



Rock behaviour depends on a number of poorly quantifiable factors, particularly due to their complex interaction. Stability verifications and structure behaviour forecasts based on calculations or model tests need to be checked, therefore, by displacement and stress measurements.

In addition to determining the magnitude of rock displacement it is vitally important to establish a rock's time-related deformation behaviour. To prevent possible damage it is essential, therefore, to conduct and evaluate displacement measurements in order to check existing calculation methods and to develop new ones, to predict deformation magnitudes and time-related deformation behaviour.

Inside a structure it is not only the absolute differences of displacement between two points that are important, but also their deformation differentials. Most cases of damage through secondary bending stresses are owed namely to these differentials. The non-calculable differences of displacement, which are mostly owed to rock anisotropy and soil inhomogeneity, are particularly important in this connection.

To obtain reliable measurement results economically, the following guidelines should be followed when selecting instruments:

- Instruments must be of simple and rugged construction
- Measurements must permit complete spatial and time-related monitoring
- It must be possible to conduct measurements quickly and to interpret the results directly

Displacement measurements in the foundation and on foundation structures or structural components are always preferable to stress and strain measurements because experience shows them to be more informative.