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Review of the mathematical modelling tools useful in hydro-engineering

Abstract

Engineering problems related to geology require the creation of solutions that allow for a comprehensive approach to the topic. Numerical modelling is widely spread tool often used for this. Modeling geotechnical processes often can not take place without analysis of hydrogeological conditions and conversely. The aim of study is the review and comparison of available software to mathematical and numerical modelling in combined hydrogeological and geotechnical surveys. Because there are many types of software to solve complex engineering problems, this paper will present the analysis of the specific cases of which requires a comprehensive approach both from the analysis of the water circulatory conditions and the recognition of the soil and its geotechnical parameters. Only a detailed analysis of solutions available on the market will allow selecting the most optimal solution for a more reliable analysis of available data and for solving the research problem.

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