ENGLISH SUMMARY

THERMOMECHANICAL MODEL OF FREEZING SOIL, ONE-DIMENSIONAL CASE

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The paper describes a mathematical model for freezing of saturated soil established by Frémond and Mikkola. The model is based on principles of continuum mechanics and of macroscopic thermodynamics and is capable of describing the cryogenic suction, the water and heat transport and the frost heave. The one-dimensional formulation of the general model is considered and its computer implementation is described. Some numerical results are presented and comparisons with experimental findings are made.

ENGLISH SUMMARY

A METHOD FOR ESTIMATING STRESS INTENSITY FACTORS USING REGRESSION ANALYSIS

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In this paper a displacement based method for extraction of stress intensity factors from FEM-results is presented. A regression model is constructed using nodal displacements near crack tip and analytical series solution of displacements. The model is solved in least squares manner. The concept of outliers is used to reject data which is not compatible with series solution. Method is applied to two test cases and in both of them the results seems to be more accurate than those of other methods.