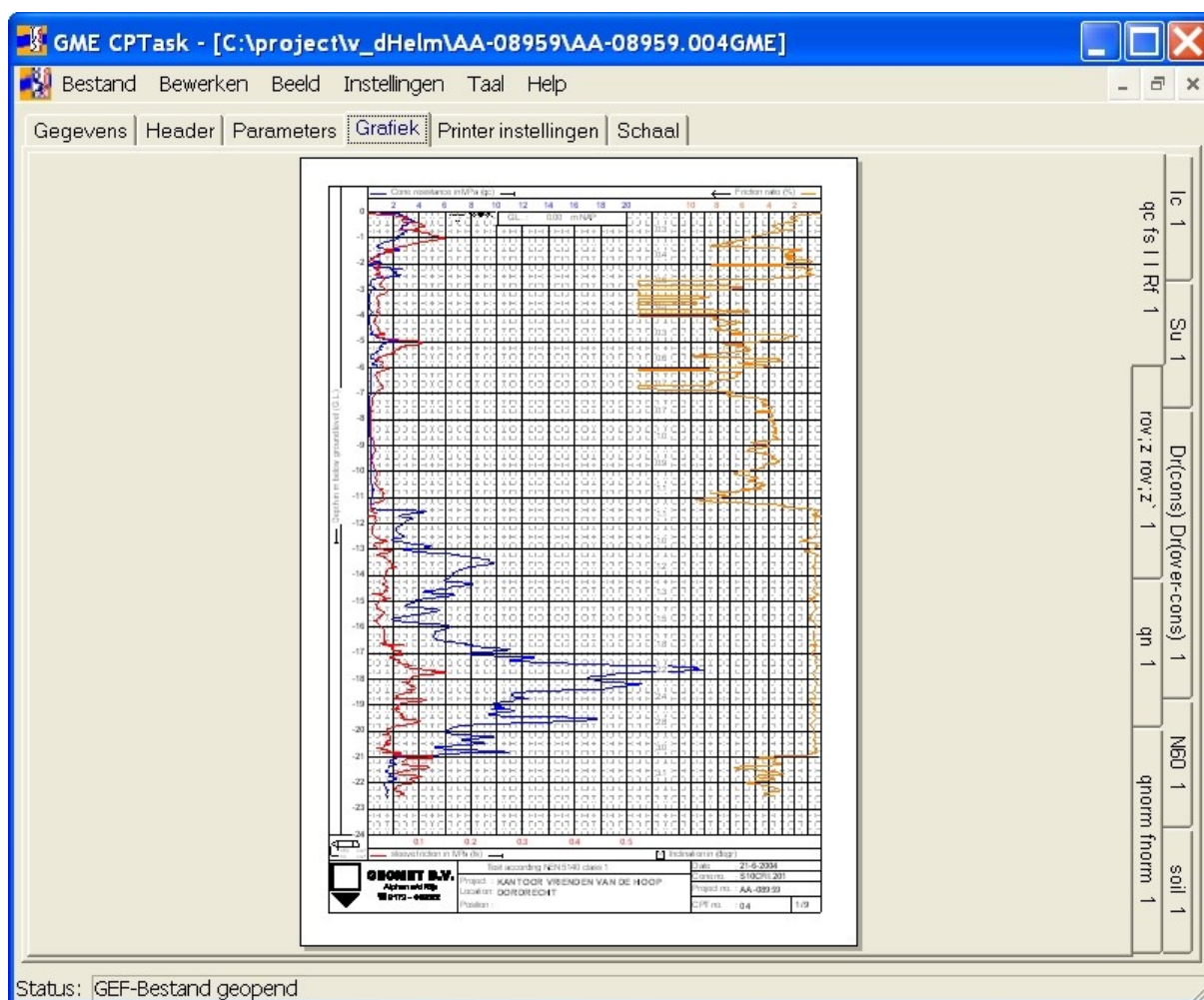


## CPTask® - Software Operation Instructions

- ◆ **Producer & Copyright** : Geomil Equipment B.V.  
Westbaan 240  
2841 MC Moordrecht  
The Netherlands
- ◆ **Product** : CPTask® Presentation Software
- ◆ **Version** : V1.xx
- ◆ **Year issued** : 201x



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## Main window

Open CPTask via "Start >> Programs >> CPTask".  
When CPTask is opened an (almost) empty screen is displayed.

