by presence of anhydrous mineral parageneses, their close association with dry granulitic metamorphism and the composition of plagioclase fluid phase, identified by method of high-temperature chromatography. Similar data were obtained for the Moon rocks of the ANT group by analysing composition of their gas-liquid inclusions.

The data of the experiments showed that crystallization of anorthosites from dry high-aluminiferous basalt magmas took place in conditions with relatively low pressure (9 kbar and lower) during long stay of magmatic chamber near the liquidus temperature. The estimation of PT conditions of crystallization for some anorthositic massifs of the Earth gave similar data. Therefore, Higher heat flows at the early stages of the Earth and Moon development promoted formation of anorthosites. The Earth anorthosites were formed in the heated granulitic blocks, which were cooling down longer than the adjacent parts of the crust.

The Moon, due to absence of atmosphere and presence of loose surface layer, was cooling down, as a whole, much slower than the Earth and therefore was able to develop more abundant anorthosites. Besides, the Moon lower gravity interfered with

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transition of CaO and  $Al_2O_3$  into such high-baric phases as garnet and pyroxenes. On the Moon, the lithostatic pressure of 2 kbar is reached at the depth of 45 km, while on the Earth already at the depth of 34 km it can make up 10 kbar. This determines so wide development of rocks from the ANT group among the most ancient complexes of the Moon. On the Earth the formation of anorthosites was less considerable. This enables to think that all Earth products of high-alumina magmas, so widely distributed in Early Archean rocks can be considered as homologs of the Moon rocks from the ANT group.