

Development of complex numerical models for geotechnical engineering problems

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ABSTRACT

Nowadays, the fast increase in computational power and its affordability has reinforced the tendency to employ larger and more complex numerical models to directly support design and safety analyses of geotechnical structures.

There is a variety of numerical techniques and software suitable for the analysis of geotechnical engineering problems. For the generation of the numerical models, most of the software are capable of using a combination of built-in tools and data input from external geometric modellers.

The model generation process is usually a time consuming task, especially for complex 3D geometries which may require a more detailed and realist representation of the medium as well as of other intervening structures. For rock mass analysis, the representation of the various types of discontinuities is a key aspect.

This work explores some techniques and procedures for a more expedite generation of the numerical models with the most widely used software and geometric modellers in geotechnical engineering problems. These procedures will allow to simplify and to automate some parts of the model generation process.