



## **Magmatic dynamics of the Sayan-Mongolian late Cenozoic low-velocity mantle domain, Central Asia**

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A 3D tomographic image of Asia based on records of surface S-waves (Yanovskaya & Kozhevnikov, 2003) revealed the Transbaikal and Sayan-Mongolian low-velocity domains at the mantle levels of 200-350 and 50-200 km, respectively. A study of magmatic expression of the former domain demonstrated long-term processes related to Mesozoic through Cenozoic plate subduction beneath East Asia. Origin of the latter domain remained unclear in terms of spatial-temporal relation between the low-velocity region and magmatism (Rasskazov et al., 2004; Rasskazov & Taniguchi, 2006). In this presentation, we consider new tomographic evidence on limits and inner structure of the Sayan-Mongolian domain and also demonstrate new geochronological and geochemical data on volcanic rocks to show a temporal sequence of magmatic processes. The domain is subdivided into southern (Gobi), central (Hangai) and northern (Sayan) parts. Magmatism remained active during the Late Mesozoic through Cenozoic in the former area, but it was not characteristic for two other parts of the domain between ca. 260 and 22 Ma. A late Cenozoic magmatic reactivation of the Sayan and Hangai areas took place at 22-17 and 17-10 Ma, respectively. Records of SV-waves during new teleseismic experiment MOBAL\_2003 of a cooperative Russian-French-Mongolian project (Modvinova et al., 2005) show evidence on spatial transition of mantle processes from delamination beneath Hangai to upwelling beneath Sayan. A foot of the Sayan-Mongolian low-velocity domain corresponds in depth to the cratonic Lehman Discontinuity (depth of about 210 km beneath the Siberian Craton). We suggest that the late Cenozoic magmatic dynamics in the central and northern parts of the Sayan-Mongolian low-velocity mantle domain reflected temporal variations of a collision-derived tectonic stress between thick lithospheric keels of the Indian indenter and Siberian craton.