EU Creep (PIAG-GA-2011-286397)

User manual for the creep database

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Creep of Geomaterials

Preface

This report is part of documentation of work package 1, WP1, (Soil characterisation) in the EU CREEP project (PIAG-GA-2011-286397). The main delivery of WP1 is a database containing creep test data and its evaluation in respect to the creep characteristics of clay, peat, sand and permafrost. This report is to be seen as a user manual for the creep database.

Summary

This report gives a short user manual for a MySQL database for creep on clay, peat, sand and frozen soil. The database can be accessed through a web browser. The database allows for entry of new data through login with writing priviliges. This makes the database easy to expand. Already entered data can be found by making searches in the database. At present the database contains tests from NTNU, Deltares, NGI and CAREERI.

Contents

1 | WP1 Description of work taskes

WP1 is concerned with soil characterisation. It includes compiling a database of available in situ and laboratory test results on the proposed materials for which creep is a consideration, in parallel with a thorough literature review. Due to the inhomogeneous way in which modelling of creep has been studied so far, existing data are strongly affected by regional approaches and local procedures. Therefore, the general concepts behind data available are to be assessed to identify what is missing for a generalisation of the constitutive laws for a unified approach. For what not already covered by literature data, it will be necessary to perform specific laboratory tests. Soft clays with internal bonding created throughout geological ages by chemical interactions need to be investigated after appropriate undisturbed sampling. Laboratory tests will be then carried out by NGI and NTNU, due to their experience on dealing with soft soils, the CHALMERS team is coordinating additional sampling and creep testing at Aalto University, Finland, which will be available for the project partners. Moreover, less "classical" materials, such as peat and warm permafrost, need to be studied from a mechanical point of view through laboratory testing. DELTARES will provide the expertise for laboratory testing on peat, whereas CAREERI will carry out laboratory tests on warm permafrost. The effort of characterization by means of laboratory tests will be coordinated by NGI on the European and by CAREERI in China. The benefit of having a world-wide network will be the generality of the outcome, thus resulting in a common approach in the light of existing regional approaches. Data collected within WP1, both from literature review and soil testing will be organized in a shared database that can be accessed by all network members as basis for tasks concerned with modelling and validation. Due to the sparse nature of currently available information, the existence of such a database is fundamental for clear understanding and unification purpose. All members of CREEP network will be involved in the maintenance of the database. WP1 is organized in five subtasks:

WP1-1 Undisturbed sampling and creep parameter determination of soft clay (NGI, NTNU). Minimum 12 axial tests with horizontal confinement on undisturbed samples with horizontal confinement – M1

WP1-2 Time dependent characterization of peat (DELTARES). Minimum 12 axial tests with horizontal confinement – M2

WP1-3 Time dependent characterization of sand (NTNU) – M3

WP1-4 Time dependent characterization of warm permafrost (CAREERI). Minimum 4 triaxial tests. – M4 WP1-5 Creep database (all) – D1

1.1 Deliverables

D1 Creep database containing creep test data and its evaluation in respect to the creep characteristics of clay, peat, sand, and permafrost. Technical report (to be published in major parts; partly confidential)

1.2 Risk Analysis

Creep characterization may not be concluded as scheduled (Milestone 1 to 4) due to issues with testing equipment. Note that peat creep tests for example may take months so that faulty or unreliable testing equipment may not be detected immediately. If characterization is delayed, the creep database will be updated at a later stage. New models will be developed based on the actually determined creep characteristics and if needed updated at a later stage, e.g. after final completion of Milestones 1 to 4.

2 | User manual

2.1 Content of the database

The CREEP database consists of laboratory creep data from tests on clay, peat, sand and frozen soil. Each test is stored in the database with the following information:

Clay data:

- Available raw or filtered test data in ASCII file format, MS Excel format or DELTARES GEF format.
- A picture (gif/jpg) illustrating the essential data provided in the file
- Information on the test in the following keyword:
  C1: Material name
  C2: Laboratory name/ Publisher
  C3: Location where the sample was extracted
  C4: Depth the sample was extracted from
  C5: Estimated vertical in-situ stress
  C6: Estimated horizontal in-situ stress
  C7: Estimated in-situ overconsolidation pressure

C8: Literature where data can be found (if applicable)

C9: Water content

C10: Plasticity Index

C11: Test type

C12: more if required and useful for searching the database

Peat data:

- Available raw or filtered test data in ASCII file format, MS Excel format or DELTARES GEF format.
- A picture (gif/jpg) illustrating the essential data provided in the file
- Information on the test in the following keyword:

  P: Material name

  P2: Laboratory name/ Publisher

  P3: Location where the sample was extracted

  P4: Depth the sample was extracted from

  P5: Estimated vertical in-situ stress

  P6: Estimated horizontal in-situ stress

  P7: Estimated in-situ overconsolidation pressure

  P8: Literature where data can be found (if applicable)

  P9: Water content

  P10: Plasticity Index

  P11: Test type

  P12: more if required and useful for searching the database

Frozen Soil data:

- Available raw or filtered test data in ASCII file format, MS Excel format or DELTARES GEF format.
- A picture (gif/jpg) illustrating the essential data provided in the file
- Information on the test in the following keyword:

  F1: Material Name

  F2: Laboratory name/ Publisher

  F3: Location where the sample was extracted

  F4: Depth the sample was extracted from

  F5: Estimated vertical in-situ stress

  F6: Estimated horizontal in-situ stress

  F7: Estimated in-situ overconsolidation pressure

  F8: Literature where data can be found (if applicable)

  F9: Soil Type

  F10: Temperature

  F11: Test type

  F12: more if required and useful for searching the database

Sand data:

- Available raw or filtered test data in ASCII file format, MS Excel format or DELTARES GEF format.
- A picture (gif/jpg) illustrating the essential data provided in the file
- Information on the test in the following keyword:

  S1: Material Name

S2: Laboratory name/ Publisher

S3: Location where the sample was extracted

S4: Depth the sample was extracted from

S5: Estimated vertical in-situ stress

S6: Estimated horizontal in-situ stress

S7: Estimated in-situ overconsolidation pressure

S8: Literature where data can be found (if applicable)

S9: coefficient of uniformity U

S10: Medium grain size D50 [μm]

S11: Sand type

S12: more if required and useful for searching the database

2.2 Access to the database

Figure 2.1 shows the web user interface for the MySQL database. The database can be acessed trough the CREEP webpage, `http://www.ntnu.edu/creep`. Two types of user accounts are created. (1) Simple user, i.e. a user that is allowed to search, view and export data from the database. (2) Special user, i.e. a user with permision to upload data, edit data and delete data from the database. The username and password will be generated for each user dependent on their role in the project. For external parties to the project, a guest user with access to the public data (generated within the project) can be given upon request to NTNU or to other parties of the CREEP project. Figure 2.2 shows the web user interface for login to the database.

