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## Heat-mass transfer simulation of fluid media in the magma channel

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The paper presents a non-stationary model of heat-mass transfer of heterophase media in application to the study of the intrusion processes of magmatic melts in permeable zones of the lithospheric mantle and crust. Special emphasis is given to the study of the change in rheological properties of the fluido-magmatic mixture in the process of magmatic channel formation. The increased compressibility of the fluid phase is taken into account in the model by setting the Van der Waals equation of state. The calculated values of thermodynamic parameters of the fluid-magmatic system such as pressure, temperature, volumetric phase content, are the basis for the analysis of metasomatic changes in mantle matter. The Numerical model is based on the Runge-Kutta-TVD method. Verification of the numerical model on standard tests shows good accuracy of the program code and the possibility of using it for investigations of the currents of fluid-magmatic flows. The study of variation in interphase interaction parameters during melt movement in permeable zone, including change in interphase viscous friction, demonstrates a significant change in temperature distribution in the section of fluid-magmatic system. The work was financially supported by the Russian Foundation for Basic Research, grants No. 19-05-00788.