Software "SDMTElab" and "DMT Settlements"

"DMT Settlements" program downloadable:
www.marchetti-dmt.it/software/indexUpdate.htm
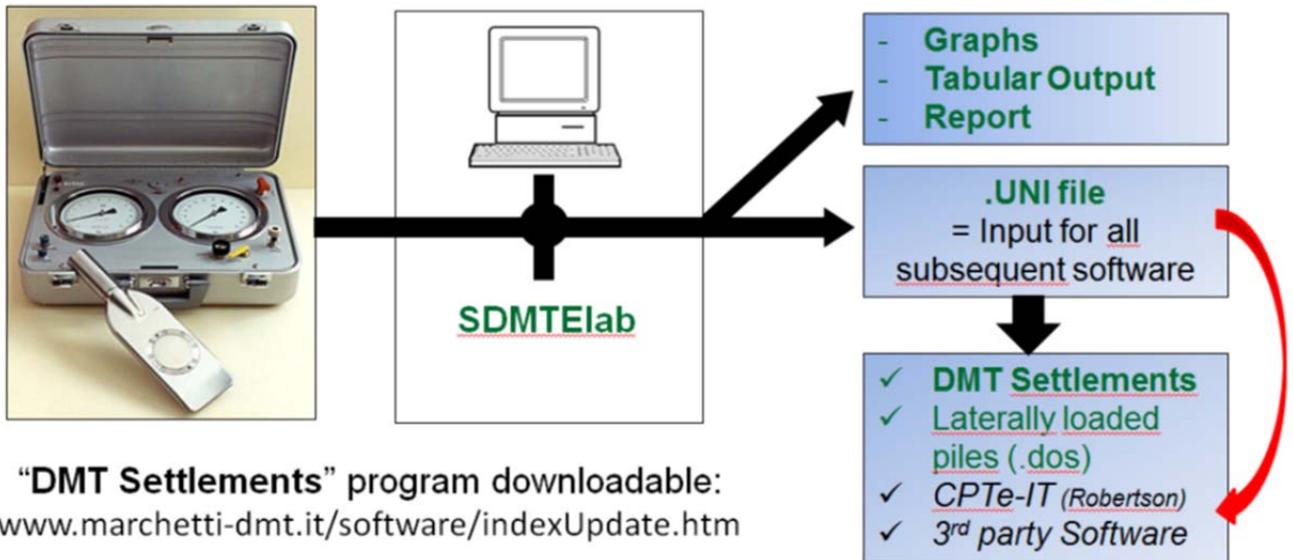
Settlements Calculation using "DMT Settlements", with file .UNI

Once the field data have been input in "**SDMTElab**", supplied with the original DMT equipment (Marchetti), one of the selectable output option is the generation of the "**UNI file**" (extension .uni).

To generate a .UNI file, click on button labeled "Export" and then select the option "Create .UNI file" and save the file generated (Fig. 1).

A .UNI file is a txt file ,which does not contain all the information obtained by the elaboration, but only the data needed as an input for subsequent calculations.

An example of the structure of the .Uni file is given in Fig. 2.

The **DMT Settlements software** computes the one-dimensional conventional settlements calculation below uniformly loaded surface areas of flexible loads.
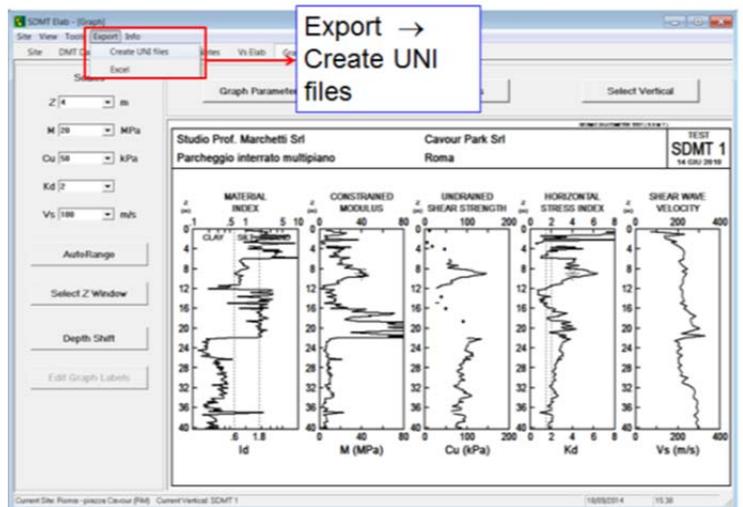

Fig. 1. How to generate a UNI file

Fig. 2. Example of the structure of the UNI file

The DMT Settlements software is designed to import from UNI files the constrained modulus of the soil and the vertical effective stress from a DMT test.

To perform a settlements calculation, the following input must be given:

1. **Loaded Area**: defines the load in terms of weight and geometry. Currently only one isolated load area may be set (Fig. 3), in future versions of this software also a multiple loaded area will be available.

2. **Soil Parameters**: define the soil in terms of modulus and vertical effective stress (Fig. 4).

