**TSE – Security Training**
**16.01.2016**
**Altdorf b. Nürnberg**

# New Features in TSE-Update

- Launch of website https://www.itegsoftware.com
  - Latest TSE version available for download
  - Download of instructions, examples, etc.
  - Will be extended in the future

- Change of the filebased TSE project management
  - Migration of existing projects is required only once
  - A project is saved as a *.TSEp file (as e.g. MS Word). It can be saved at any place in the system/network
  - Open your files by a double click

- TSE calculation
  - Wind speed can be adjusted

- SIA calculation
  - New index tab with live calculation
  - More calculation fields

- TSE report
  - Optimised layout to provide a better overview
  - Optional: insert a personal header
  - Optional: insert comments in the footer
  - Available in German, English, Italian
  - Possibility to copy to the clipboard
  - Possibility to hide a sensor type

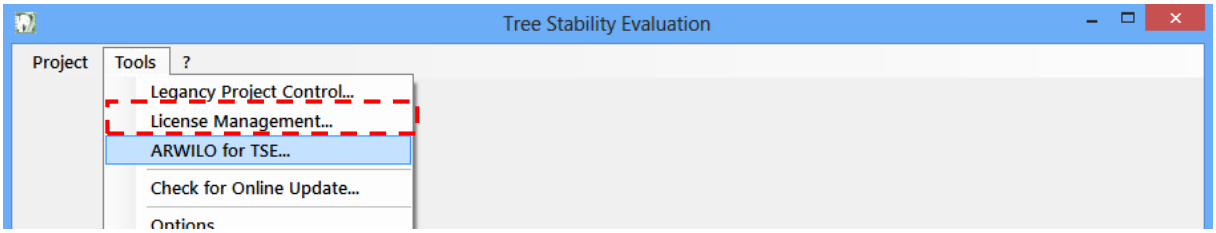
- TSE statistics online transfer
  - Mark TSE projects for ITEG online transfer of anonymised sensor data
  - Currently in the test phase and inactive!

- General improvements /corrections
  - Rinntech Arwilo can be started in TSE
  - and much more!

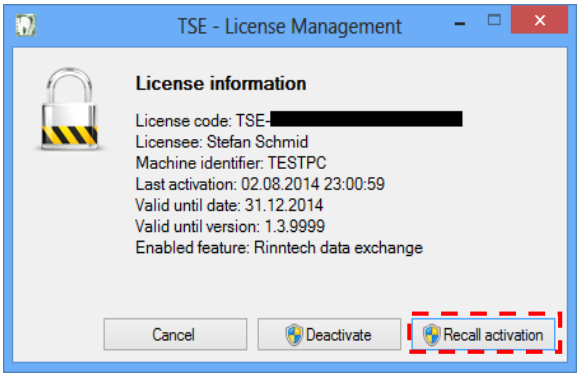
# I. License Information

After the prolongation of your ITEG TSE license, there is an additional online activation required, once per workstation:

Please start TSE and the license management at the menue point „Tools" – „License Management…"




By clicking „Recall activation" you recall your current license information online and update it in your TSE installation.