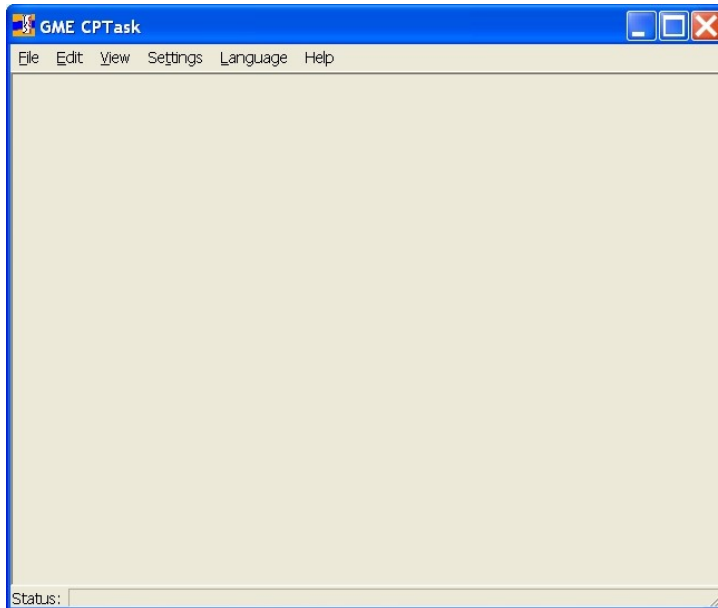
On the left top of the screen the main menu is displayed.  
The items in the menu, from left to right: File, Edit, View, Settings, Language, Help.  
When a menu item is clicked there are a number of sub items displayed.  
Most of these sub items are explained in this helpfile.

At the bottom of the screen the statusbar is displayed.  
Most program messages are displayed here.  
Example's of a program messages: "Gef-file is opened" or "Excel-export complete".

## Structure of the main menu:

File	Edit	View	Settings	Language	Help
>New	>Project	>Graph	>Save settings default	>English	>Help
» Import Excel					
» New CPT					
>Load project	>Filter	>Cascade	>Save settings	>Dutch	>About CPTask
>Open CPT	>Header	>Cascade	>Load settings	>German	>About GME
>Open project	>Data	>Tile	>Settings/Factors		
>Save	>Settings	>Zoom			
» Save	» Parameters	» Fit			
» » Single	» Print settings	» In (+25%)			
» » All	» Scale	» Out (-25%)			
» Save As					
>Export		>Change window			
» Ascii					
» » Single					
» » All					
» Pdf					
» » Single					
» » All					
» Dxf					
» Excell					
» Jpg					
>Print					
» Print					
» » Single					
» » All					
» Print data					
>Close					
» Single					
» All					
>Exit					

**Screenshot main window:**



**GME- & Gef-dataformat**

It is possible to open two different filetypes using CPTask.  
These filetypes are the (old) GME- and the Gef-dataformat.

The data in the (old) GME-dataformat is stored in two files.  
The first file is named **\*\*\*.0\*\*** (header) and the second file is named **\*\*\*.1\*\*** (data).  
Dissipationtests are stored as **\*\*\*.D\*\*** files.

The Gef-dataformat uses only one file. This filetype has the extension **\*.gef**.  
A more specific explanation about the Gef-standard can be found at [www.geonet.nl](http://www.geonet.nl/3.020.html)  
(<http://www.geonet.nl/3.020.html>).

When a file is modified it is possible to save the file to the Gef-format.  
CPTask does not change the GME-files or the original Gef-file.