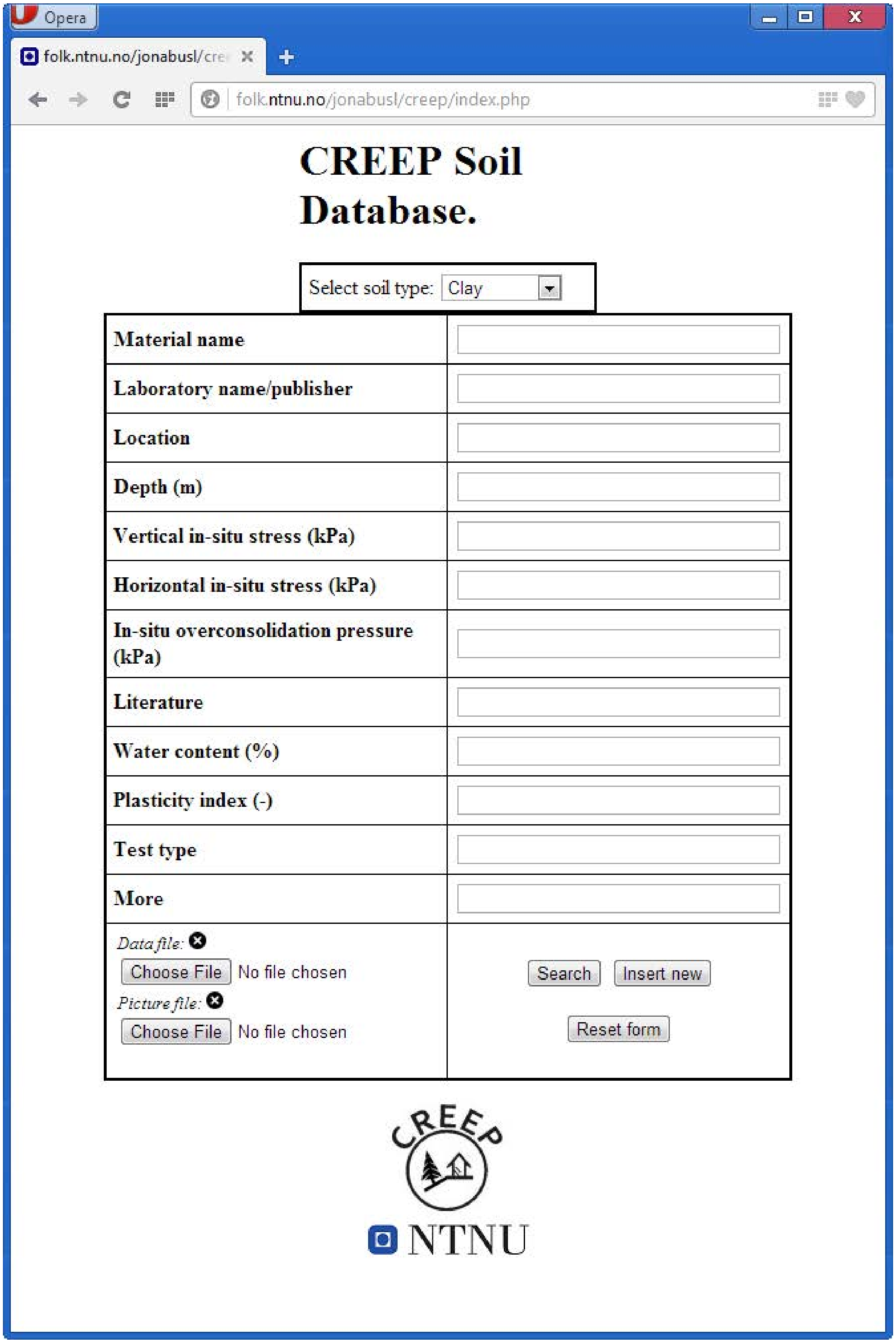

Figure 2.1: Web interface for the CREEP database

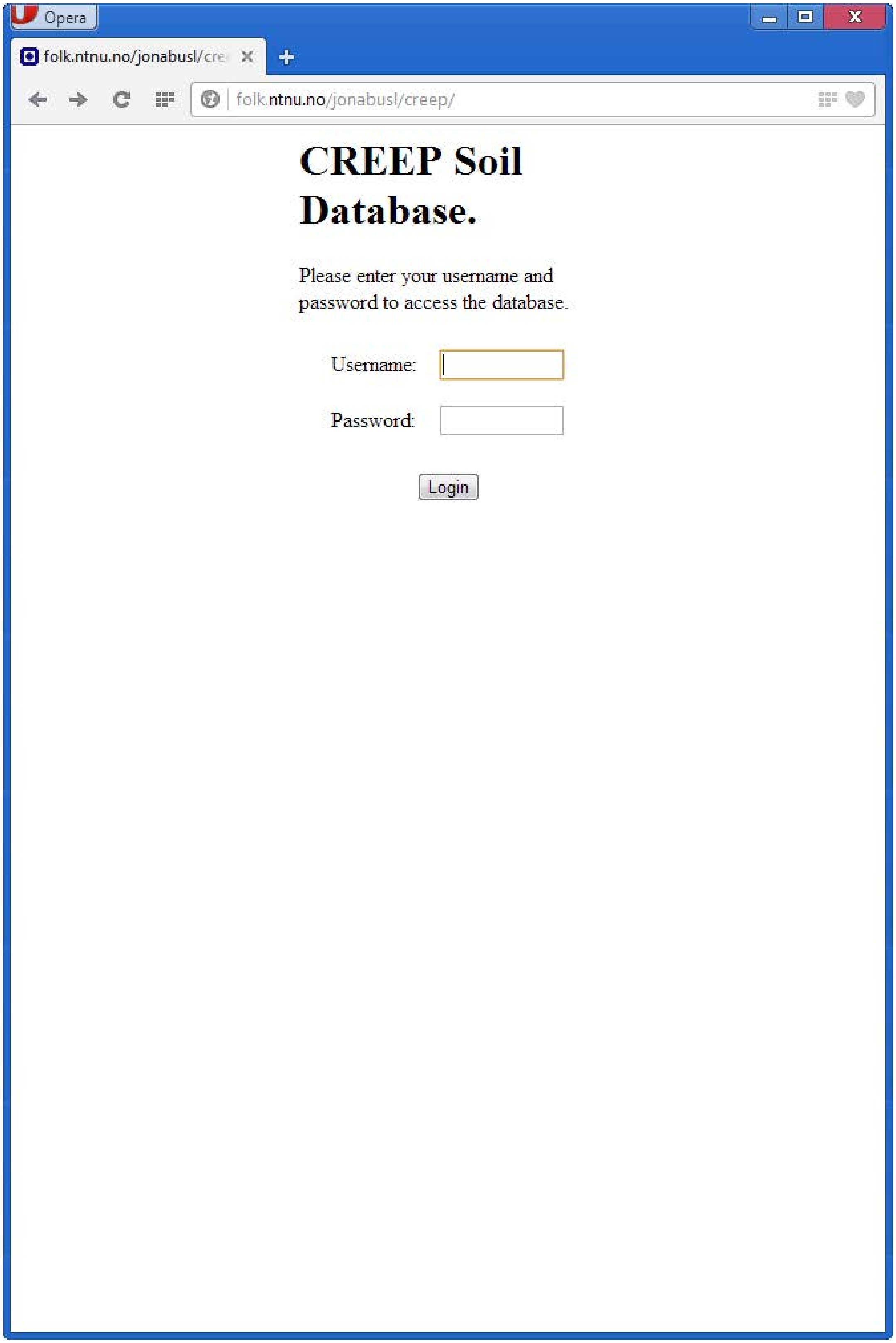

Figure 2.2: Web interface for the login to the CREEP database

2.3 Searching in the database

As seen in figure 2.1, the fields contains the data described in section 2.1. Each field can be filled with the approperiate/desired text, number or number interval.

Example: Select soil type: Clay Search for material name: Rissa clay
(enter Rissa clay in field 1 and press search)
Results are given in figure 2.3.

The search can be narrowed down by e.g. in addition specify water content in the range from 35% to 40% (write: 35-40, in the water content field)) or e.g. by asking for water content above 35% (> 35).
Results are given in figure 2.4.
Similar exercises can be done for the remaining fields and for the other soil types.

2.4 View data from the database

By taking a closer look to figure 2.4, there is a column with three possible actions.
(1) This takes the user to the entry web interface, here the user can (if allowed) modify/delete the data (see section 2.5)

(2) This gives the possibility to download the data file that contains the laboratory data (raw data)

Clay	Material name	Laboratory name/publisher	Location	Depth (m)	Vertical in-situ stress (kPa)	Horizontal in-situ stress (kPa)	In-situ overconsolidation pressure (kPa)	Literature	Water content (%)	Plasticity index (-)	Test type	More	Actions
1	Rissa clay	NTNU	Rissa	3.640	42.517	29.762	100.000	Kornbrekke H. A..	35.460	8.160	CRS	Strain rate 1.5%	
2	Rissa clay	NTNU	Rissa	3.620	42.339	29.637	100.000	Kornbrekke H. A..	33.270	8.160	CRS	Strain rate 1.5%	
3	Rissa clay	NTNU	Rissa	3.640	42.517	29.762	100.000	Kornbrekke H. A..	33.190	8.160	CRS	Strain rate 1.5%	
4	Rissa clay	NTNU	Rissa	3.710	43.143	30.200	100.000	Kornbrekke H. A..	33.610	8.160	CRS	Strain rate 1.5%	
5	Rissa clay	NTNU	Rissa	3.800	43.947	30.763	100.000	Kornbrekke H. A..	31.670	8.160	CRS	Strain rate 1.5%	
