Geophysical Research Abstracts
Vol. 12, EGU2010-7419, 2010
EGU General Assembly 2010
© Author(s) 2010

3D Numeric modeling of slab-plume interaction in Kamchatka

Vlad Constantin Manea (1), Maxim Portnyagin (2,3), and Marina Manea (1)

(1) Computational Geodynamics Laboratory, Geosciences Center, UNAM, Juriquilla, Mexico (vlad_manea@yahoo.com), (2) IFM-GEOMAR, Wischhofstrasse 1-3, 24148 Kiel, Germany, (3) Vernadsky Institute, Kosigin 19, 119991 Moscow, Russia

Volcanic rocks located in the central segment of the Eastern Volcanic Belt of Kamchatka show a high variability, both in age as well as in the geochemical composition. Three principal groups have been identified, an older group (7-12 my) represented by rich alkaline and transitional basalts, a 7-8 my group exemplified by alkaline basalts of extreme plume type, and a younger group (3-8 my) characterized by calc-alkaline andesites and dacites rocks. Moreover, the younger group shows an adakitic signature.
The magmas are assumed to originate from two principle sources: from a subduction modified Pacific MORB-type and from plume-type mantle.
In this paper we study the interaction of a cold subducting slab and a hot plume by means of 3D numeric modeling integrated 30 my back in time. Our preliminary modeling results show a short episode of plume material inflowing into the mantle wedge at $\sim$10 my consistent with the second rocks group (plume like). Also our models predict slab edge melting consistent with the youngest group.