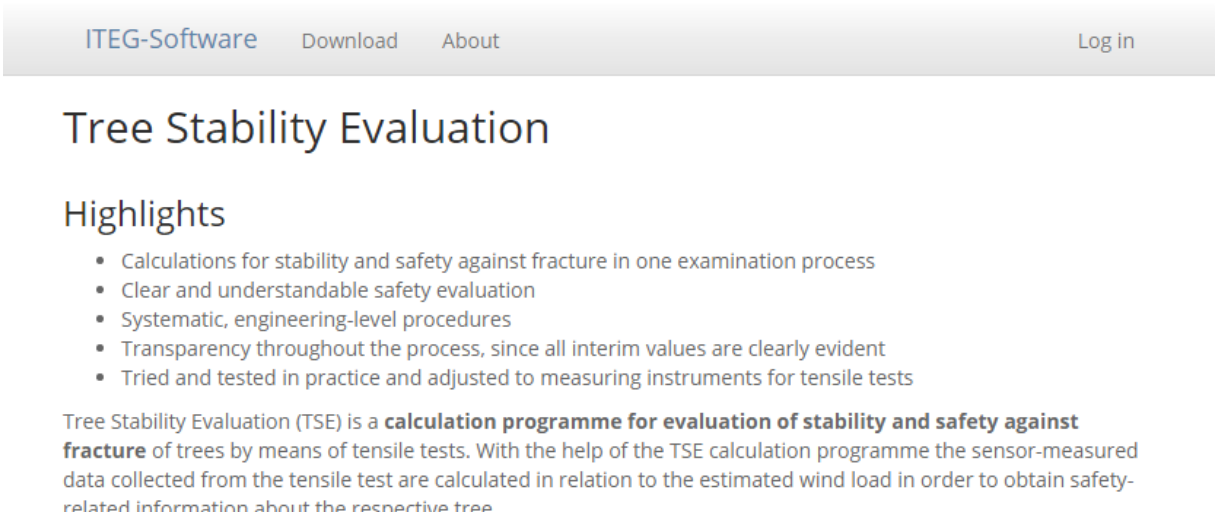



# II. ITEG Software Online

The new website https://www.itegsoftware.com provides you the latest information on TSE. This will be expanded, so just have a look from time to time on the website to check the news.

Currently, you have the following services available:

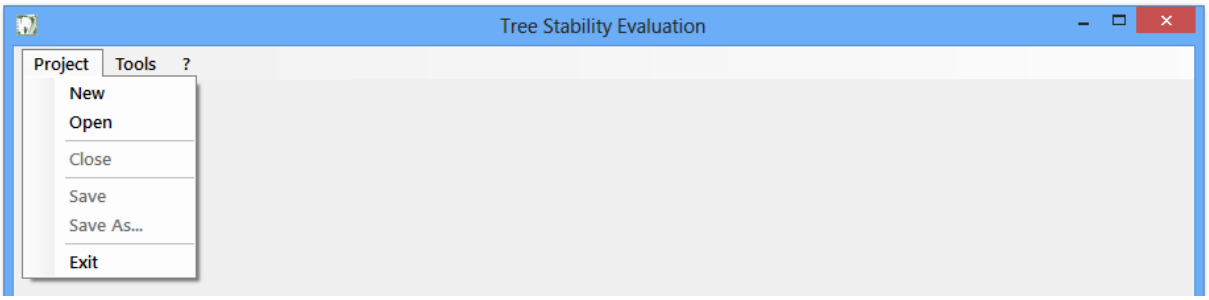
- Download of the latest TSE version
- Download of instructions, examples etc.
- License activation service of TSE



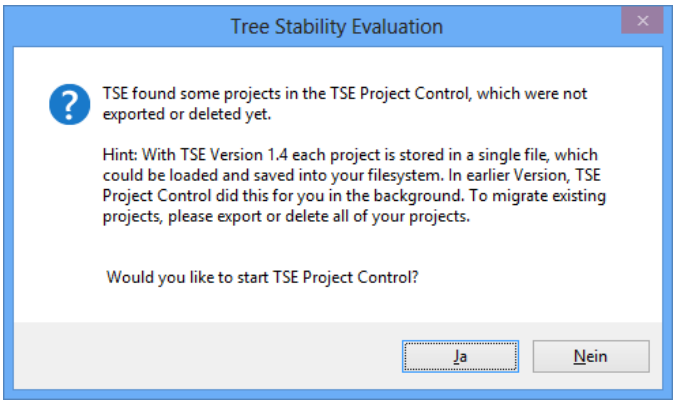

## III. Databased TSE Project Management

From TSE version 1.4.x project management was separated from the central TSE project control. This means for you as a user, that a project can be saved as a e.g. MS Word document in a *.TSEp file in the Windows file system and that you can open it in the Windows Explorer. This improvement is based on the feedback of the TSE users, who were looking for more flexibility in the project management (copy, transfer etc.).

That's why TSE does not start the TSE project control first, but the window below. There, you can select between „New", „Open", „Save" etc. your TSE projects.