6	Rissa clay	NTNU	Rissa	3.990	45.644	31.951	100.000	Kornbrekke H. A..	35.440	8.740	CRS	Strain rate 1.5%	
7	Rissa clay	NTNU	Rissa	4.070	46.359	32.451	100.000	Kornbrekke H. A..	36.770	8.740	IL		
8	Rissa clay	NTNU	Rissa	4.370	49.039	34.327	100.000	Kornbrekke H. A..	37.000	10.350	CRS	Strain rate 1.5%	
9	Rissa clay	NTNU	Rissa	4.410	49.396	34.577	100.000	Kornbrekke H. A..	38.330	10.350	IL		
10	Rissa clay	NTNU	Rissa	4.320	48.592	34.014	100.000	Kornbrekke H. A..	34.370	10.350	IL		
11	Rissa clay	NTNU	Rissa	4.350	48.860	34.202	100.000	Kornbrekke H. A..	35.930	10.350	IL		
12	Rissa clay	NTNU	Rissa	4.380	49.128	34.000	100.000	Kornbrekke H. A..	35.470	10.350	IL		

12 results found. Return to start page.

Figure 2.3: Results for search on Rissa clay

Clay	Material name	Laboratory name/publisher	Location	Depth (m)	Vertical in-situ stress (kPa)	Horizontal in-situ stress (kPa)	In-situ overconsolidation pressure (kPa)	Literature	Water content (%)	Plasticity index (-)	Test type	More	Actions
1	Rissa clay	NTNU	Rissa	3.640	42.517	29.762	100.000	Kornbrekke H. A..	35.460	8.160	CRS	Strain rate 1.5%	
6	Rissa clay	NTNU	Rissa	3.990	45.644	31.951	100.000	Kornbrekke H. A..	35.440	8.740	CRS	Strain rate 1.5%	
7	Rissa clay	NTNU	Rissa	4.070	46.359	32.451	100.000	Kornbrekke H. A..	36.770	8.740	IL		
8	Rissa clay	NTNU	Rissa	4.370	49.039	34.327	100.000	Kornbrekke H. A..	37.000	10.350	CRS	Strain rate 1.5%	
9	Rissa clay	NTNU	Rissa	4.410	49.396	34.577	100.000	Kornbrekke H. A..	38.330	10.350	IL		
11	Rissa clay	NTNU	Rissa	4.350	48.860	34.202	100.000	Kornbrekke H. A..	35.930	10.350	IL		
12	Rissa clay	NTNU	Rissa	4.380	49.128	34.000	100.000	Kornbrekke H. A..	35.470	10.350	IL		

7 results found. Return to start page.

Figure 2.4: Results for search on Rissa clay, $w > 35\%$

(3) This gives the possibility to view a processed figure of the data (gives a short explanation of what the data file contains)

2.5 Adding data to the database

Log in as a user with permission to enter, edit and/or delete data. This is done in the starting web interface 2.1.

