

## **GEOBAROMETERS FOR SHOCK METAMORPHISM - EXPERIMENTAL JUSTIFICATION**

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There are new experimental justification for three quantitative geobarometers of shock metamorphism - quartz, two feldspar and clinopyroxene. For determination of shock stress amplitudes these geobarometers are utilized different physical and chemical effects. Quartz geobarometer (proposed by R.A.F.Grieve and P. B.Robertson in 1976) is based on investigation of planar elements orientation and degree of isotropisation of this mineral. This geobarometer operate up to 30-35 GPa correct to  $\pm 3$  GPa. Two feldspar geobarometer (develop by E.A.Kozlov, Yu. N.Zhugin, V.I.Fel'dman and L.V.Sazonova in 1998) aligns shock wave amplitude with the width zone of contrary migration of Na, K and Ca on the contact of plagioclase and feldspar. This geobarometer operate in the interval 20-55 GPa correct to  $\pm 1-2$  GPa. Clinopyroxene geobarometer (published by S.I.Kotelnikov in 1999) give the possibility estimate a value of shock stress amplitudes up to 30 GPa by X-ray maxima broadening of diopside or augite correct to  $\pm 1-3$  GPa. The results of these three geobarometers are well comparable between yourselves. They are effective for investigation of shock metamorphism of massive crystalline rocks, in which necessary mineral (quartz, or both feldspars, or clinopyroxene) are no less than 25-30%. Thus, in that way, they measure a degree of shock metamorphism in all main type of crystalline rocks of the Earth as well as in meteorites and rocks of another planets of the Solar System.