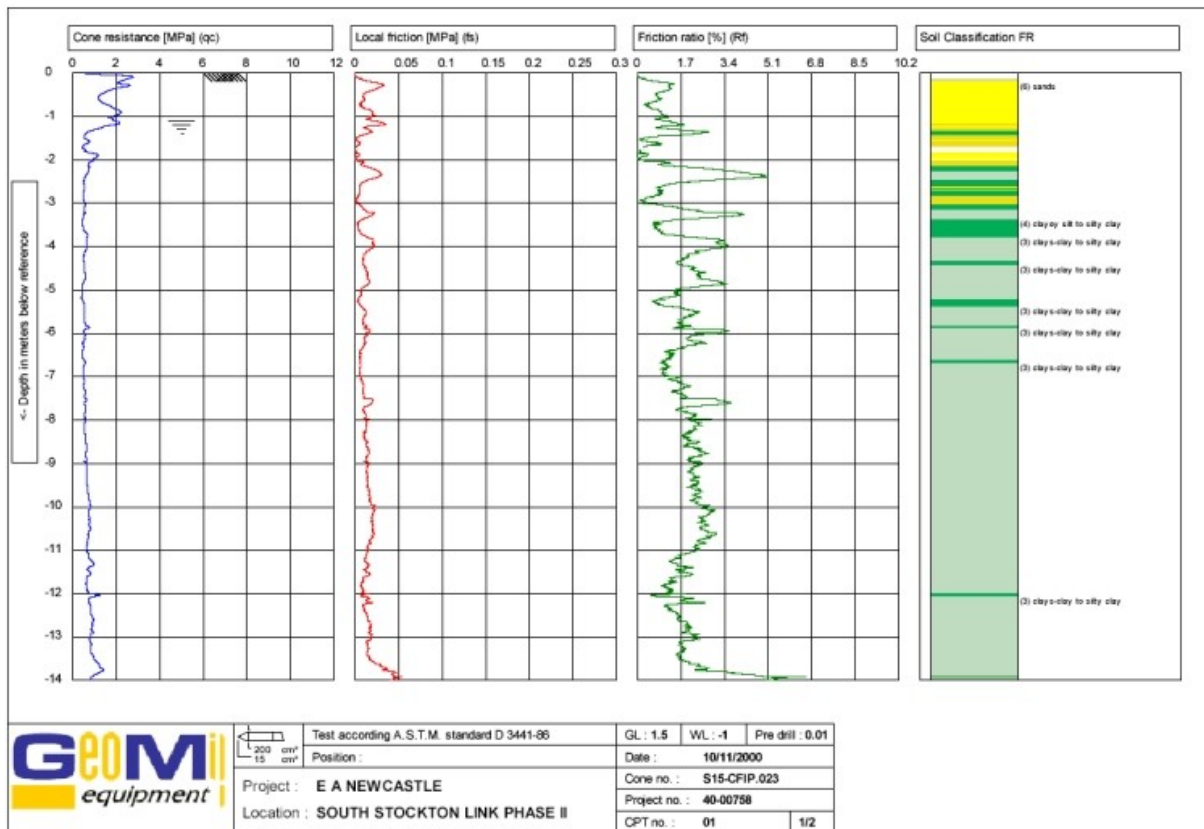
**International plotstandard**

CPTask has two main standards in which the CPT's are displayed.  
The first is the international standard. The second one is the dutch standard.

The international standard is a very flexible way of displaying the different signals. (graphs)  
It is possible to print in landscape or portrait.  
It is also possible to choose the order, the width and the height of the displayed graphs.

Changing the default plottype to International plotstandard is possible in the program settings.  
( Settings >> Settings / Factors >> Settings >> International standard )

### Example of international standard plot:



### Dutch plotstandard

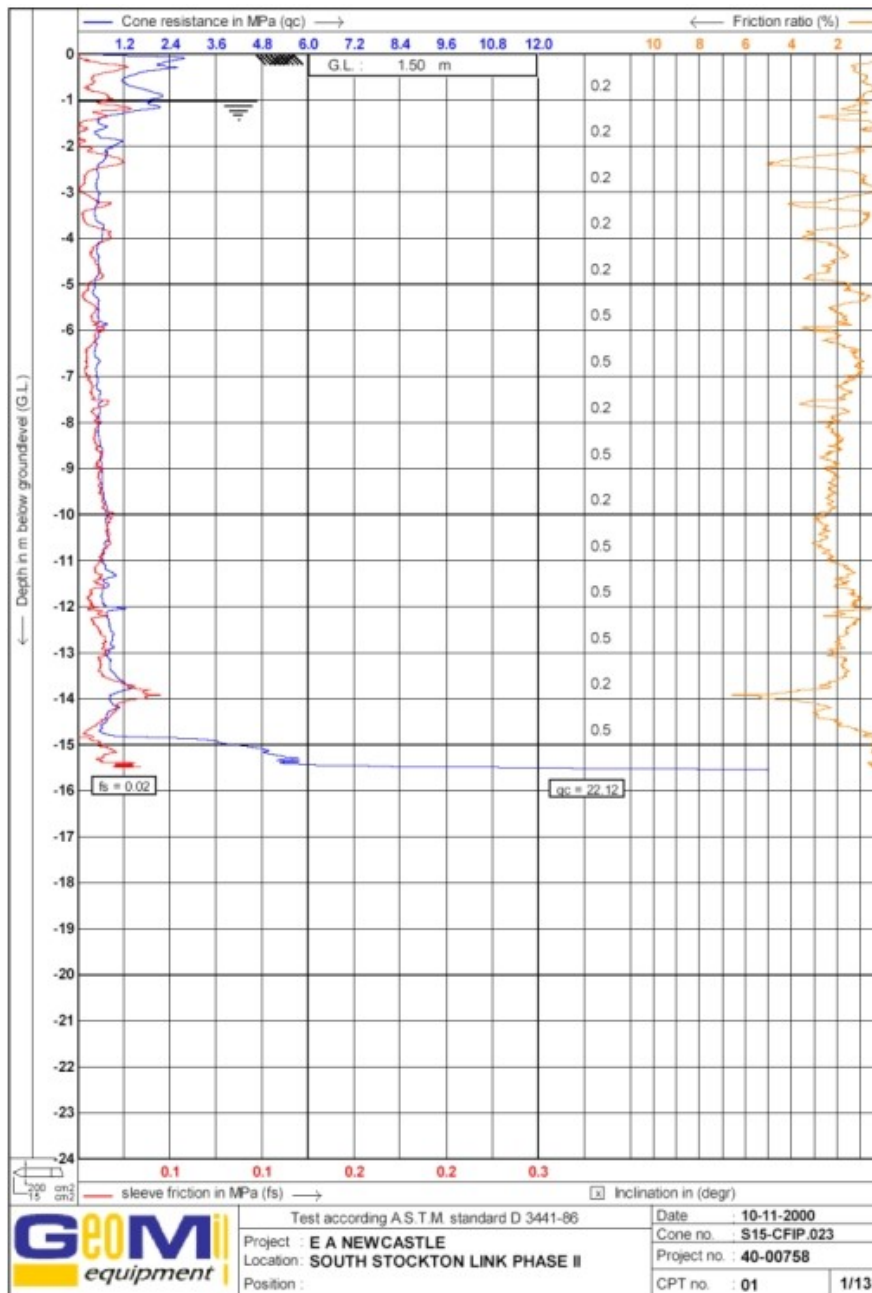
CPTask has two main standards in which the CPT's are displayed. The first is the international standard. The second one is the dutch standard.