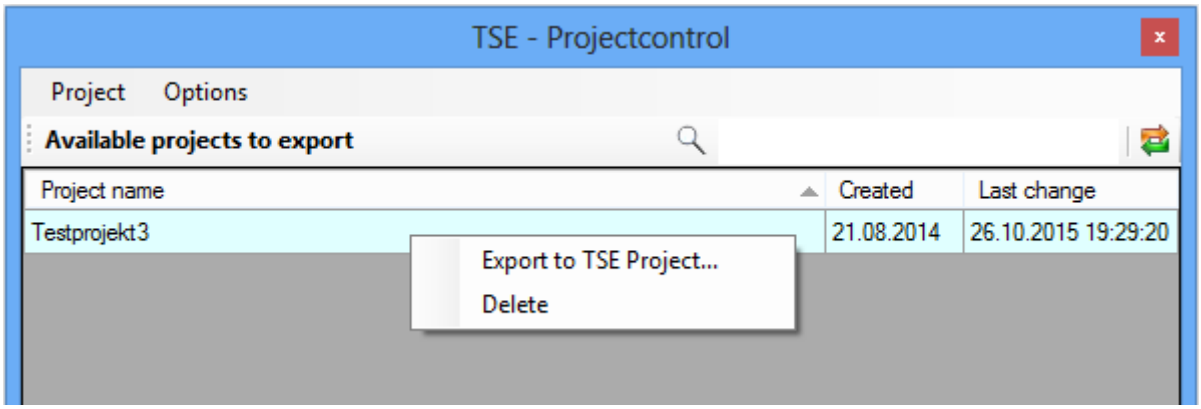


If you have saved projects in the TSE project control of older TSE versions, you will receive the following note after an update on the latest version.




Please start the export of all existing projects by a click on „Ja“ / „Yes“. This note appears when you start TSE, until all projects have been exported or have been deleted from TSE project control.

In this window, single projects can be exported or deleted by a right-click on the respective line or on the menu point „Project“.

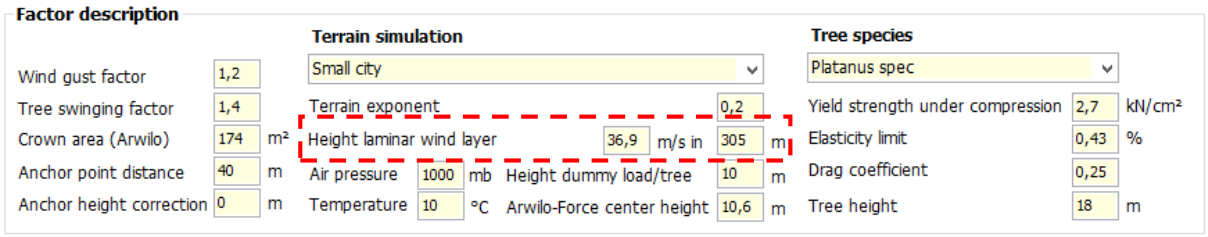



Please note: When you export a project to a new file path, please note the place where you save it, so that you can find the project in your filesystem again. Choose the file name you want. After a successful export or after deletion, the project disappears from the project control list. As soon as the list is empty, you will no longer receive any notes when you start TSE.

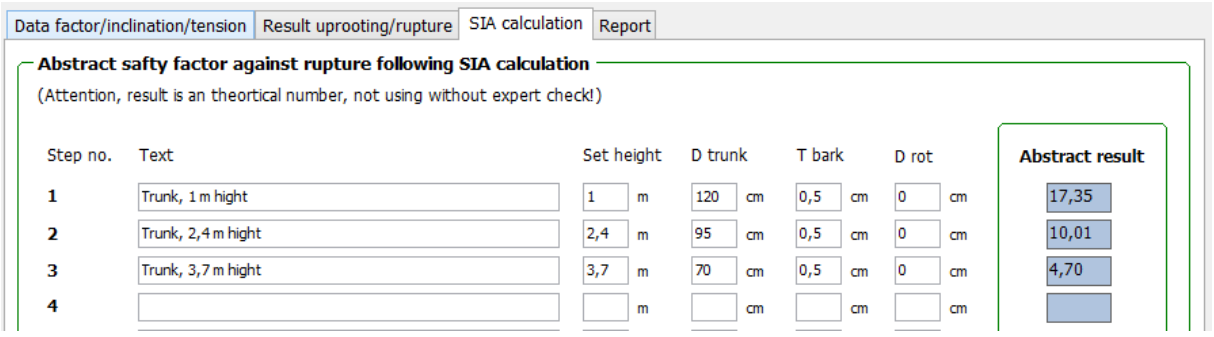
If you want to open an exported TSE project file, you can either use the TSE menu point or you double click on the file in the Windows Explorer.


## IV. Expanded TSE Calculation Facilities

At the factor description list, wind speed can now be adjusted individually and be adapted according to specific local circumstances.

