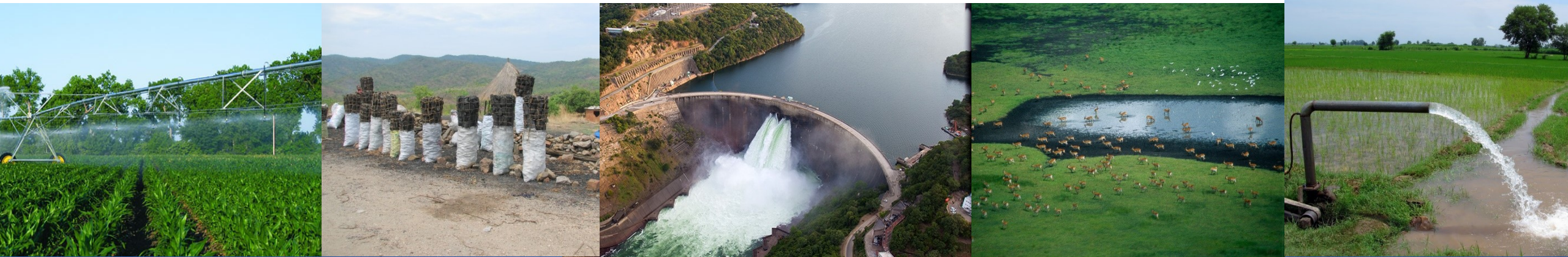


# Exercise 1: Hands on CWatM

**Peter Burek, Mikhail Smilovic**  
**International Institute for Applied Systems Analysis**  
Research Scholars at  
Water Program



# Hands on CWatM

1. Running CWatM for the first time
2. Run CWatM with a settings file
3. Test the options `-l` , `-t`
4. Take a look at the settings file

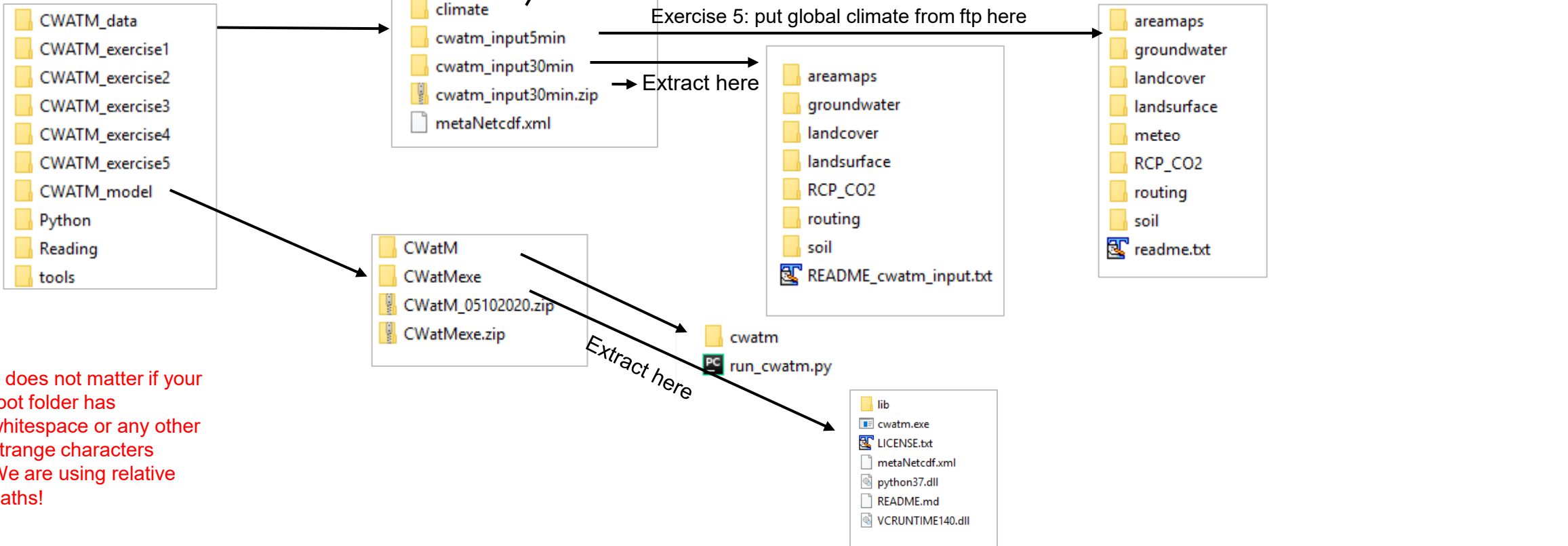


# Hands on CWatM

## 0. Folder structure

Your folder structure should like this:

Root folder:

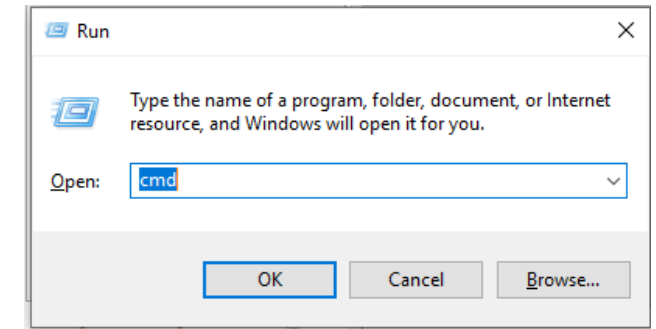


It does not matter if your root folder has whitespace or any other strange characters  
We are using relative paths!

# Hands on CWatM

## 0. Running batch files

- Go to folder CWATM\_exercise1
- Start: [01\\_exe\\_example.bat](#)  
or open a DOS command prompt
  - press [Windows+R](#)
  - type [cmd](#) + return
  - change directory: e.g.: [cd c:/CWATM/CWATM\\_exercise1](#)  
(or cd "c:/directory with white space/CWATM/CWATM\_exercise1")
- Type [..\CWATM\\_model\CWatMexec\cwatm.exe](#)



# Hands on CWatM

## 1. Running CWatM for the first time

- Go to folder CWATM\_exercise1
- Start: 01\_exe\_example.bat
- Or use the command line (slide before)

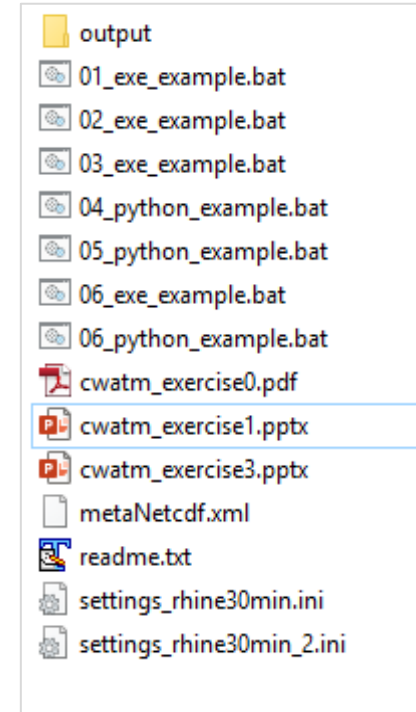
```
cd c:/CWATM/CWATM_exercise1
..\CWATM_model\CWatMexe\cwatm.exe
```

```
F:\CWATM_exercise2\rhine30min>..\CWatMexe\cwatmexe\cwatm.exe
CWatM - Community Water Model
Authors: WATER Program, IIASA
Version: Version: 1.04
Date: 06/08/2019
Status: Development

Arguments list:
settings.ini      settings file

-q --quiet        output progression given as .
-v --veryquiet    no output progression is given
-l --loud         output progression given as time step, date and discharge
-c --check        input maps and stack maps are checked, output for each input map BUT no model run
-h --noheader     .tss file have no header and start immediately with the time series
-t --printtime    the computation time for hydrological modules are printed
-w --warranty     copyright and warranty information
```

