Installing Rosetta-v3beta

This is a document that provides instructions for the BETA version of the code described in Zhang and Schaap, 2017. This document is intended for users/developers familiar with the python programming language.

Step 0.

Step 1.

Uncompress Rosetta-3.0beta.tar.gz

(Unix: tar -zxvf Rosetta-3.0beta.tar.gz, on Mac-OSX or windows 7/8/10 there are uitilities available that will do this for you)

Step 2

Enter the folder Rosetta-3.0beta

(Unix: cd Rosetta-3.0beta)

This folder contains all the files needed to work with the code. If you know what you are doing: copy these to an appropriate place and stop here.

Using the code

The ANN_Module.py and DB_Module.py include all functionality and while these have some comments, you probably do not want to look at these first. I tried to hide all the messy stuff here in the hope no-one else needs to look & modify this.

The Rpredict.py contains an implementation example and you should get some output with

python Rpredict.py -i ./output/test_input_H2w.txt -o ./output/test_output_H2w.txt --predict --sqlite=./sqlite/Rosetta.sqlite

or

python Rpredict.py -i ./output/test_input_H3w.txt -o ./output/test_output_H3w.txt --predict --sqlite=./sqlite/Rosetta.sqlite

Please note that our code works for python 2.7. The directory “output” contains an exemplary input (in “test_input_H2w.txt” file) and the predicted output data (in “test_output_H2w.txt” file). Please find the run_Rosetta.sh file for detailed information. Please make sure that you are using the correct data input format and correct Rosetta model (please revise the the first input for 'PTF_MODEL' function at line 86 in Rpredict.py)

It is worthwhile to study this in a bit more detail, because I commented the file heavily in order to explain/document things. In short, three things must happen:

1. create the model
2. get the data (this is hard-wired in the file, but a DB query is included also, but commented out)
3. make an estimate (provides mean, stdev and more)

Available Models

Note that there are two sets of models: 2..5 and 102..105. The latter series are the OLD (Schaap et al., 2001) models. The models 2..5 are NEW and better (see Zhang and Schaap, 2017).

NOT included in the current beta version

the class textural averages. Some extra code must be written to make these work seamlessly with the old and new models estimation of unsaturated conductivity

Both are on the TODO list.

Please understand that this is NOT the final version (it is a beta version), and that there may be some bugs. However, I have checked the estimates and found these in good order. If you find any bugs or have feature requests (or need help), please let me know.

I did some (minimal) testing under windows/MacOSX and found that the code works without the need for changes. However, I cannot guarantee that the setup.py script will install the files in a sane place on theses OS's .....

References

Zhang, Y. and Schaap, M.G., 2017. Weighted recalibration of the Rosetta pedotransfer model with improved estimates of hydraulic parameter distributions and summary statistics (Rosetta3). Journal of Hydrology, 547, pp.39-53.
Schaap, M.G., Leij, F.J. and Van Genuchten, M.T., 2001. ROSETTA: a computer program for estimating soil hydraulic parameters with hierarchical pedotransfer functions. Journal of hydrology, 251(3), pp.163-176.