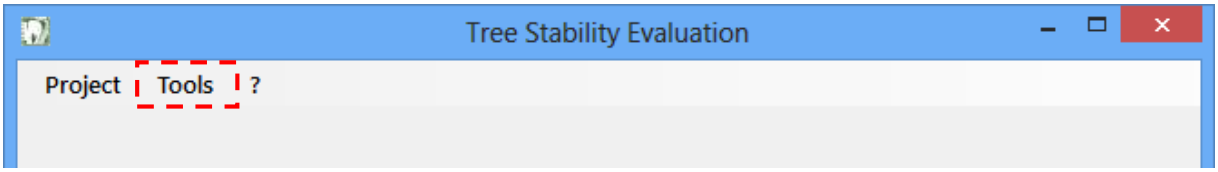



Additionally, there is a new index tab for SIA calculation. This was changed to underline a clear separation between different calculation methods. As soon as you have filled in all data in „Factor description", you can calculate the theoretical breaking security according to the optimised SIA method.



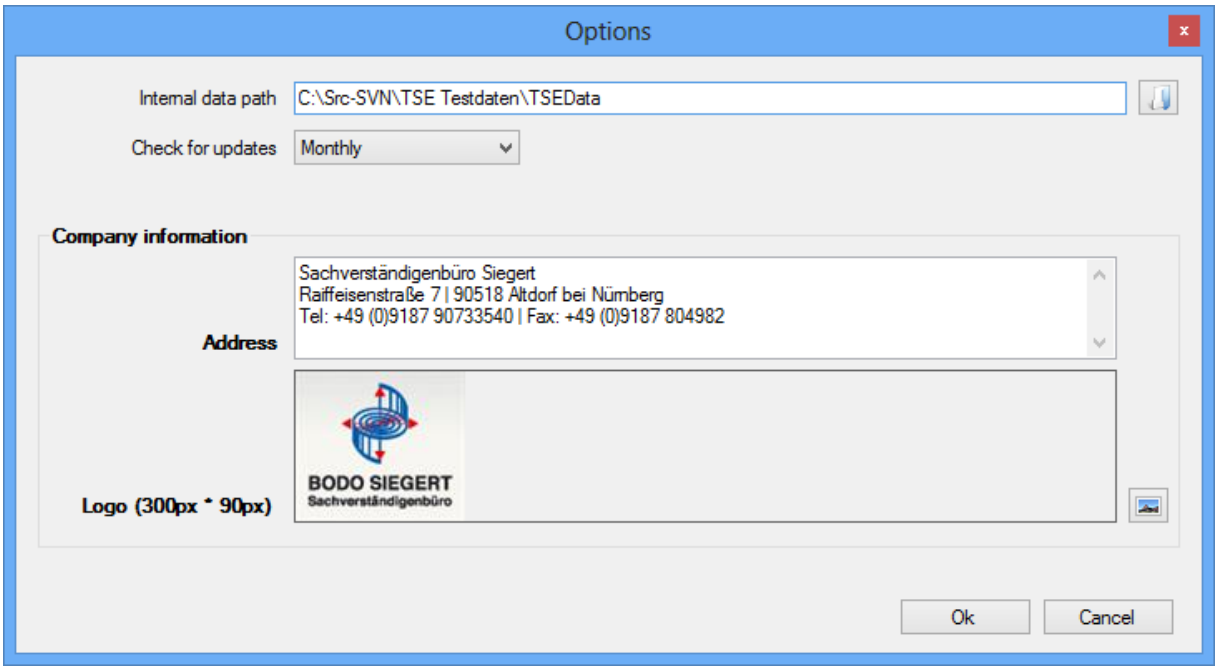
## V. New Report Options

In the new TSE release, you can insert a personal header into the TSE report. Just start TSE and then go to the menue point „Tools" – „Options…" and start the option dialogue.

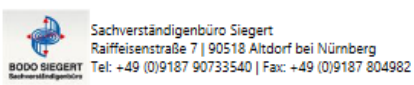



In the following window, you can set the option „Company information address/logo". This information is saved per individual workstation.

To insert your personal data, please insert your company address (4 lines at maximum) Additionally, you can insert your logo (recommended maximum file size: 300x90px). If you insert a logo with another size, it will be automatically adjusted, eventually with quality losses.