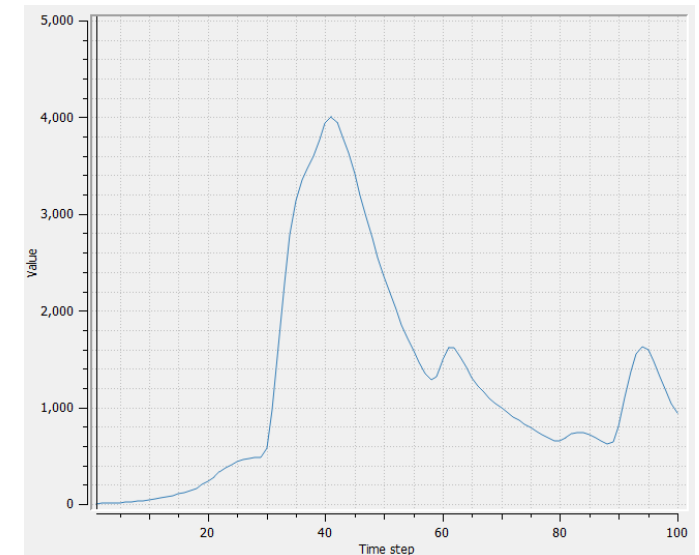
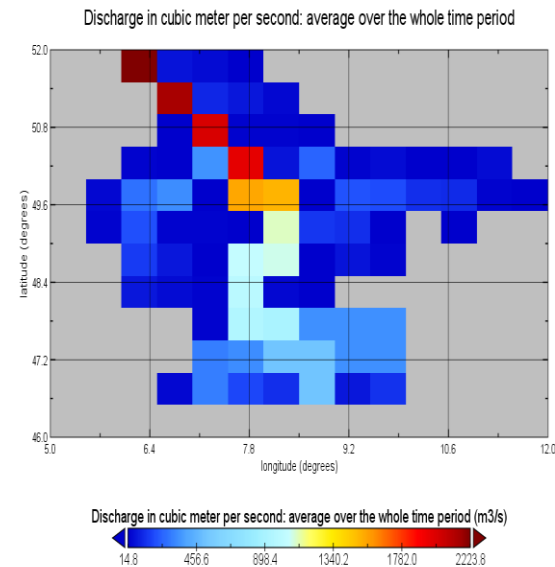
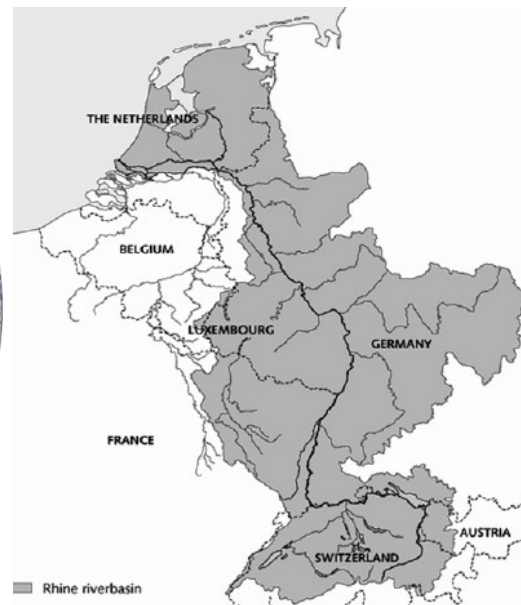
### CWAT\_exercise1



# Hands on CWatM

## 2. Run CWatM with a settings file

- Start 02\_exercise.bat  
`../CWATM_model/CWatMexe/cwatm.exe settings_rhine30min.ini -l`
- Use a text editor e.g. notepad, textpad, notepad++
- Look at ./output/discharge\_daily.tss