The dutch standard is a static plot method. It is possible to display up to three graphs. There can be two graphs at the left of the plot. At the right of the screen it is only possible to print one graph. The horizontal scale of this graph is reversed.

Every graph has its own horizontal scale that can be changed.

Changing the default plottype to International plotstandard is possible in the program settings. ( Settings >> Settings / Factors >> Settings >> Dutch standard )

### Example of dutch standard plot:

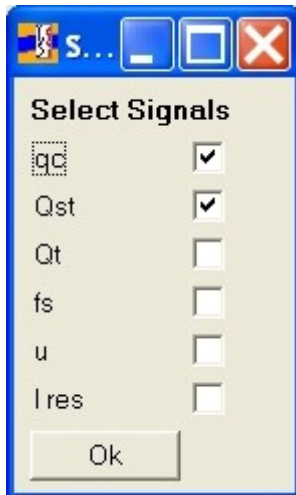


### Import excel

The import of data is possible using Microsoft Excel.  
It is only possible to import raw data.

The data has to be on the left top of the excel-file in the following order:  
length,[qc,fs,u,l,Qst,Qt]

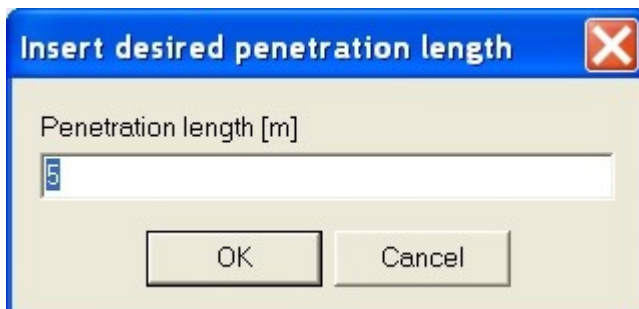
To import an Excel-file click "File >> New >> Import Excel".  
Select the Excel-file (\*.xls) to import.  
Select the signals than are in the file.



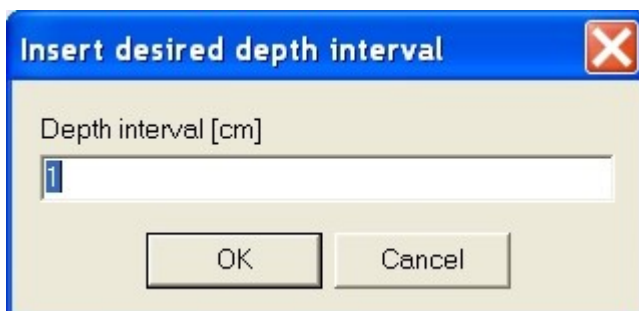
### New CPT

“New CPT” is a function to make a CPT manually.  
Begin by clicking “File > New > New CPT”.

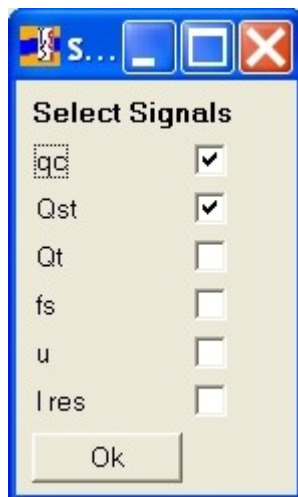
In the first screen it is possible to insert the penetration length. (in meters)  
Press “OK”.



The second screen is to edit the depth interval. Press “OK”.



The next screen is to select the "Source signals".  
(or mechanical CPT select: qc, Qst and/or Qt)  
Confirm with "OK".



After selecting the "source signals" an empty CPT-window is opened.  
Click on the tab "data". It is possible to edit a range of value's by selecting a number of cells.

Click on the tab "header" to insert CPT-property's.  
It is possible to save the file via "File > Save > Save".

### **Load project**

"Load project" is a function to copy files from any location to the "project"-directory.

To open a project click "File >> Open project".  
Then click on "Open location". Select the directory or location to copy from.