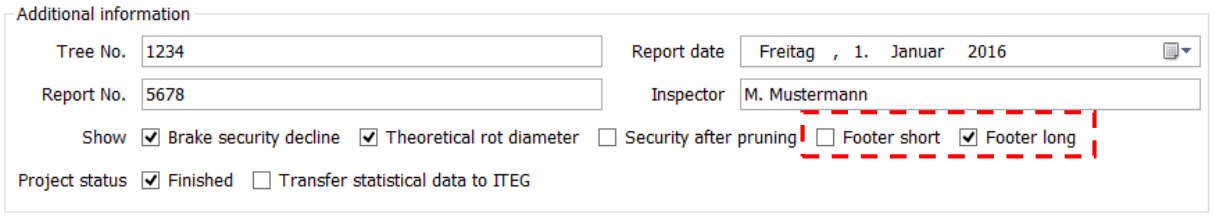



Based on the example data above, a personal header could look, for example, like the header below.





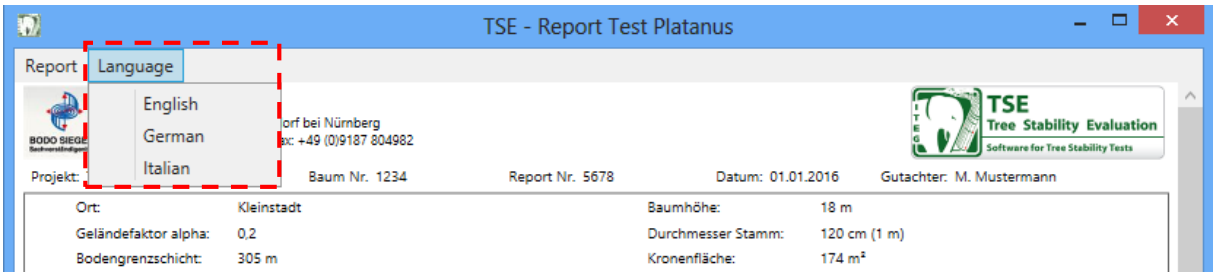
There are also two new text notes in the report footer. You can select them optionally in the menue „Report".



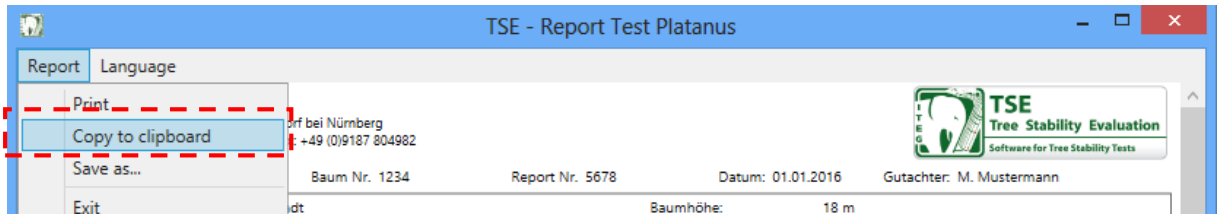

Optional text „Footer short“:
***Note:*** *All sensor data, measurement and calculation results have been checked for plausibility by the author of this expert paper. According to Wessolly, a safety factor of at least 150 % should be achieved.*

Optional text „Footer long“:
***Note:*** *All sensor data, measurement and calculation results must be mandatory checked for plausibility by tree security experts. Verification of results by using independent measuring systems is advised ("ITA Integrative Tree Assessment"). According to Wessolly, a safety factor of min. 150 % should be achieved.*
***Safety against uprooting:*** *The generalised tilting curve by Wessolly was reviewed by the author in own tests (see www.iteg-network.com - Bodo Siegert, 2013: Comparative Analysis of Tools and Methods for the Evaluation of Tree Stability). The detected deviation of approximately 10% (at 40% tilding load) is acceptable when analysing natural structures. Best load test results are achieved at a tilding angle of approx. 0.25°, as long as the anchor points have sufficient strength.*
***Safety against fracture:*** *The author could not fully confirm the Stuttgarter Festigkeitskatalog for tree stability tests. From a professional point of view, results should be treated critically. Results of the SIA calculations and results of structural strength through outer fiber strains have to be mandatory checked for plausibility by other measurement systems, for example drilling resistance measurement with RESISTOGRAPH®.*