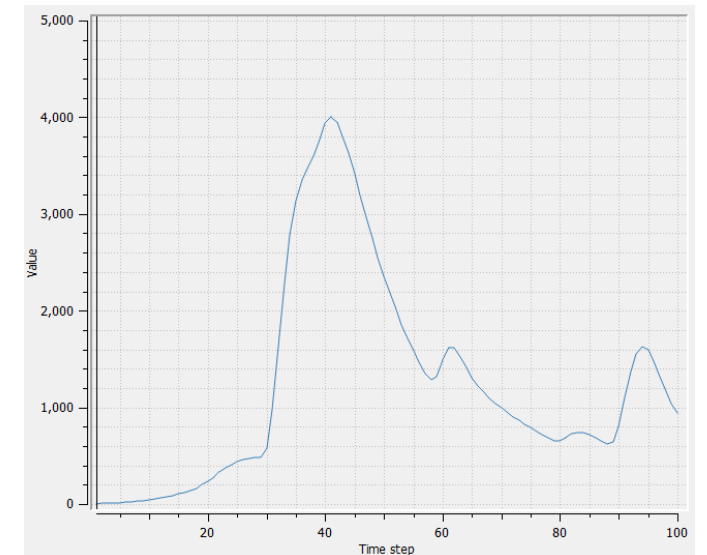
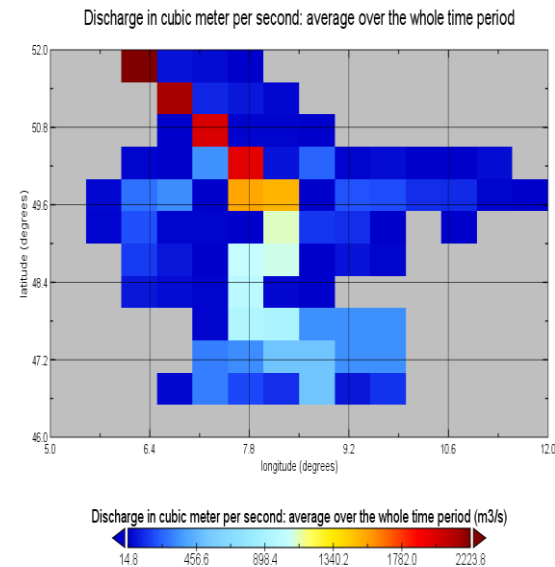
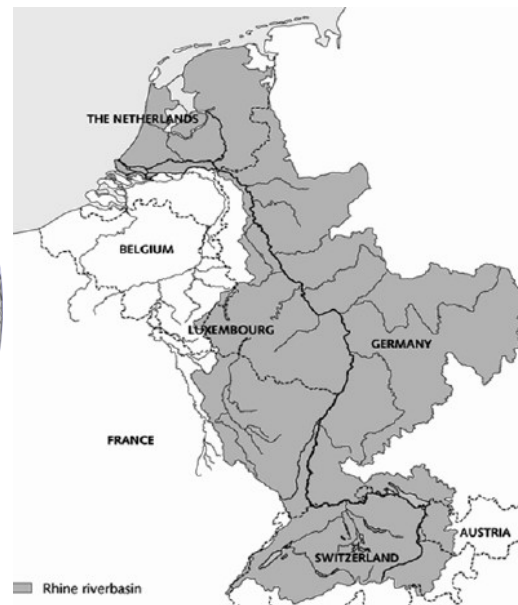




# Hands on CWatM

## 3. Run CWatM with a settings file

- Start 03\_exercise.bat  
`../CWATM_model/CWatMexe/cwatm.exe settings_rhine30min.ini -l -t`
- Use a text editor e.g. notepad, textpad, notepad++ to change 03\_exercise.bat

