Metasomatism in peridotites beneath the Daldyn-Alakite region Yakutia

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Metasomatism in the mantle beneath Daldyn region appears as: 1) Phl in the Sp Lhrs, 2) HFSE protokimberlite - related from SCLM base (LB) to 40 kbar; 3) Ti-Fe peridotites around various pyroxenites. In Alakite mantle Phl veins with Cpx and Ilm occur in whole SCLM section while Ilm – free veins and nest of Phl are occurs upper part. The HT° PT path for ilmenite associations enriched in Fe-HFSE trace 40 mvm-2 geotherm to 35kbar. Typical Phl associations in Alakite are HFSE depleted. Cr-Di show the La/Sm rations >1 and Ta-Nb dips typical for Cr-Di from Sytykanskaya and Komsomolskaya and smaller for thoose from Yubileynaya pipe where Amph is frequent. CPx from the southern SW pipes from Alakite region near Aykhal where Phl metasomatism is not typical the TRE for reveal smaller La/Sm La/Yb ratios and Ta-Nb depletion but sharp Sr- Zr dips. In Daldyn mantle more flattened TRE distributions of CPx from Phl lherzolites show lower depletion in HFSE. The Ar-Ar age of the metasomatism [2] 550 to 700 Ma is close to the Rodinia break up and transformation to Gondwana. Earlier stages are fount to 1700 Ma. HFSE metasomatism is close to the age of the kimberlites (350-360 Ma). Reconstruction of the mantle transect through the Daldyn [1] reveals inclination of layering to the East. Mantle transect beneath the Alakite region reveal the break of the layered structure from North to South near Yubileynaya pipe.

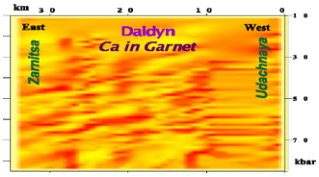

Figure 1: Mantle transect for Daldyn

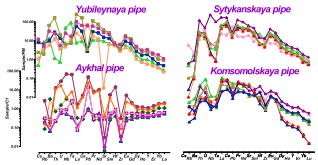

Figure 2: TRE patterns for Cr-diopsides from Alakite pipes

[1] Ashchepkov *et al*. (2009) *Tectonophysics*, doi, 10.1016 /j.tecto.2009.11.013. [2] Travin *et al*. (2002) *GCA* **66**, A.783.

The Dongargarh Bimodal Volcanic Province and the Large Igneous Province conundrum

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The Dongargarh bimodal volcanic province, Central India has been offered as an example of a new class of mantle plume related bimodal Large Igneous Province (LIP), primarily on the basis of a rock association comprising *siliceous high*-Mg *basalts* (SHMB), continental flood basalts (CFB), high-T rhyolites and A-type granitoids [1, 2].However, the field characters, mineralogy and geochemistry of the Pitepani high-Mg (low-Ti) suite are indistinguishable from primitive calc-alkaline sunukitic high-*magnesium* andesites (HMA).The Pitepani low-Mg (high-Ti) suite is crustally contaminated rift-related tholeiitic basalts/andesites and were neither derived from a primitive garnet-bearing mantle source nor from an OIB mantle source. Instead, they were derived from a depleted-MORB mantle reservoir. The Bijli rhyolites reveal mineralogical as well as geochemical signatures of a calc-alkaline suite. The Dongargarh batholith comprises of S-type granites, I-type adakitic granites, and A_2-type granites with Y/Nb ratios >1.2. The presence of HMA, calc-alkaline rhyolites and rift-related tholeiitic basalts/andesites, S-type, I-type and A_2-type granites implies alternating tectonic switching from lithospheric contraction to extension and an accretionary orogen model for the Dongargarh volcanic province. Evidence for the role of a mantle plume in the evolution of Dongargarh volcanic province is altogether lacking [3].

[1] Sensarma (2007) *Geol. Soc. Am. Spec. Pap*. **430**, 831–840 [2] Sheth (2007) Earth-Science Reviews **85**, 117–124. [3] Bryan & Ernst (2008) Earth-Science Reviews **86**, 175–202.