3. **Calculation Options**: define specific parameters and criteria used in the calculation.

Vertical stress increments are evaluated according to the Boussinesq theory of elasticity for homogeneous elastic half space. Formulae and tables are taken from the Poulos & Davis textbook: *Elastic Solutions for Soil Mechanics (1974)*. The **Report** button on the tab submenu displays the Word document page of Fig. 5. There are three sections composing the report:

*Summary page w*ith input and main results: is a one page summary of the input data (load area, soil parameters and calculation options) and of the main results (total settlement below each calculation point).

Graphs: is a section containing the graphs described in section *Graphs Page* of this manual. The word report will contain a graph for each calculation point item that is checked in the frame. Two graphs fit in each page.

Tables: is a section containing the settlement calculation results described in section *Tables Page* of this manual. The word report will contain a table for each calculation point item that is checked in the frame.
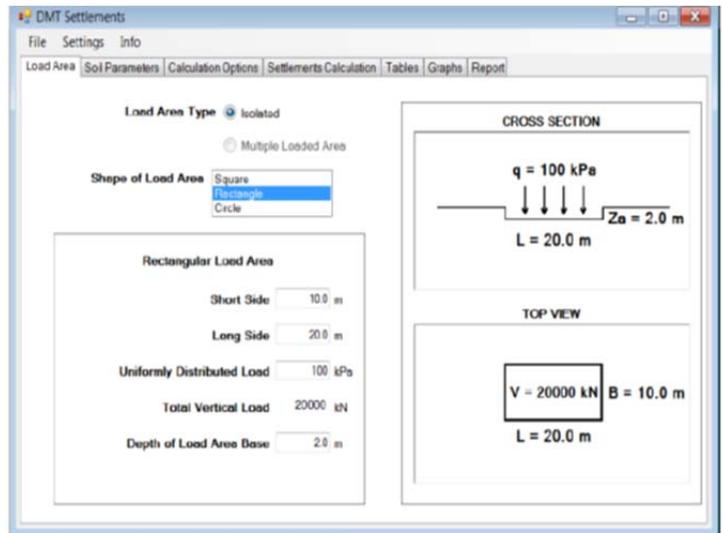

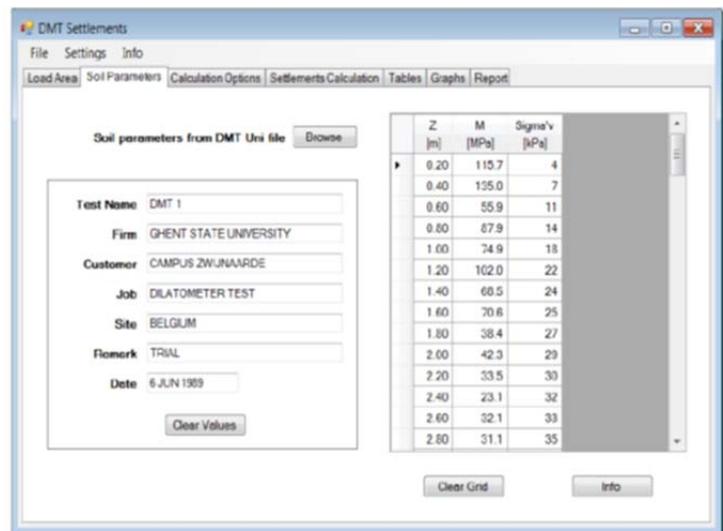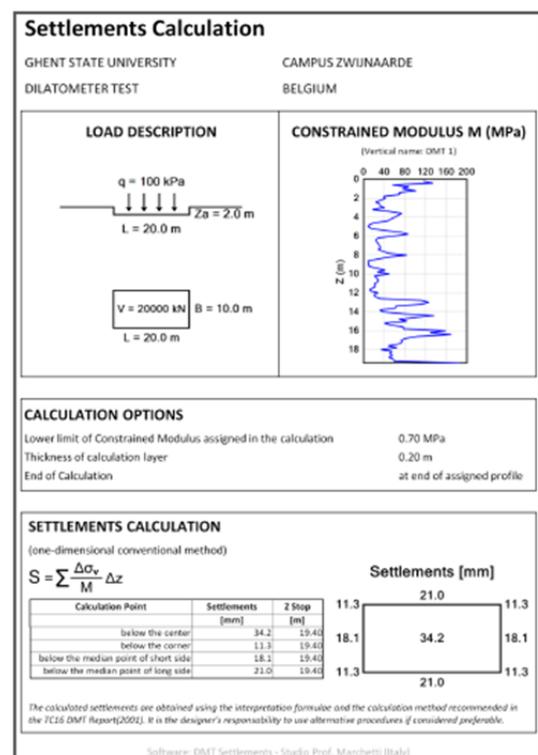**Fig. 3**. Assign Load and Area ("DMT Settlements")

Fig. 4. Assign Soil Parameters ("DMT Settlements")

Fig. 5. Example of summary page