Cross tests in soil mechanics (VSS1998/188)

Essais croisés en mécanique des sols et des roches interlaboratoires

Funding: National (Switzerland)
Duration: Oct 2001 - Jun 2006
Status: Complete with results

Background & policy context:

During various investigations performed by testing laboratories in order to obtain their accreditation, the Swiss Federal Office of Metrology and Accreditation (METAS) found out that, in Switzerland, there was an important lack of crossed tests available in all areas of rock and soil mechanics.

Moreover, the few existing crossed tests results were sometimes varying a lot as a function of the laboratory they were performed at.

Having recognised this problem, the soil and rock mechanics laboratories at EPFL obtained from the Swiss Federal Roads Authority funding destined to organise an inter-laboratory testing project.

Objectives:

It is planned to perform a series of tests in the field of soil mechanics and foundation engineering. The tests are organised as so called cross tests. The results show the reliability of such results performed in different laboratories.

Methodology:

The following tests were proposed for rock mechanics: mass unit weight, unconfined compression strength, modulus of elasticity, indirect tensile strength and for soil mechanics: water content, mass unit weight and unit weight of solid particles, grain size distribution and sedimentometry, liquid and plastic limits, direct shear test and incremental oedometer.

Parent Programmes:
ARAMIS - ARAMIS information system

Institute type: Public institution
Institute name: Swiss Government: State Secretariat for Education and Research
Funding type: Public (national/regional/local)

Partners:
Switzerland
Swiss Federal Roads Office
Ecole Polytechnique Fédérale de Lausanne Laboratoire de mécanique des sols et des roches

Organisation:
Ecole Polytechnique Fédérale de Lausanne Laboratoire de mécanique des sols et des roches
Address: GR-Ecublens
Zipcode: 1015
City: Lausanne
Contact country: Switzerland

Key Results:
The report summarises the results obtained by different laboratories. Overall, the results are clearly detailed in the report. A comprehensive analysis with comparison of results shows that the laboratories meet the standards and quality system adapted to the requirements of the Swiss Accreditation Service (SAS-METAS).

The analysis of the results outlined the following trends:

- In general a relatively good agreement was observed among the results of the various laboratories.
- For some specific tests the variations were more pronounced. This could be attributed to the somewhat variable tests conditions. Some of the latter had indeed not been sufficiently precisely defined at the beginning of the study.

Documents:
- [VSS1998/188 (Final report)]

**STRIA Roadmaps:** Other specified
**Transport mode:** Road transport
**Transport sectors:** Passenger transport, Freight transport
**Geo-spatial type:** Other