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Shaking table tests of small scaled slope models

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Simulations of geotechnical problems with cyclic or dynamic loads such as those caused by earthquakes are still the subject of research worldwide. There is often a lack of reliable measurement data for validating the simulations. Model tests can provide important insights and measurement data for the derivation and validation of theoretical approaches and simulations.

As part of a smaller research project at the National Polytechnic University (EPN) in Quito Ecuador in collaboration with the researchers of the Leipzig University of Applied Sciences, small-scale model tests with a one-dimensional shaking table are being developed.

The project aims to contribute to the stability assessment of slope systems under the effects of earthquakes. The main aim of the tests was to record the behavior of a regional soil and later the interaction with buildings on models and to obtain reliable measurement data for later validation of calculations and simulations.

The method of digital image correlation (DIC) was used to record ground movements and deformations.

In the contribution, the main development steps for setting up the experiments and for using the DIC method are explained. In addition, the first results for the evaluation of ground movements and deformations on a model slope are presented.