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Monomineral Ilmenite Thermo- And Oxybarometry And It's Application to Reconstruction of Magmatic Systems and Metasomatism within Mantle Ñolumns of Siberian Platform

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Pressure values determined with the OPx barometry and other monomineral methods giving correlating results using Cpx (Ashchepkov, 2002), Garnet (Ashchepkov, Visnyakova, 2004), Choromite (Ashchepkov, Visnyakova, 2005) reveal the layering sometimes sharp which was formed by the coupling together of the prinmary subduction horizons. Distribution of the TiO2 in pycroilmenites are correlating good with the separate intervals of pressure. Suggested dependence of the geikilite minal in ilmenites from the pressure was calibrated using the preceding determination of the peridotite layering with the xenocrysts for the 40 kimberlite pipes of the Siberian platform and several from Africa and America ***P= P= (TiO2-23.)*2.15-(T^{o}C-700)/20*MgO*Cr2O3-1.5*MnO)*T^{o}C/1273*** and further P=***10*(60-P)/60+P***. The temperatures for the ilmenite were calculating using the monomineral version of the Ol-Il thermometer (Taylor et al.,1997) with the ***Fo*** estimations in analogy with the chromite thermobarometr (Ashchepkov,Vishnyakova, 2004). For the more precise calculations the iteration scheme with the back calculations of **Fo** content from the (Opx-Ilm) barometer (Bishop, 1984) using the values of pressure and approximately determined Fo in Ol.

The oxybarometer from the (Taylor et al.,1997) was with the same calculation of ***Fo*** content. The determined values of P, T It and fO_2 estimated with monomineral version are in good agreement with those determined using bi- mineral ***Ol- Il*** version.

The concentrate of ilmenite from the pipes of Siberian platform and other pipes allowed to estimate the positions of the magmatic protokimberlite vein systems and metasomatites in the structure of mantle columns. TP values obtained with ilmenite are usually coinciding with the positions of the geotherms, determined with the CPx giving the positions of the metasomatic rocks but in the case of the more depleted peridotite substrate they show often more hot branches suggesting crystallization within the magmatic channels.

Oxygen fugacity together with the pressure estimates give the trends that are strait vertical with close fO_2values in case of the interaction with the peridotites. The differentiation in the close magmatic systems give the trends with the increasing fO_2, the scattering of fO_2 is characteristic for the metasomatites.

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