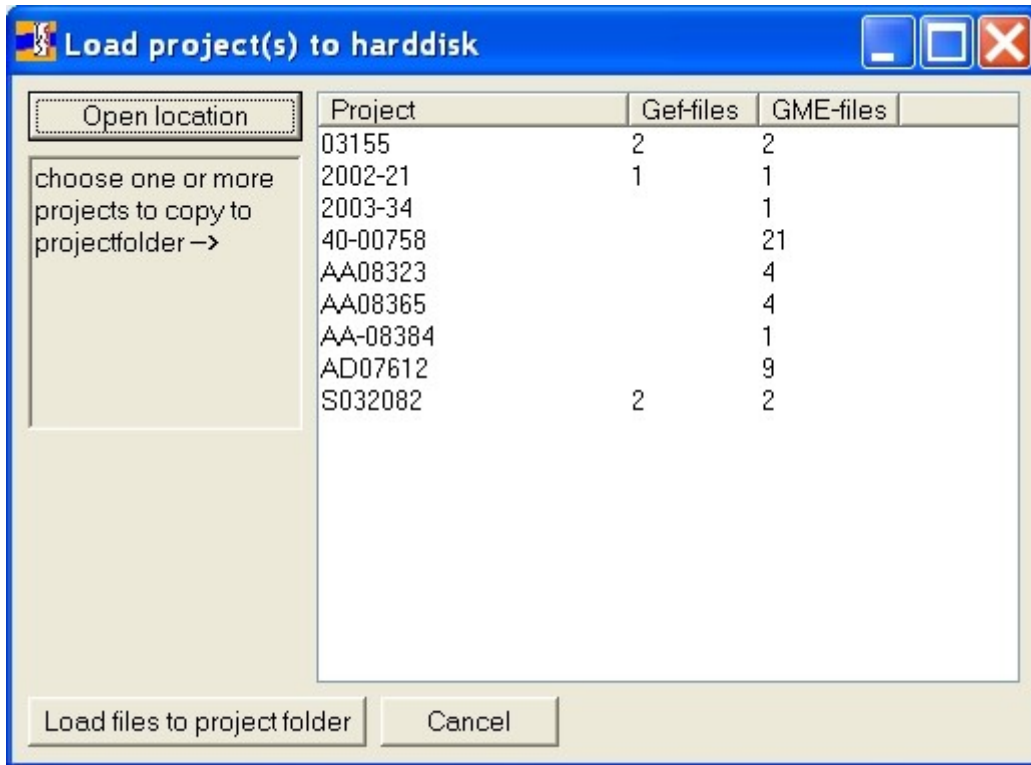
Now CPTask will search all project's in the specified location.

Now select one or more project's (by projectnumber) to load to the "project"-directory.  
After selecting one or more project's click "Load files to project directory".

CPTask will now copy all Gef- and GME-files to the "project"-directory.



Image 1: the "Load project('s)" window



### Open CPT

Open a CPT by clicking "File >> Open CPT".  
A file explorer is opened. Select and open a CPT-file.

After opening the file, there are (by default) a number of calculations, filters and actions performed.

- The Friction ratio (fs) is shifted. (if available)
- The depth is corrected with the Inclination (I). (if available)
- The measured value's are filtered with a factor 1.
- All possible value's are calculated.
- The settings-file of the CPT is imported. If not available the default settings-file is used.
- If a Gef-file is opened, CPTask creates a backup (original) file wich is named "filename.org.gef".

After all calculations are performed the CPT-window is displayed.  
The sheet "graph" is visible just after opening the CPT. (Image 1)  
In the center of the screen the first page of the actual plot is shown.  
At the right of the screen all pages are shown. (by parameter name)

At the top of the screen are six tabs. (data, header, parameters, graph, print settings, scale)  
The selected tab is raised.

At the bottom of the graph there are some items like "Project" and "Location" displayed.  
To edit these items click the "header" tab. (Image 2)

To choose the signals to plot go to the "parameters" tab.

If the plotmethod is set to "international plot" it is possible to choose the page en position of the signal.  
(Image 3)

If the plotmethod is set to "dutch plot" it is only possible to choose a number of signals to display.  
It is not possible to choose the position of the signal. (Image 4)

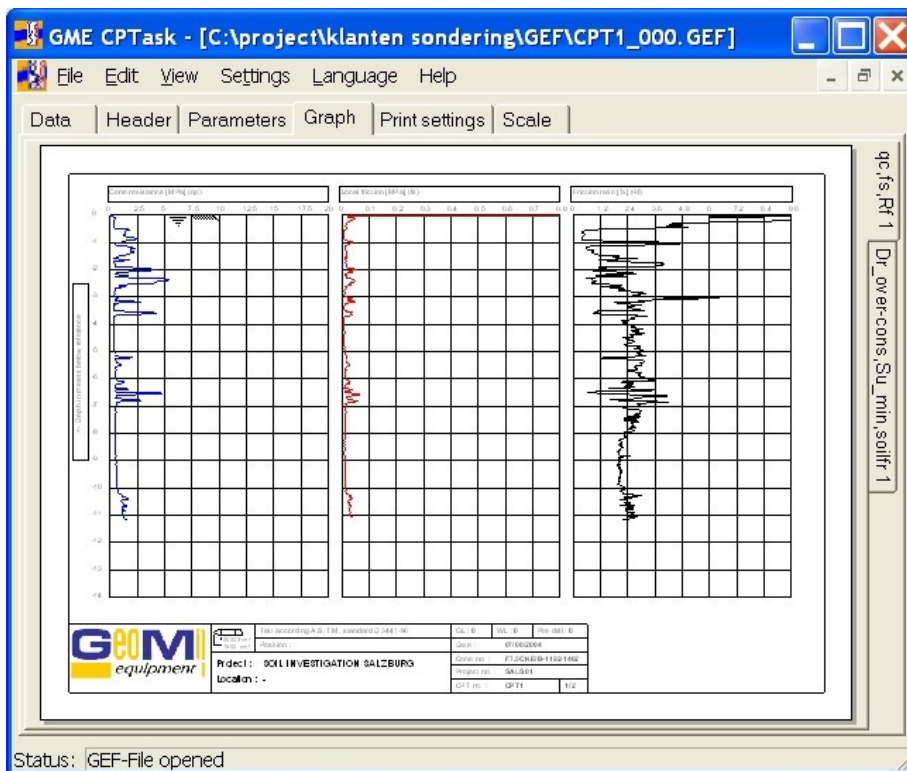
To set the scale op each graph go to the "scale" tab. It is possible to edit the "min" and the "max" value.

