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FULL DYNAMIC PARTIALLY SATURATED FORMULATION AT LARGE STRAIN

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A partially saturated approach is essential when the evolution of the degree of saturation affects the coupled hidromecanical response in large strain dynamic problems, such as landslides or liquefaction due to earthquake processes. Nevertheless, not always the full formulation is employed at large strain analyses.

The majority of the simulations contemplate two different approaches: full dynamic formulations without considering the influence of the degree of saturation [1]; or partially saturated formulation of the simplified dynamic $u - p_w$ formulation [2].

In this research, a partially saturated full Biot formulation at large strain is presented. Moreover, two different time algorithms, both implicit and explicit, are considered for the analysis of the Biot equations.

The main goal of this research is to offer a strong and accurate alternative when dynamic problems with important influence of the degree of saturation are to be modeled.

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