For entering new data the procedure is:

1. Select soil type
2. Specify values for all (known) keywords
3. Upload data file
4. Upload picture file
5. Press "*insert new*"

For editing data the procedure is:

1. Select the data you wish to edit, press the appropriate button in the window in figure 2.3
2. Alter the values for the keywords that should be changed
3. Possibly upload new data file
4. Possibly upload new picture file
5. Press "*Update record*"

For deleting data the procedure is:

1. Select the data you wish to delete, press the appropriate  button in the window in figure 2.3

2. Press "*Delete entery*"

3 | Documentation of content

3.1 Content in the database defined in WP1-1, clays

NGI and NTNU have provided tests results from laboratory tests on three different clays, in total 16 tests.

(1) Rissa clay (12 tests from NTNU, both IL and CRS oedometer tests)

(2) Onsøy clay (3 tests from NGI, CRS tests)

(3) Clay from Oslo Jernbanetollsted (1 incremental test from NGI)

The database will be updated with new creep test results (from NTNU) early in 2014 and onwards with e.g. Dragvoll clay. These are test currently running as of Dec. 2013

Figure 3.1, figure 3.2 and figure 3.3 give examples of test data results of the Onsøy clay. Table 3.1 gives information on the tests in the database.

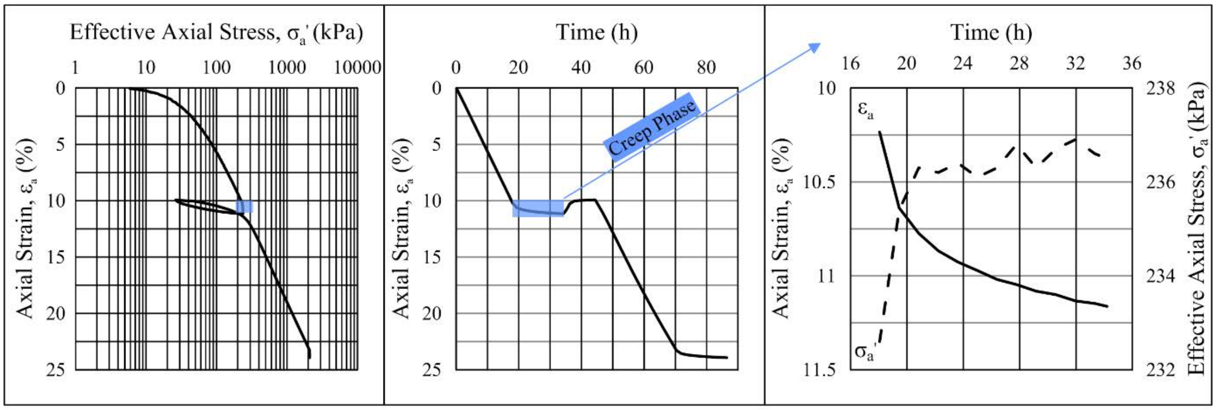

Fig. 1 Results of oedometer test (CRS1610)

Figure 3.1: Example of test results in the database, Onsøy clay, test CRS1610

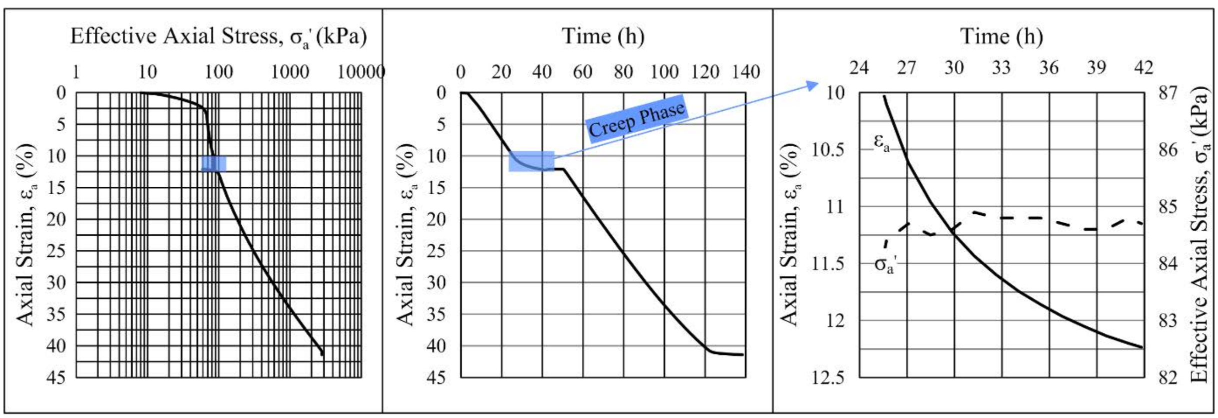

Fig. 3 Results of oedometer test (CRS1654)

Figure 3.2: Example of test results in the database, Onsøy clay, test CRS1654

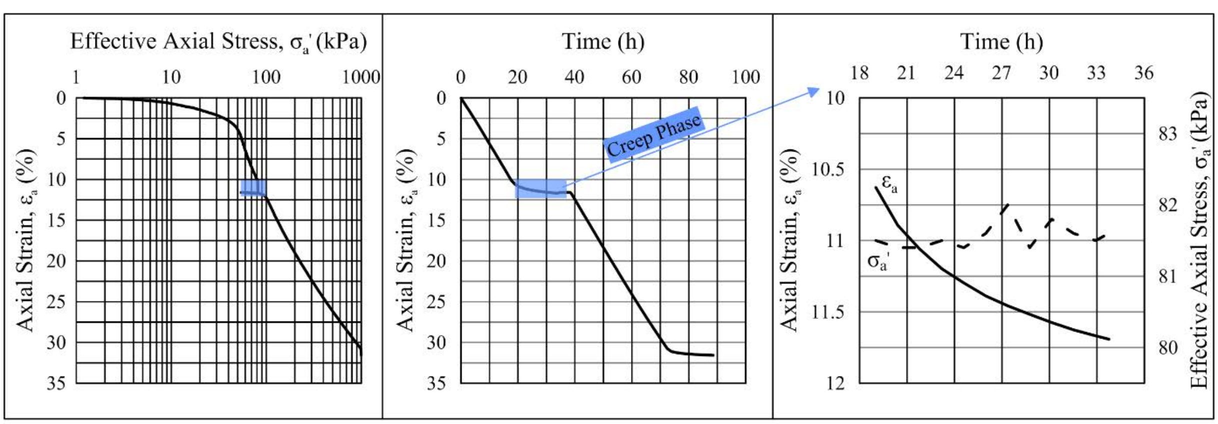

Fig. 2 Results of oedometer test (CRS1585)