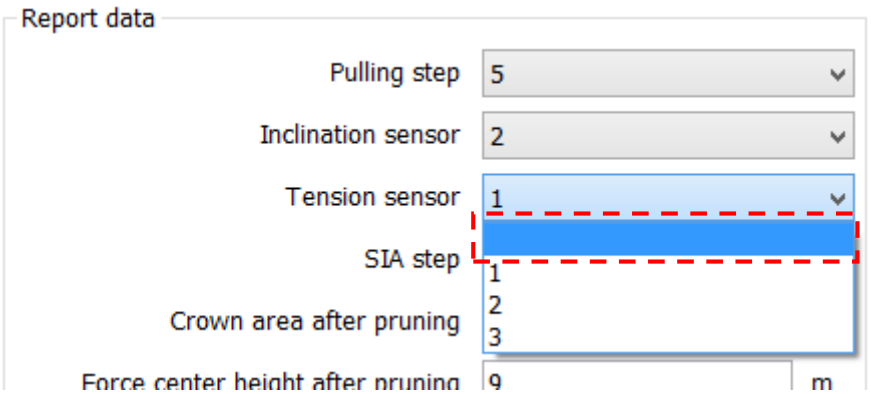
After the generation of the report, you can select German, English and Italian as report language.




If you want to copy the report to another document, there is a new function available to copy the report to the clipboard.




In certain cases, if you do not want to show specific sensor data, please select the new space in the respective sensor zone.



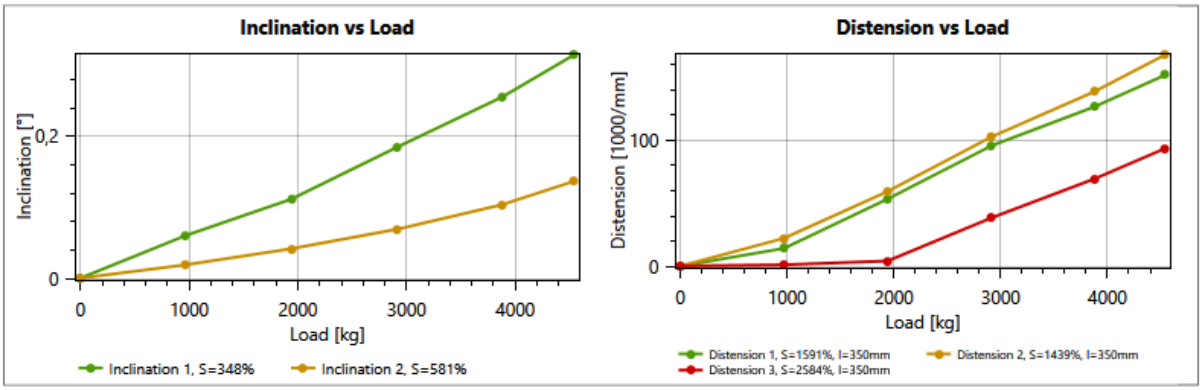
Example for the new report layout including header and long version of footer text.

Sachverständigenbüro Siegert
Raiffeisenstraße 7 | 90518 Altdorf bei Nürnberg
Tel: +49 (0)9187 90733540 | Fax: +49 (0)9187 804982

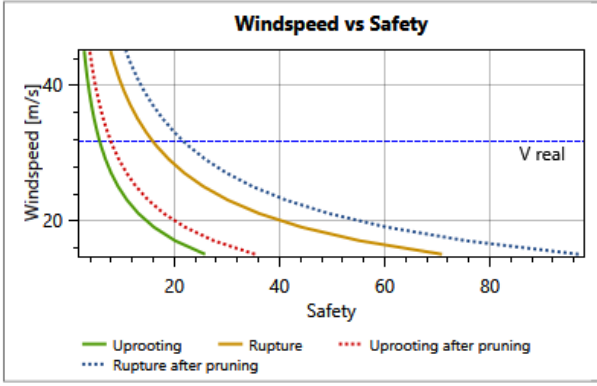
Project: Test Platanus | Tree No. 1234 | Report No. 5678 | Date: 01.01.2016 | Inspector: M. Mustermann

