

عنوان مقاله:

Numerical study on the effect of grout properties on the results of borehole extensometers in earth dams

محل انتشار:

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خلاصه مقاله:

Measurements of surface and deep soil displacements are among the best approaches for monitoring and controlling the behavior of geotechnical structures such as dams, which can be conducted by using magnetic borehole extensometers. This type of instrumentation is installed into the boreholes and the space inside the borehole is filled with a mixture of Bentonite-cement grout. Studies have shown that the mechanism of borehole extensometer measurement, the effect of the mixing design of Bentonite-cement grout to fill the gap between the borehole and the extensometer and the effect of grout properties on the measurement have not been carefully studied. In this paper, a number of laboratory tests with different grout mixing designs were performed to determine mechanical properties and geo-mechanical parameters for numerical analysis. The results of numerical analysis show that compressive strength and hardness of the sample of grout will decrease as Bentonite to cement ratio increases. Furthermore, as the hardness of the grout and soil converge, the measurement error will decrease accordingly.

کلمات کلیدی:

Instrumentation, Magnetic extensometer, Bentonite-Cement Mixing, Numerical Modeling

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