Figure 3.3: Example of test results in the database, Onsøy clay, test CRS1585

Table 3.1: Table with index data for Onsøy clay tests

Block No.	Part No.	Test No.	Depth (m)	p'_0 (kPa)	K_0 (ca.)	p'_c (kPa)	OCR	ρ' (g/cm^3)	w_i (%)	e	IP (ca.)	St (ca.)	Type	File name
3	A1	Ø1	1.01	10.1	0.95	53	5.2	0.79	45.58	1.27	34	6	CRSC	CRS1610
10	A2	Ø1	3.87	28.6	0.6	51	1.8	0.68	59.63	1.64	30	4	CRSC	CRS1585
19	A1	Ø1	7.45	50.6	0.6	67	1.3	0.62	72.91	1.99	31	6	CRSC	CRS1654

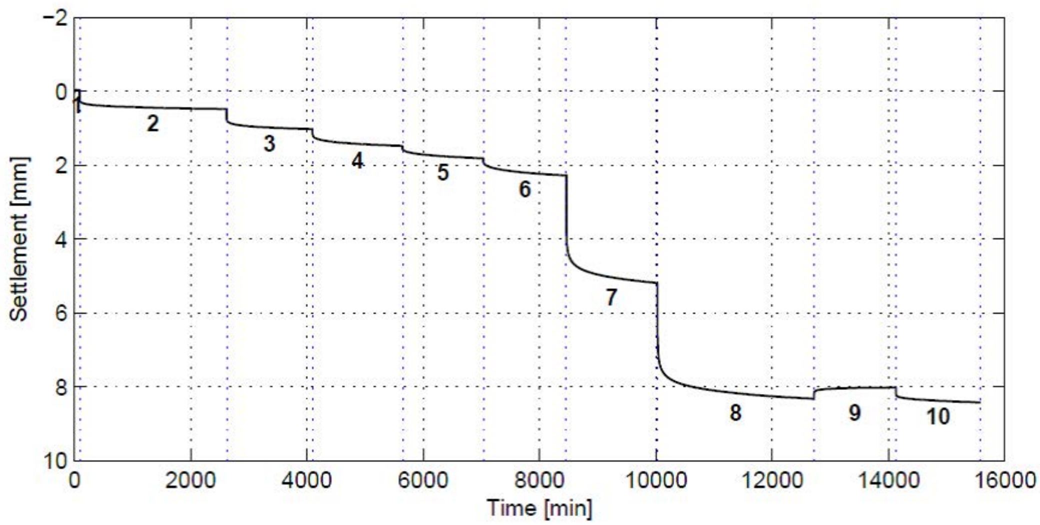

Figure 3.4: Example of test results in the database, IL oedometer test on peat

3.2 Content in the database defined in WP1-2, peat

Deltares has provided data from more than 12 laboratory tests on peat. At the moment results of 12 tests are entered into the database. The database will be updated with more tests on creep in peat in 2014 and onwards .Figure 3.4 gives an example of creep test data (IL oedometer test), for peat, that can be found in the database.

3.3 Content in the database defined in WP1-3, sand

A litteratury study on creep in sand has been undertaken. The creep database on sand consists on a series of references to data available in the literature.

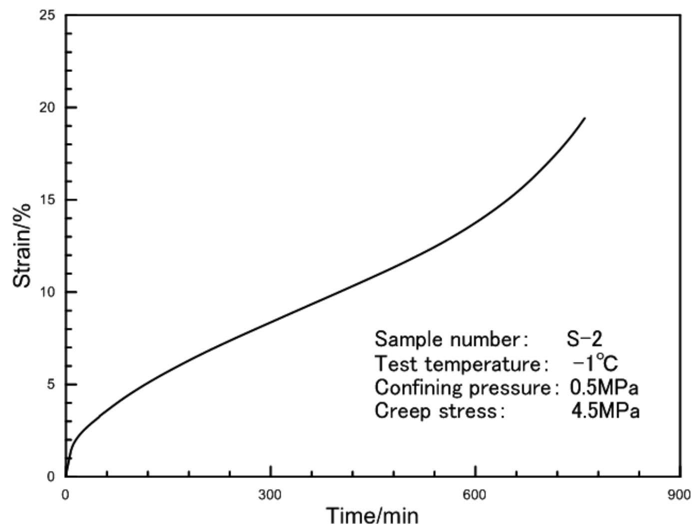

Figure 3.5: Example of test results in the database, triaxial test on frozen sand, test 1íµ-S-2

3.4 Content in the database defined in WP1-4, frozen soill

Creep tests on frozen soils have been carried out by the CAREERI. In the database 8 uniaxial creep tests on frozen clay and two triaxial creep tests on frozen sand are put into the database. The database on frozen soil will be updated when data is available. Figure 3.5 gives an example of creep test data for frozen soil that can be found in the database.

3.5 Data files

Example of datafiles (the GEF format) are given in Appendix B.

A | Acronyms

CRS Constant Rate of Strain

CRSC Constant Rate of Strain Compression oedometer test

IP Incremental loading

IP Plasticity index

OCR Over Consolidation Ratio

B | Example of GEF file

```
#GEFID= 2, 0, 0
#COLUMN= 6
#PROCEDURECODE= Deltares.nl:ILCompress, 1, 0, 5, ILCompress105.xml
#SETUPCODE= Deltares.nl:ILCompress-S, 1, 0, 0, -
#TESTID= 19CA
#MEASUREMENTCODE= Deltares.nl:ILCompress-M, 1, 0, 2, XMLfilemap\ILCompress103.xml
#MEASUREMENTTEXT= 3, [17 208;209 875;876 1336;1337 1783;1784 2260;2261 2664;2665 3193;3194 38
#MEASUREMENTTEXT= 1, undisturbed, Visual sample disturbance
#MEASUREMENTTEXT= 18, 2011-8-26 13:30:49, Endtest
#MEASUREMENTTEXT= 19, Wet, Execution type
#MEASUREMENTTEXT= 2, [1.6711;5.4692;13.673;19.1422;23.2441;28.6599;62.6476;126.3745;62.6476;1
#MEASUREMENTVAR= 9, 20.6680824, \circC, T_{test}
#MEASUREMENTVAR= 8, 9.999994, \circC, T_{in situ}
#MEASUREMENTVAR= 4, 20, mm, Initial height
#MEASUREMENTVAR= 1, 12.0727768197, mm, Final height
#MEASUREMENTVAR= 3, 63, mm, Diameter
#MEASUREMENTVAR= 5, 60.2799987793, g, Initial mass
#MEASUREMENTVAR= 7, 10, -, Number of load steps
#MEASUREMENTVAR= 2, 41.96, g, Final mass
#STARTDATE= 2011, 8, 15
#PROJECTID= CO, 1203768, 5
#PROJECTNAME= Markermeerdijk : Laboratoriumonderzoek
#FILEOWNER= Morelis
#ZID= 31000, -1, 0
```

```
#XYID= 31000, 133449, 492853, 0, 0
#SPECIMENTEXT= 14, 1203768_005_M319, Monsternummer
#SPECIMENTEXT= 12, 19CA, Monsternaam
#SPECIMENTEXT= 11, veen, Hoofdgrondsoort
#SPECIMENTEXT= 16, Vm, NEN5104 voluit
#SPECIMENTEXT= 5, 16d, Nummer Boring
#SPECIMENTEXT= 2, 16d, Code Boring
#SPECIMENTEXT= 6, Markermeerdijk, Plaatsnaam Boring
#SPECIMENVAR= 2, -1.910000, m, Absolute diepte van de bovenzijde van het monster
#SPECIMENVAR= 5, -0.470000, m, Relatieve diepte van de bovenzijde van het monster
#SPECIMENVAR= 3, -1.960000, m, Absolute diepte van de onderzijde van het monster
#SPECIMENVAR= 6, -0.520000, m, Relatieve diepte van de onderzijde van het monster
#REPORTDATAFORMAT= F12.4 F2.0 F8.4 F10.4 E12.4
#COLUMNINFO= 1, s, Time, 1001
#COLUMNINFO= 2, -, Flag, 1002
#COLUMNINFO= 3, mm, Vertical displacement, 1103
#COLUMNINFO= 4, N, Vertical load top, 1101
#COLUMNINFO= 5, -, Linear strain, 2004
#COLUMNINFO= 6, -, Natural strain, 2002
#QNVOID= 1001, -999.000000
#QNVOID= 1002, -999.000000
#QNVOID= 1103, -999.000000
#QNVOID= 1101, -999.000000
#QNVOID= 2004, -999.000000
#QNVOID= 2002, -999.000000
#QNMINMAX= 1103, -0.037200, 8.424400
#CHILD= 1, sapro, ,  ,  , , explanation
#CHILD= 3, 1203768-005\1203768_005_903_A_0_WATER.gef, ,  ,  , , explanation
#CHILD= 2, 1203768-005\1203768_005_925_A_0_WATER.gef, ,  ,  , , explanation
#FILEDATE= 2011, 8, 26
#STARTTIME= 13, 32, 24.968002
#OBJECTID= 890
```

```
#ANALYSISCODE= Deltares.nl:ILCompress-A, 1, 0, 5, -
#ANALYSISVAR= 8, 650.692840647, %, Initial water content
#ANALYSISVAR= 4, 424.5, %, Final water content
#ANALYSISVAR= 88, 9.81, kN/m^3, Unit weight water
#ANALYSISVAR= 89, 0.760146974868, -, Cv correction factor
#ANALYSISVAR= 6, 9.48508585494, kN/m^3, Initial unit weight wet soil
#ANALYSISVAR= 7, 1.26351089838, kN/m^3, Initial unit weight dry soil
#ANALYSISVAR= 3, 10.9377082368, kN/m^3, Final unit weight wet
#ANALYSISVAR= 2, 2.08535905373, kN/m^3, Final unit weight dry soil
#ANALYSISVAR= 11, 7.80335336838, kN/m^3, Unit weight particles
#ANALYSISVAR= 5, 1, %, Initial saturation
#ANALYSISVAR= 1, 1.23147920849, %, Final saturation
#ANALYSISVAR= 90, 6.17592881737, -, Vo
#ANALYSISVAR= 91, 5.17592881737, -, Void ratio - initial
#ANALYSISVAR= 9, 2, kPa, In situ stress
#ANALYSISVAR= 13, 1, -, Boolean
#ANALYSISVAR= 14, 1, -, Index
#ANALYSISVAR= 12, 10, -, Index
#ANALYSISVAR= 16, 1, -, Boolean
#ANALYSISVAR= 17, 1, -, Index
#ANALYSISVAR= 15, 10, -, Index
#ANALYSISVAR= 18, 1, -, Boolean
#ANALYSISVAR= 19, 0, -, Boolean
#ANALYSISVAR= 22, 144, min, Time
#ANALYSISVAR= 20, 1, -, Index
#ANALYSISVAR= 21, 7, -, Index
#ANALYSISVAR= 100, 25.5783986052, -, C
#ANALYSISVAR= 103, 3.62992330287, -, C'
#ANALYSISVAR= 101, 50.2720386939, -, Cp
#ANALYSISVAR= 102, 4.99306099166, -, Cp'
#ANALYSISVAR= 104, 208.293024404, -, Cs
#ANALYSISVAR= 105, 53.1844393866, -, Cs'
```

```
#ANALYSISVAR= 106, 24.3047474011, kN/m^2, Pc'
#ANALYSISVAR= 25, 1, -, Boolean
#ANALYSISVAR= 26, 1, -, Index
#ANALYSISVAR= 27, 7, -, Index
#ANALYSISVAR= 24, 6, -, Number
#ANALYSISVAR= 23, 3, -, Number
#ANALYSISVAR= 107, 23.441687289, kN/m^2, Pc'
#ANALYSISVAR= 28, 0, -, IsAccordingToCasagrande (BjerPc)
#ANALYSISVAR= 34, 1, -, OffOn (BjerPc)
#ANALYSISVAR= 35, 1, -, StartingPointFirstSection (BjerPc)
#ANALYSISVAR= 36, 7, -, StartingPointLastSection (BjerPc)
#ANALYSISVAR= 33, 2, -, NrPointsAtStart (BjerPc)
#ANALYSISVAR= 32, 2, -, NrPointsAtEnd (BjerPc)
#ANALYSISVAR= 30, 1440, min, MaxTime (BjerPc)
#ANALYSISVAR= 31, 10, -, MinRegPoints (BjerPc)
#ANALYSISVAR= 29, 100, -, MaxRegPoints (BjerPc)
#ANALYSISVAR= 37, 1, -, IsAccordingToCasagrande (BjerStandard)
#ANALYSISVAR= 43, 1, -, OffOn (BjerStandard)
#ANALYSISVAR= 44, 1, -, StartingPointFirstSection (BjerStandard)
#ANALYSISVAR= 45, 8, -, StartingPointLastSection (BjerStandard)
#ANALYSISVAR= 42, 2, -, NrPointsAtStart (BjerStandard)
#ANALYSISVAR= 41, 2, -, NrPointsAtEnd (BjerStandard)
#ANALYSISVAR= 39, 1440, min, MaxTime (BjerStandard)
#ANALYSISVAR= 40, 10, -, MinRegPoints (BjerStandard)
#ANALYSISVAR= 38, 100, -, MaxRegPoints (BjerStandard)
#ANALYSISVAR= 46, 0, -, IsAccordingToCasagrande (BjerStiffness)
#ANALYSISVAR= 52, 1, -, OffOn (BjerStiffness)
#ANALYSISVAR= 53, 7, -, StartingPointFirstSection (BjerStiffness)
#ANALYSISVAR= 54, 9, -, StartingPointLastSection (BjerStiffness)
#ANALYSISVAR= 51, 2, -, NrPointsAtStart (BjerStiffness)
#ANALYSISVAR= 50, 2, -, NrPointsAtEnd (BjerStiffness)
#ANALYSISVAR= 48, 1440, min, MaxTime (BjerStiffness)
```

```
#ANALYSISVAR= 49, 10, -, MinRegPoints (BjerStiffness)
#ANALYSISVAR= 47, 100, -, MaxRegPoints (BjerStiffness)
#ANALYSISVAR= 112, 33.4373885618, kN/m^2, Pc
#ANALYSISVAR= 113, 0.0661514960779, -, RR
#ANALYSISVAR= 110, 0.494790877658, -, CR
#ANALYSISVAR= 108, 0.0295861688921, -, C_\alpha
#ANALYSISVAR= 114, 6.17592881737, -, Vo
#ANALYSISVAR= 83, 1, -, Boolean
#ANALYSISVAR= 84, 1, -, Index
#ANALYSISVAR= 82, 10, -, Index
#ANALYSISVAR= 55, 0, -, IsAccordingToCasagrande (IsotachenPc)
#ANALYSISVAR= 61, 1, -, OffOn (IsotachenPc)
#ANALYSISVAR= 62, 1, -, StartingPointFirstSection (IsotachenPc)
#ANALYSISVAR= 63, 7, -, StartingPointLastSection (IsotachenPc)
#ANALYSISVAR= 60, 2, -, NrPointsAtStart (IsotachenPc)
#ANALYSISVAR= 59, 2, -, NrPointsAtEnd (IsotachenPc)
#ANALYSISVAR= 57, 1440, min, MaxTime (IsotachenPc)
#ANALYSISVAR= 58, 10, -, MinRegPoints (IsotachenPc)
#ANALYSISVAR= 56, 100, -, MaxRegPoints (IsotachenPc)
#ANALYSISVAR= 64, 1, -, IsAccordingToCasagrande (IsotachenStandard)
#ANALYSISVAR= 70, 0, -, OffOn (IsotachenStandard)
#ANALYSISVAR= 71, 1, -, StartingPointFirstSection (IsotachenStandard)
#ANALYSISVAR= 72, 8, -, StartingPointLastSection (IsotachenStandard)
#ANALYSISVAR= 69, 2, -, NrPointsAtStart (IsotachenStandard)
#ANALYSISVAR= 68, 2, -, NrPointsAtEnd (IsotachenStandard)
#ANALYSISVAR= 66, 1440, min, MaxTime (IsotachenStandard)
#ANALYSISVAR= 67, 10, -, MinRegPoints (IsotachenStandard)
#ANALYSISVAR= 65, 100, -, MaxRegPoints (IsotachenStandard)
#ANALYSISVAR= 73, 0, -, IsAccordingToCasagrande (IsotachenStiffness)
#ANALYSISVAR= 79, 1, -, OffOn (IsotachenStiffness)
#ANALYSISVAR= 80, 7, -, StartingPointFirstSection (IsotachenStiffness)
#ANALYSISVAR= 81, 9, -, StartingPointLastSection (IsotachenStiffness)
```