| | | | |
|---|---|---|---|
| Location: | Small city | Tree height: | 18 m |
| Terrain exponent: | 0,2 | Diameter trunk: | 120 cm (0,5 cm bark, 1 m) |
| Height laminar wind layer: | 305 m | Crown area: | 174 m² |
| Species: | Platanus spec | Windspeed force center: | 31,66 m/s |
| Yield strength u. comp.: | 2,7 kN/cm² | Wind gust factor: | 1,2 |
| Elasticity limit: | 0,43 % | Tree swinging factor: | 1,4 |
| Drag coefficient: | 0,25 | Air pressure: | 1000 mb |
| Force center height: | 10,6 m | Air temperature: | 10 °C |
| Height dummy load/tree: | 10 m | Air density: | 1,23 kg/m³ |
| Anchor point distance: | 40 m | Bending moment: | 278,95 kNm |
| Anchor height correction: | 0 m | Crown area a. pruning: | 150 m² |
| | | Force center a. pruning: | 9 m |

**Measure**




**Result**




At force center height the supposed "effective" windspeed is Bft. **11 (31,66 m/s)** .

The theoretical basic security for a solid woody cross section is **1735 %**.

The measured safety against uprooting at load step 5 (4,54 t) is **581 %**.

The safety against fracture for sensor 1 is **1591 %**.

The difference between measured safety against fracture and theoretical basic security is **144 %**. Warning, this comparison is only permissible within the same rated level!

The calculated theoretical rot diameter is **68,44 cm**.

**Summary**

Just an example!

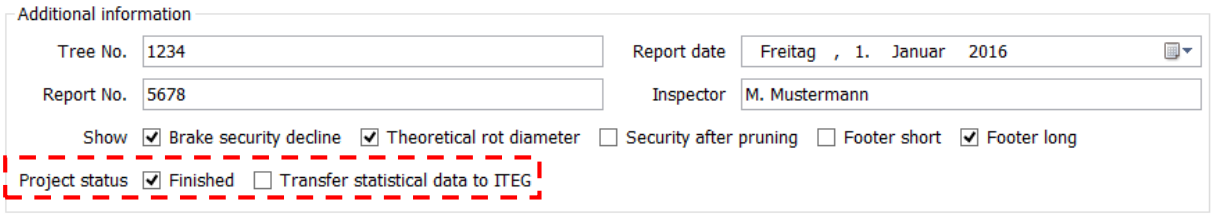
M. Mustermann | Location, date

**Hint:**
All sensor data, measurement and calculation results must be mandatory checked for plausibility by tree security experts. Verification of results by using independent measuring systems is advised ("ITA Integrative Tree Assessment"). According to Wessolly, a safety factor of min. 150 % should be achieved.
**Safety factor against uprooting:**
The generalised tilting curve by Wessolly was reviewed by the author in own tests (http://www.iteg-network.com/cke/news - Bodo Siegert, ISA Arborist News, April 2013: Comparative Analysis of Tools and Methods for the Evaluation of Tree Stability). The detected deviation of approximately 10% (at 40% tilting load) is acceptable when analysing natural structures. Best load test results are achieved at a tilting angle of approx. 0.25°, as long as the anchor points have sufficient strength.
**Safety factor against rupture:**
The author could not fully confirm the Stuttgarter Festigkeitskatalog for tree stability tests. From a professional point of view, results should be treated critically. Results of the SIA calculations and results of structural strength through outer fiber strains have to be mandatory checked for plausibility by other measurement systems, for example drilling resistance measurement with RESISTOGRAPH®.

## VI. TSE Statics Online Transfer

In the new TSE release, we have implemented a new, voluntary transfer option of anonymised TSE projects statics data, to further improve the TSE stability calculation. Currently, TSE projects can only be marked for online transfer, however, the online transfer is still inactive. The active transfer will be implemented in a future TSE version.

If you want to support ITEG with your anonymised measurement data, you select in the menu „Report" the following checkboxes:




If you place a check mark in the box „Finished" you mark that the project work is finished. This mark is for you and your personal project status documentation. Moreover, it will be compulsory for the future transfer of projects to minimise data transfer of incomplete projects.

If you agree with the transfer of statics data of a certain project, please place a 2nd check mark in the box „Transfer statistical data to ITEG".

The online transfer is encrypted and no specific project data are transfered (e.g. project name, name of the tree expert etc.). You will receive a specific list on data transfered when his function will be completely implemented.

## VII. • General Improvements / Corrections

If you have installed the „Rinntech Arwilo for TSE" software on your PC, you can now start it in TSE: