

## Equipment / Software:

CPTask version 1.xx

### Problem:

1. When I manually check the calculation of the friction ratio (*Rf*), the outcome is different from what CPTask shows and/or exports.
2. I want to know how the data is filtered in CPTask.

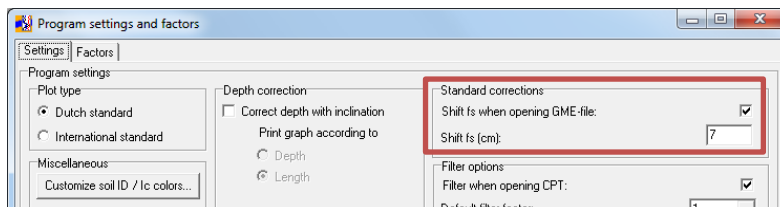
### Possible solution:

1. This is probably because you run a manual check with one data sample only (hence, one *qc* and one *fs* reading).

The CPTask software runs a different calculation routine to obtain the friction ratio:

- Every *fs* reading is considered an average for the total length of the friction sleeve.
- In order to obtain the *Rf* the *qc* readings are also averaged over the length of the sleeve. CPTask does this by taking the average of *n* readings before the current *qc* reading, the current *qc* reading, and *n* readings after the current *qc* reading, where:
 
$$n = < \text{distance between cone tip and centre of friction sleeve (in cm)} - 1 >$$
- The distance between cone tip and centre of the friction sleeve is stored in the GEF-file under measurement variable no. 5. This is typically 8 cm for 10 cm<sup>2</sup> cones and 10 cm for 15 cm<sup>2</sup> cones.

Should you import raw data files (\*.0EF + \*.1EF) rather than GEF-files (\*.GEF), the factor *n* is based on the setting in CPTask that indicates the offset of the centre of the friction sleeve to the cone tip. It should also be noted that unlike GEF-files, the raw data file has not yet been corrected for this offset.



2. The CPTask software allows the user to filter the CPT data for rod change affected readings or any other erratic readings.

The menu option <Settings> allows the user to select his own preferred filter settings:

- Automatic (when opening a CPT) or manual filtering.
- Parameters to be filtered.
- Number of times the filter routine is executed (1 to 10).

The filter routine works as follows:

- The software checks if the current sample (for the selected parameter or parameters) is smaller than the previous two samples and the following two samples.
- If this is the case, the software changes the current sample to an average of the former and the next sample.
- This routine is executed for all samples of the CPT, and repeated as many times as the user has selected.

