



Origin of WPB-Type Magmas in Rear Volcanic Belt of Kamchatka as a Result of Melting of the Kula Paleoslab

A.B. Perepelov (1), **A.B. Ivanov** (2), M. Yu. Puzankov (3), S.I. Dril (1), P.W. Layer (4), Yu.A. Paholchenko (1), S.A. Tatarnikov (1), I.V. Sandimirov (1), G.P. Sandimirova (1) and N.N. Ilina (1)

(1) Vinogradov Institute of Geochemistry SB RAS, Irkutsk, Russia (region@igc.irk.ru), (2) Institute of the Earth's Crust SB RAS, Irkutsk, Russia (aivanov@crust.irk.ru), (3) Institute of Volcanology and Seismology FEB RAS, Petropavlovsk-Kamchatsky, Russia, (4) Geophysical Institute, University of Alaska, Fairbanks, Alaska, USA (player@gi.alaska.edu)

The within-plate-basalt-type (WPB) volcanism occurred in the rear volcanic belt of Kamchatka (Sredinny Ridge) during two separate episodes (40Ar/39Ar ages of 2-1.3 Ma and 0.08-0 Ma) with background of island-arc-basalt-type (IAB) volcanism. WPB volcanism of the initial stage is characterized by Ba/Nb of 25-10, Nb/Yb of 14.0-7.3 and DUPAL isotopic features (206/204Pb 18.058-18.095, $\delta^{84}\text{Pb}$ 50-64, 87/86Sr 0.7036-0.7040, 143/144Nd 0.51295-0.51297). Modern WPB volcanism is characterized by two distinct subtypes, one of which is similar to IAB (206/204Pb 18.201-18.270, $\delta^{84}\text{Pb}$ 6-18, 87/86Sr 0.7032-0.7034, 143/144Nd 0.51300-0.51312) differing from that by less prominent depletion in HFSE (Ba/Nb 96-39, Nb/Yb 6.7-2.7). Another subtype takes intermediate position between DUPAL and IAB (206/204Pb 18.154-18.212, $\delta^{84}\text{Pb}$ 22-30, 87/86Sr 0.7032-0.7035, 143/144Nd 0.51302-0.51305, Ba/Nb 37-27 and Nb/Yb 10.5-5.4). We suggest that DUPAL WPB were derived from remelting of the Kula paleoslab MORB crust (eclogites). The Kula paleoslab is located in transition zone of mantle beneath the Sredinny Ridge. The eclogites were brought to the sublithosphere by composite diapirs (plumes). Initiation of the Pacific slab subduction stopped WPB volcanism until Pacific slab interacted with the Kula slab at depth. This process was responsible for the modern pulse of volcanism with typical IAB volcanism derived from the metasomatised mantle wedge, WPB-volcanism of eclogite-bearing diapirs and IAB-WPB-hybrid volcanism. (The work is supported by SB RAS 6.9, RFBR 05-05-64477 and RFBR 07-05-00959).