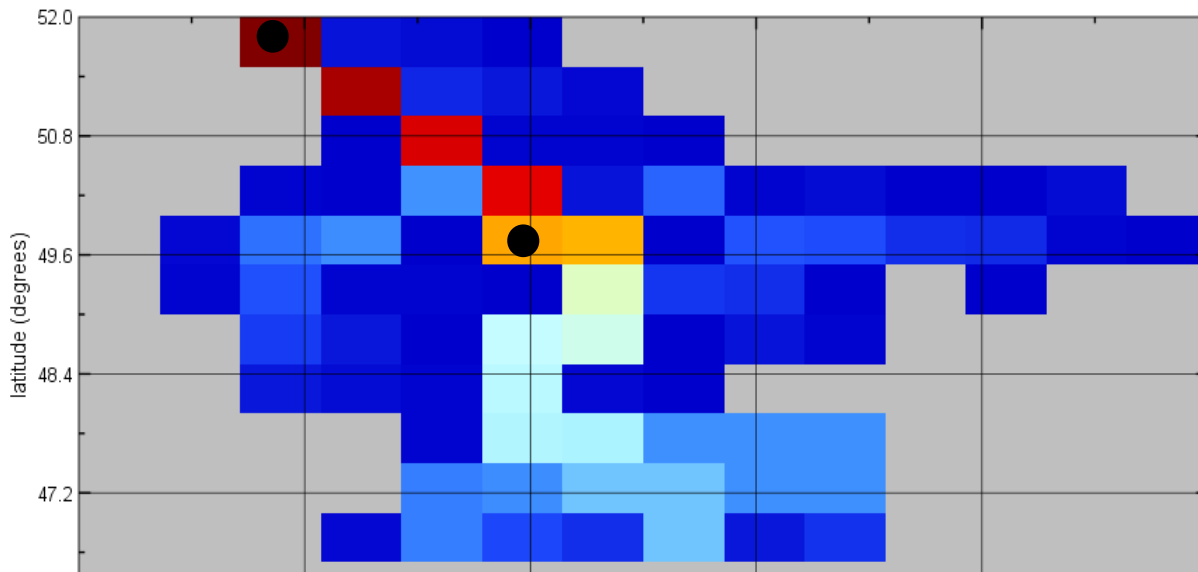


## Exercise 3: Hands on CWatM

### 4. Take a look at the settings file

- Change settings\_rhine30min.ini with a text editor
- Look for gauges in settings\_rhine30min.ini
- Change it to Gauges = 6.25 51.75 7.75 49.75
- Change StepEnd = 100
- Start 02\_exercise.bat

Discharge in cubic meter per second: average over the whole time period



```
*C:\work\CWATM\source\settings1.ini - Notepad++
File Edit Search View Encoding Language Settings Macro Run Plugins Window ?
settings1.ini
1 # -----
2
3 ##### ##      ## ### ##### ##      ##
4 ##      ##      ##      ##      ##      ##
5 ##      ##      ##      ##      ##      ##
6 ##      ##      ##      ##      ##      ##
7 ##      ##      ##      ##      ##      ##
8 ##      ##      ##      ##      ##      ##
9 ##### ##      ##      ##      ##      ##
10
11 # Community Water Model Version 0.99
12 # SETTINGS FILE
13 # -----
14 #
15 # OPTION - to switch on/off
16 # -----
17
18 [OPTIONS]
19 [NETCDF_ATTRIBUTES]
20 [BASICS]
21 PathRoot = C:\work
22
23 # -----
24 # AREA AND OUTLETS
25 # -----
26
27 [MASK_OUTLET]
28
29 # Area mask
30 # A pcraster map e.g. $(BASICS:PathRoot)\data\areamaps\area_indus.map
31 # or a rectangle: Number of Cols, Number of rows, cellsize, upper left corner X, upper left corner Y
32
33 MaskMap = $(BASICS:PathRoot)\data\areamaps\area3.map
34 # Indus
35 #MaskMap = 30 20 0.5 65 38
36 #MaskMap = $(BASICS:PathRoot)\data\areamaps\area_indus.map ; Cut out Indus only
37 # Rhine
38 #MaskMap = 30 20 0.5 3 54
39
40 # Station data
41 # either a map e.g. $(BASICS:PathRoot)\data\areamaps\area3.map
42 # or a location coordinates (X,Y) e.g. 5.75 52.25 9.25 49.75 )
43
44 #Gauges = $(BASICS:PathRoot)\data\areamaps\station8.map
45 # Rhine
46 Gauges = 5.75 52.25 9.25 49.75
47
48 # -----
49
50 [TIME-RELATED_CONSTANTS]
51 # -----
52
53 # StepStart and StepEnd either dates e.g. 01/06/1990
```



## 9. Homework

- Play around with the Rhine catchment

change the settings file: settings\_rhine30min.ini

- Run for different times
  - Produce different outputs
- What catchment are you interested?
  - Find out the coordinates (lat/lon) of the outlet point
  - Find out coordinates of gauges
  - Send me the coordinates for next lesson

# Problems

Most problems come from different file systems, folder structures

We try to set up everything with relative path.

1. Please make sure that your folders have a similar structure like in slide 3 in `cwatm_exercise1.ppt`

2. The settings file has a part:

[FILE\_PATHS]

PathRoot = ../cwatm\_data

PathOut = ./output

PathMaps = \$(PathRoot)/cwatm\_input30min

PathMeteo = \$(PathRoot)/climate/rhine

../

jumps back to the previous folder

./

uses the folder output in the same folder as the settings file or the directory you are in

3. If this is not working you can use also absolute path (also with white space)

PathRoot = C:/root directory/second.root/cwatm/cwatm\_data

4. If you execute `cwatm` you can also use absolute path

instead

`../CWATM_model/CWatMexe/cwatm.exe settings_rhine30min.ini -l`

`"C:/root directory/second.root/cwatm/CWATM_model/CWatMexe/cwatm.exe" settings_rhine30min.ini -l` (mind the " if there are white spaces)

5. Some other errors we address in:

<https://cwatm.iiasa.ac.at/tutorial.html#test-the-python-model-version>