In the "Print settings" tab it is possible to mannipulate the way the graph is displayed.

It is possible to print A4 or A3, Landscape or Portrait, with or without Color and with or without a Grid.

If for any reason it is needed to edit or view the data go to the "data" tab.

**Image 1: Just after opening the CPT**



**Image 2: Possibility to edit the header**

**GME CPTask - [C:\project\40-00758\40-00758.001 GME.GEF]**

File Edit View Settings Language Help

Data **Header** Parameters Graph Print settings Scale

**Header**

Client name: E A NEWCASTLE

Job number: 40-00758 Remarks: (1)

Test number: 01 Remarks: (2)

Cone number: S15-CFIP.023

Location: SOUTH STOCKTON LI Pre drilling depth: 0.01 [m]

Operator: Unfortunately unknown Water level: -1 [m]

Date: 10/11/2000 Ground level: 1.5 [m]

Start time: 10:33:00 AM End time:

Time at penetration: Penetration length: 15.56 [m]

Reference level: NAP

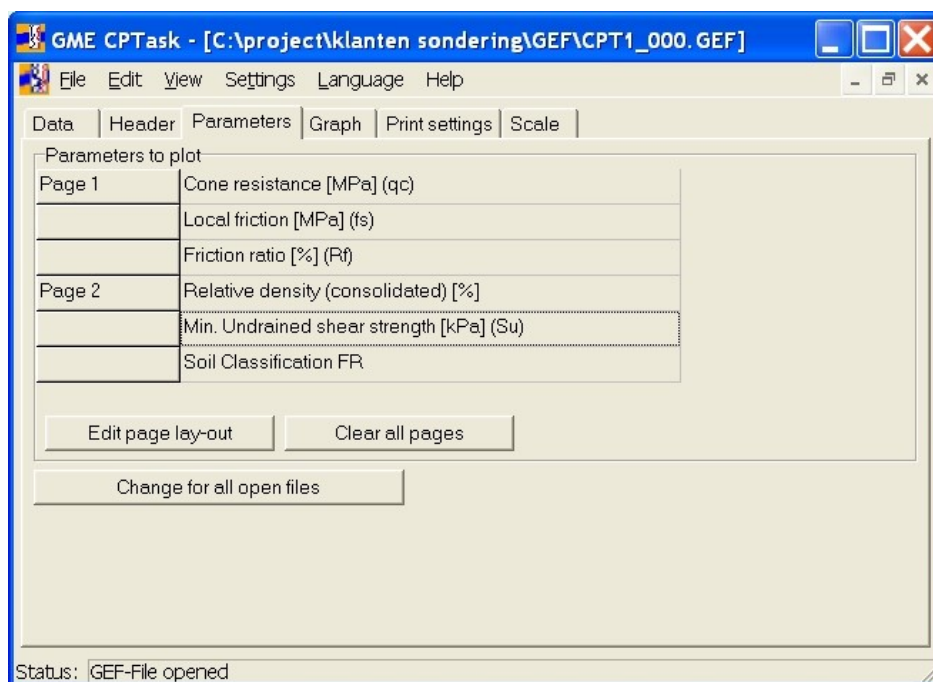
Own Reference level:

Coordinate system: RD Coordinate E-W: 0

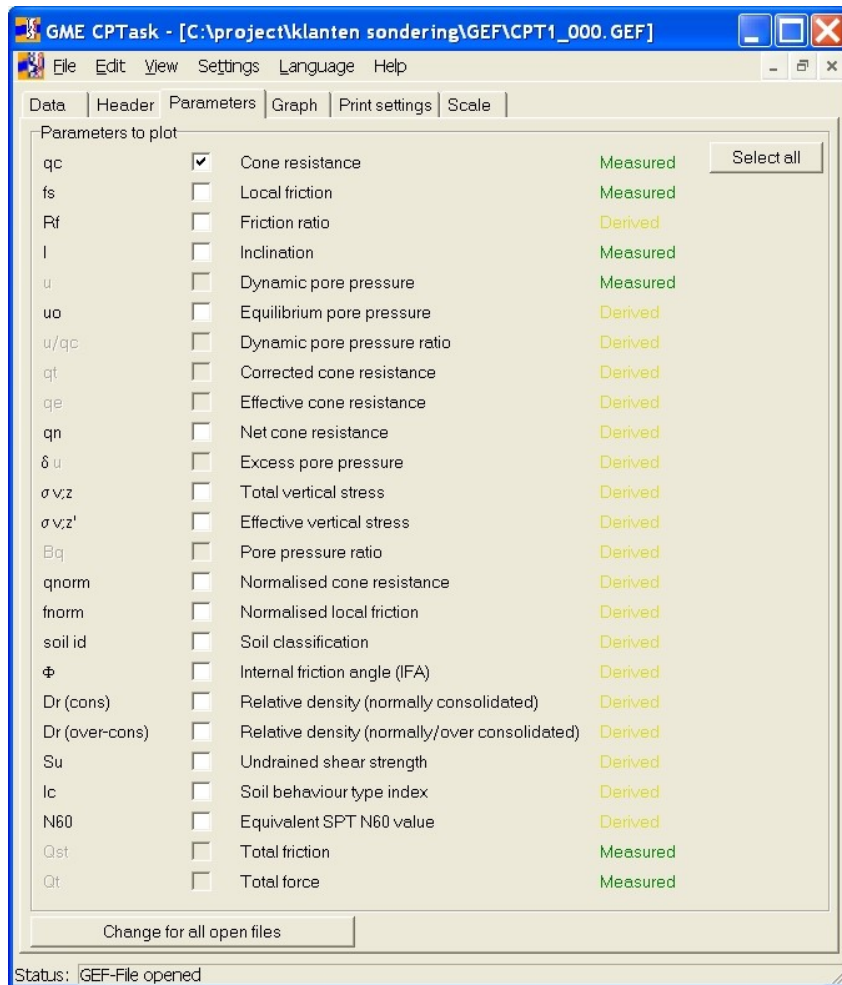
Own Coordinate system: Coordinate N-S: 0

Status: GEF-File opened

**Image 3: Build up the plot**



**Image 4: Choose signals to plot**



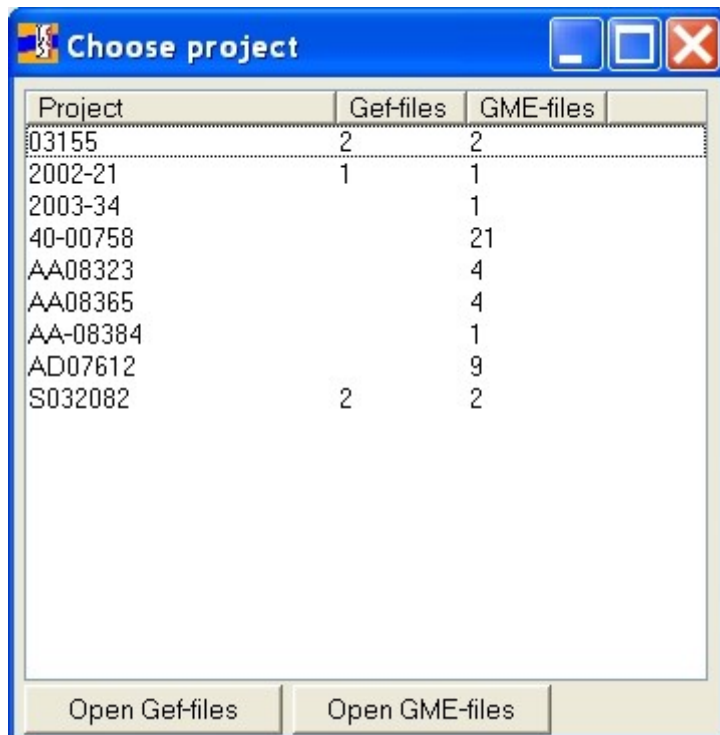
## Open project

To open a project click "File >> Open project".

CPTask automatically searches for all project present in the "project"-directory.

This process can take few seconds to a minute.

After all projects are found, the following screen is displayed.



In the first column the projectnumbers are displayed.  
In the second row the number of Gef-files in the project  
and in the third row the number of GME-files.

Select the desired projectnumber.

Now click on eather "Open Gef-files" to open all Gef-files of the project  
or "Open GME-files" to open all GME-files.

After clicking "Open Gef-files" op "Open GME-files" all files in the project are opened.

## Edit project

With “edit project” it is possible to edit headerdata and test variables of a project.

**Change for all files opened..**

Change general test data | Change test variables

Change header-info for all open files:

Client name: E A NEWCASTLE Change

Job number: 40-00758 Change

Cone number: S15-CFIP.023 Change

Location: SOUTH STOCKTON LINK PHASE II Change

Operator: Change

Reference level: NAP Change

Own Reference level: Change

Coordinate system: Change

Own Coordinate system: Change

Dropdown menu for Reference level: NAP, Own reference level, Low Low Water Spring, Ostend Level, TAW, Normal Null

**Change for all files opened..**

Change general test data | Change test variables

Change test variables

Pre drill | Water level | Ground level | Coordinate N-S | Coordinate E-W

40-00758, 01	-5
40-00758, 02	-4.6

Change

## Equations

Depending of the “Measured parameters” the following equations are used to calculate new signals.

