SIMULATION OF MELT PROCESSES USING NUMERICAL MODELLING

J.K. Becker (1), N. Walter (1), D. Koehn (1), M. Jessell (2), C. Passchier (1)
(1) University of Mainz, (2) University of Toulouse

In situ observations of melt in natural rocks are limited to the observation of a quenched sample. The processes that led to the observed geometry cannot thus be studied directly. Natural observations are limited to the analysis of thin sections or small volumes. Using a numerical model that builds upon existing code from the Elle program we are now able to simulate melt processes in natural rocks. Different geometries can be modelled and, the energies of solid-solid, liquid-solid as well as liquid-liquid boundaries can be adjusted as needed. During the simulations statistical parameters for each melt pocket such as the melt area, the circumference, curvature of boundaries and angles are recorded. We can apply the results of these simulations to the study of the processes of melt-distribution and redistribution due to different wetting-angles and the resulting melt-grain and melt-melt interactions in natural rocks.