



Experimental study of the influence of volatile components on physico-chemical properties of magmatic melts

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The experimental data demonstrated that the presence of volatiles with different composition might lead to occurrence of different elastic properties values in the rock of the same type. Water fluids in the Earth's crust may initiate a number of mineral reactions resulting in different microstructure changes. Therefore, they have an essential influence on elastic velocities of rock. Sulfur presence, as volatile component, leads to metal melting temperature decrease. Sulfur migrates together with iron into the core in the dissolved state as part of the Fe-Ni metallic phase and/or as an independent sulfide phase. In this case, at relatively low degrees of melting, the character of the interaction between the silicate, metallic, and sulfide phases takes on a great significance. The goal of this study is to conduct, by using a high-temperature centrifuge, the experimental simulation of the gravitational differentiation of a partially molten sulfide-containing silicate substance. These studies can contribute to the petrophysical and geochemical interpretation of seismic measurements. The study was supported by the RFBR.