qc	MPa	Cone resistance	Measured parameter
fs	MPa	Local friction	Measured parameter
Rf	%	Friction ratio	$fs / qc * 100\%$
I	°	Inclination	Measured parameter
$U_{(1,2,3)}$	MPa	Dynamic pore pressure	Measured parameter
u <sub>0</sub>	MPa	Equilibrium pore pressure	$p_{water} * (\text{depth-waterlevel})$
u / qc	-	Dynamic pore pressure ratio	$u_2 / qc$
qt	MPa	Corrected cone resistance	$qc + (1-\alpha_s) * u_2$ $\alpha_s \approx 0.81$
Δu	MPa	Excess pore pressure	$u_2 - u_0$
qe	MPa	Effective cone resistance	$qc - u_2$
σ <sub>v</sub> ;z	kPa	Total vertical stress	$\sum \gamma_{dry} + \sum \gamma_{wet}$
σ <sub>v</sub> ;z'	kPa	Effective vertical stress	$\sigma_{v;z} - u_0$
qn	kPa	Net cone resistance	$qt - \sigma_{v;z}$
Bq	-	Pore pressure ratio	$\Delta u / qn$
qnorm	-	Normalised cone resistance	$qn / \sigma_{v;z}'$
fnorm	%	Normalised local friction	$fs / qn * 100\%$
SOIL ID	-	Soil classification	classification according to Robertson (1990)
Dr	%	Relative density	$1/C2 * \ln(qc/(C0*\sigma_{v;z}')^{C1})$ Consolidated: C0≈157, C1≈0.55, C2≈2.41 Over-consolidated: C0≈181, C1≈0.55, C2≈2.61
Φ	°	Internal friction angle	$ARCTAN(a + b * \ln(qc/\sigma_{v;z}'))$ $a \approx 0.105, b \approx 0.16$
Su	kPa	Undrained shear strength	$(qc - \sigma_{v;z}) / Nk$ $Nk(\min) \approx 12, Nk(\max) \approx 20$
Ic		Soil behaviour type index	$\sqrt{(a - \log qnorm) + (\log fnorm + b)}$ $a \approx 3.47, b \approx 1.22$
N60		Equivalent SPT N60 value	$(qc/pa) / (8.5 * (1 - Ic/4.6))$ $pa \approx 100$
Qst	kN	Total friction	Measured parameter
Qt	kN	Total force	Measured parameter

## Factors

Factors are value's that are uses in the calculations (equations) in CPTask.

These value's can be edited in “Settings >> Settings / Factors >> Factors”.

(Image 1)



Image 1: All factors

**Cone value's**

Alpha tip

Friction Ratio -> Gamma dry (kN/m3)	Friction Ratio -> Gamma saturated (kN/m3)
0 - 0.6 % <input type="text" value="19"/>	0 - 0.6 % <input type="text" value="21"/>
0.6 - 0.8 % <input type="text" value="18"/>	0.6 - 0.8 % <input type="text" value="20"/>
0.8 - 1.1 % <input type="text" value="17"/>	0.8 - 1.1 % <input type="text" value="20"/>
1.1 - 1.4 % <input type="text" value="16.5"/>	1.1 - 1.4 % <input type="text" value="20"/>
1.4 - 2.0 % <input type="text" value="18.5"/>	1.4 - 2.0 % <input type="text" value="20"/>
2.0 - 3.0 % <input type="text" value="18"/>	2.0 - 3.0 % <input type="text" value="19"/>
3.0 - 4.0 % <input type="text" value="16"/>	3.0 - 4.0 % <input type="text" value="20"/>
4.0 - 5.0 % <input type="text" value="14"/>	4.0 - 5.0 % <input type="text" value="14.5"/>
5.0 - 10.0 % <input type="text" value="13"/>	5.0 - 10.0 % <input type="text" value="13"/>
> 10.0 % <input type="text" value="11"/>	> 10.0 % <input type="text" value="11"/>

**Dr values according to:**  $Dr = 1/C2 * LN(qc / (C0*rov;z^{C1}))$

Consolidated	Over-consolidated
C0 <input type="text" value="157"/>	C0 <input type="text" value="181"/>
C1 <input type="text" value="0.55"/>	C1 <input type="text" value="0.55"/>
C2 <input type="text" value="2.41"/>	C2 <input type="text" value="2.61"/>

**Su values according to:**  $Su = (qc - rov;z)/Nk$

Nk(min)

Nk(max)

**Phi values according to:**  $\Phi = ARCTAN(a + b * LN(qc/rov;z))$

a

b

**lc values according to:**  $lc = sqrt((a - log Qnorm)^2 + (log Fnorm + b)^2)$

a

b

**SPT N60 Ref. Stress (kPa):**

pa

### Filtering

By default a CPT is filtered when opening the file.  
This can be set in "Settings >> Settings / Factors >> Settings".

It is also possible to filter (more) after opening the CPT.  
The filter window is opened by clicking "Edit >> Filter". (Image 1)

The filter method implemented in CPTask is very simple.  
It searches for big peaks in the graph and takes the average between the value's just before and just after the peak.

To filter out big (more than one sample) peaks this filter has to be executed a few times.  
So the filterfactor is the number of times the sample filter is executed.

With "Reset initial value's" the value's from the CPT file are loaded again.

**Image 1: the filter window**

