

# Geotechnical Measurements

## - Installation, Data acquisition and Analysis

date: 04/2008

### HIGHLIGHTS

- Execution of full geotechnical measurement programmes
- Application of latest instruments and methods sourced both in-house and from selected partners
- Application of flexible data acquisition systems and analysis software
- Support and consultation regarding the specification of measurement programmes



*Result of a mine disaster*

### Field of Application

Any construction job involving earth or rock is inherently risky because the geotechnical planning rests basically on theoretical assumptions. This is inevitable when materials in their natural state are involved in the project. This is, of course, particularly true for mining as well.

Since it is impossible to establish a priori all possible parameters and conditions within the framework of exploratory work, assumptions must be made which may later deviate significantly from reality. The observation of actual geotechnical behaviour is therefore imperative if a project is to be realised in a safe and economical way.

Ongoing monitoring in the course of construction is an integral component of the construction method particularly for conventional tunnel construction, including the New Austrian Tunnelling Method (NATM), to guarantee an economical and safe design, i.e. to effectively ensure the stability of the tunnel.

This procedure is known as "observational approach"



*Tunnel collapse in Singapore*

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### Description of Services

#### Supply and installation

GEODATA has an extensive range of own manufactured instruments and also offers instruments of other manufacturers, if required. Professional installation of all the instruments under the most varied working conditions in all construction and mining sectors is guaranteed by the many years of experience of our technical staff.

#### Data acquisition and analysis

Data acquisition can be by manual or automatic means. We provide trained staff for performing the measurements as well as the required hardware in the form of appropriate reading equipment, measuring transducers and automatic data acquisition systems. We have a range of software solutions for analysis, allowing fast calculations and clear presentation of the results.

#### Planning, consulting and training

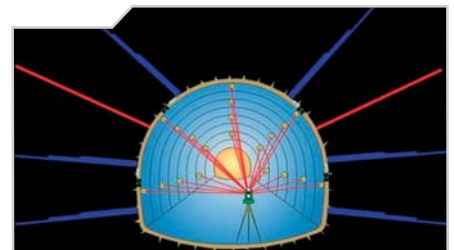
Based on its experience in many major international projects, GEODATA is also your competent partner in planning and designing measuring programmes. Our trained staffs are naturally also very willing to train local personnel on site in installing measuring equipment and performing and evaluating measurement results. This also includes ongoing supervision and quality control of projects carried out by third parties.



*assembling of extensometers for a slope protection*



*Sliding micrometer measurements during subway construction*



*Main-monitoring section in a tunnel with strain meters, measuring anchors, extensometers and 3D-displacement*