



## **Prediction of landslide movements and its relation to damage in structures**

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Movements in slopes can cause significant damage to structures and facilities that are built on, or nearby these slopes. Continuous maintenance efforts may be required which could be quite costly. Therefore it is important to be able to predict the expected slope movement so that necessary decisions can be made regarding the safety and servicability of these structures. This study investigates the use of numerical models in prediction of slope movements. We calibrate and validate our finite element model with measured movements in a slow moving landslide. We also explore the correlations between slope movements and expected damage in structures that are located on or nearby these slopes. In recent years, some attempts have been made in the literature to relate slope movements to damage in buildings and other facilities (e.g. Mansour et al. 2010, Picarelli 2011). In such studies, it is also crucial to determine the tolerable cumulative amount and tolerable rate of slope movements by different structures. In this study factors influencing the tolerable movements will be investigated.

Estimates of the amount and rate of expected slope movements and their relationship to the possible extent of damage should be useful in early warning, in setting up threshold amount and rate of displacements and also in selecting suitable remedial measures.

Mansour M.F., Morgenstern N.R., Martin C.D. (2011) Expected damage from displacement of slow-moving slides, *Landslides* 7(1):117–131

Picarelli, L. (2011) Discussion to the paper “Expected damage from displacement of slow-moving slides” by M.F. Mansour, N.R. Morgenstern and C.D. Martin, *Landslides* (2011) 8:553–555