

HETEROGENEITY OF MANTLE SOURCE OF LATER PLEISTOCENE-HOLOCENE MONOGENETIC VOLCANISM IN SREDINNY RIDGE OF KAMCHATKA

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Petrography, petrochemistry and geochemistry of rocks, as well as major, trace and volatile (F, Cl) elements content in melt and solid phase inclusions in olivines of monogenetic basalts of South Cherpouk and Mt. Skalistaya have been studied, which are situated in Sredinny Ridge of Kamchatka, south-westward of Ichinsky volcano, more than 200 km from volcanic front. Although the studied objects are very remote from present subduction zone, monogenetic field of Mt. Skalistaya is Later Pleistocene, and South Cherpouk's eruptions took place only 6500 ¹⁴C years BP [4].

Brief conclusions of the investigation:

- 1) All studied rocks of monogenetic lava fields of Ichinkaya zone of Sredinny Ridge are substantially enriched by all incompatible elements. Data on major and trace elements of melt inclusions and compositions of solid phase inclusions in olivines indicate the presence of enriched OIB-like source in this region. Presence of «subduction» signatures in all rocks indicates that melting took place most likely in the mantle wedge.
- 2) Melt compositions demonstrate that all chemically different rocks of South Cherpouk can be described by fractional crystallization processes and can be genetically related. On the contrary, compositions of melt inclusions and Sp-Ol pairs from high-Ti rocks of Mt. Skalistaya indicate the presence of different mantle source; they can't be derivatives or parent melts for South Cherpouk rocks, what is also apparent from trace elements distribution.
- 3) Against the background of relatively constant and high Cr₂O₃ content in spinels from two samples from South Cherpouk monogenetic center, Al₂O₃ content is highly variable. These variations are mainly determined by Al₂O₃ content in melts and can dramatically decrease at early Pl crystallization

Possible ways of melts evolution and crystallization conditions were modeled in «COMAGMAT» program [1].

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Reference

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