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#ANALYSISVAR= 78, 2, -, NrPointsAtStart (IsotachenStiffness)
#ANALYSISVAR= 77, 2, -, NrPointsAtEnd (IsotachenStiffness)
#ANALYSISVAR= 75, 1440, min, MaxTime (IsotachenStiffness)
#ANALYSISVAR= 76, 10, -, MinRegPoints (IsotachenStiffness)
#ANALYSISVAR= 74, 100, -, MaxRegPoints (IsotachenStiffness)
#ANALYSISVAR= 118, 29.7375989627, kN/m^2, Pc
#ANALYSISVAR= 115, 0.0487760743923, -, a
#ANALYSISVAR= 116, 0.323940958977, -, b
#ANALYSISVAR= 117, 0.015467863572, -, c
#ANALYSISVAR= 86, 1, -, Boolean
#ANALYSISVAR= 87, 2, -, Index
#ANALYSISVAR= 85, 8, -, Number
#ANALYSISVAR= 120, 45.65375, kN/m^2, Pc'
#ANALYSISVAR= 10, 0.247911813532, %, Sample disturbance index
#ANALYSISVAR= 109, 3.0557932399, -, Cc
#ANALYSISVAR= 111, 0.40854693094, -, Cr
#ANALYSISTEXT= 62, 2011-08-26, Enddate
#ANALYSISTEXT= 63, 13:30:49, Endtime
#ANALYSISTEXT= 3, [0;0;0;0;0;0;0;1;0;0], IsStepEnabled
#ANALYSISTEXT= 2, [20;20;20;20;20;20;20;50;20;20], FixedPoint
#ANALYSISTEXT= 5, [1440;1440;1440;1440;1440;1440;1440;1440;1440;1440], MaxTime
#ANALYSISTEXT= 6, [10;10;10;10;10;10;10;10;10;10], MinRegPoints
#ANALYSISTEXT= 4, [100;100;100;100;100;100;100;100;100;100], MaxRegPoints
#ANALYSISTEXT= 22, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;1.159e-007;NaN;NaN], Cv
#ANALYSISTEXT= 25, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;4.166;NaN;NaN], T90
#ANALYSISTEXT= 24, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;1.403;NaN;NaN], S90
#ANALYSISTEXT= 23, [NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;0.8056 -0.02707;N
#ANALYSISTEXT= 7, [0;0;0;0;0;0;1;1;0;0], IsUseCa
#ANALYSISTEXT= 8, [0;0;0;0;0;0;0;1;0;0], IsUseCv
#ANALYSISTEXT= 14, [0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1], MinTime
#ANALYSISTEXT= 11, [1440;1440;1440;1440;1440;1440;1440;1440;1440;1440], MaxTime
#ANALYSISTEXT= 12, [10;10;10;10;10;10;10;10;10;10], MinRegPoints1
```

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#ANALYSISTEXT= 9, [100;100;100;100;100;100;100;100;100;100], MaxRegPoints1
#ANALYSISTEXT= 13, [10;10;10;10;10;10;10;10;10;10], MinRegPoints2
#ANALYSISTEXT= 10, [100;100;100;100;100;100;500;500;100;100], MaxRegPoints2
#ANALYSISTEXT= 26, [NaN;NaN;NaN;NaN;NaN;NaN;0.02664;0.03254;NaN;NaN], Ca
#ANALYSISTEXT= 27, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;6.321e-008;NaN;NaN], Cv
#ANALYSISTEXT= 28, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;1.414e-009;NaN;NaN], K
#ANALYSISTEXT= 29, [NaN;NaN;NaN;NaN;NaN;NaN;NaN;0.002281;NaN;NaN], Mv
#ANALYSISTEXT= 33, [NaN;NaN;NaN;NaN;NaN;NaN;0.4957;1.865;NaN;NaN], T50
#ANALYSISTEXT= 32, [NaN;NaN;NaN;NaN;NaN;NaN;7.701;25.09;NaN;NaN], T100
#ANALYSISTEXT= 30, [NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;0.9517 0.8119;NaN
#ANALYSISTEXT= 31, [NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;0.472 1.393;0.4819 1.469;
#ANALYSISTEXT= 36, [-0.0009978;0.02259;0.04879;0.06893;0.0826;0.1022;0.2419;0.3824;0.3596;0.3
#ANALYSISTEXT= 37, [-0.00613 -0.01996;0.1077 0.4517;0.2173 0.9758;0.3379 1.379;0.4376 1.652;0
#ANALYSISTEXT= 34, [1.671;24.3;24.3;126.4], FitRegLoad
#ANALYSISTEXT= 35, [-0.0009978;0.05226;0.05226;0.3824], FitRegStrain
#ANALYSISTEXT= 40, [0;1.671;5.469;13.67;19.14;23.24;28.66;62.65;126.4;NaN;NaN], Load steps
#ANALYSISTEXT= 41, [0;-0.001316;0.08606;0.2747;0.3681;0.362;0.6039;6.592;14.25;NaN;NaN], Work
#ANALYSISTEXT= 38, [0;23.44;23.44;NaN], FitRegLoad
#ANALYSISTEXT= 39, [-0.006099;0.4116;0.4116;NaN], FitRegWork
#ANALYSISTEXT= 15, Standard, NENBjerrum Type
#ANALYSISTEXT= 43, [1.671;24.05;24.05;126.4], Pc FitRegLoad
#ANALYSISTEXT= 44, [-0.001575;0.05264;0.05264;0.4092], Pc FitRegStrain
#ANALYSISTEXT= 47, [1.671;126.4], Stif FitRegLoad
#ANALYSISTEXT= 48, [-0.5203 0.2967;0.4092 0.421], Stif FitRegStrain
#ANALYSISTEXT= 42, [-0.001575;0.02253;0.05123;0.07366;0.09075;0.114;0.2584;0.4092;0.4009;0.42
#ANALYSISTEXT= 17, [0;0;0;0;0;0;1;1;0;0], IsStepEnabled
#ANALYSISTEXT= 21, [0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1], MinTime
#ANALYSISTEXT= 19, [1440;1440;1440;1440;1440;1440;1440;1440;1440;1440], MaxTime
#ANALYSISTEXT= 20, [10;10;10;10;10;10;10;10;10;10], MinRegPoints
#ANALYSISTEXT= 18, [100;100;100;100;100;100;500;500;100;100], MaxRegPoints
#ANALYSISTEXT= 56, [NaN;NaN;NaN;NaN;NaN;NaN;0.01346;0.01748;NaN;NaN], C
#ANALYSISTEXT= 57, [NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;NaN NaN;0.03099 0.08015;0.04024 0
```

```
#ANALYSISTEXT= 16, Pc, Isotachen Type
#ANALYSISTEXT= 50, [1.671;29.74;29.74;126.4], Pc FitRegLoad
#ANALYSISTEXT= 51, [-0.001574;0.05758;0.05758;0.5263], Pc FitRegStrain
#ANALYSISTEXT= 54, [1.671;126.4], Stif FitRegLoad
#ANALYSISTEXT= 55, [-0.875 0.3355;0.5263 0.5465], Stif FitRegStrain
#ANALYSISTEXT= 49, [-0.001574;0.02279;0.05259;0.07652;0.09513;0.1211;0.299;0.5263;0.5123;0.54
#ANALYSISTEXT= 58, [2.735;9.571;16.41;21.19;25.95;45.65;94.51;NaN;NaN;NaN], AvgLoad steps
#ANALYSISTEXT= 59, [0.24;0.2753;0.2285;0.2204;0.2089;0.1911;0.2803;NaN;NaN;NaN], ConstrMod st
#ANALYSISTEXT= 1, good, Sample disturbance qualification
#ANALYSISTEXT= 45, [33.44;126.4], Std FitRegLoad
#ANALYSISTEXT= 46, [0.1235 0.1235;0.2052 0.4092], Std FitRegStrain
#ANALYSISTEXT= 60, no, CEN
#ANALYSISTEXT= 61, yes, NEN
#REPORTCODE= Deltares.nl:ILCompress-R, 1, 0, 5, -
#REPORTTEXT= 1, Markermeerdijk : Laboratoriumonderzoek, T01 Text1
#REPORTTEXT= 2, Boring 16d\; sample 19CA\; depth -1.91 m till -1.96 m  NAP, T02 Text2
#REPORTTEXT= 3, Oedometer test conform NEN 5118, T03 Text3
#REPORTTEXT= 4, 2011-08-31, T04 Date
#REPORTTEXT= 5, 1203768.5, T05 Project
#REPORTTEXT= 6, SA19CA, T06 Appendix
#REPORTTEXT= 7, ess, T07 Name
#REPORTTEXT= 8, -, T08 Controlled
#EOH=
     -3.2030  0   0.0000     0.0000  0.0000e+000 -0.0000e+000
     -3.0000  0   0.0003     0.0000  1.5000e-005  1.5000e-005
     -2.7970  0   0.0002     0.0000  1.0000e-005  1.0000e-005
     -2.5940  0   0.0004     0.0000  2.0000e-005  2.0000e-005
     -2.3910  0   0.0000     0.0000  0.0000e+000 -0.0000e+000

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Bibliography

MySQL. http://www.mysql.com.

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