

Protocol

Meeting Bachelor Thesis, FS 2024

Protocol-No.:	02	Project name:	Bachelor Thesis
Meeting type:	Discussion	Location:	GIUB, Bern
Date / Time:	11.03.2024 / 11:15		
Topic / Goals:	Discussion on the first steps: Data Download and Proposal		
Lead:	Benjamin Stocker	Logger:	Patricia Gribi

Participants		E-mail	Pre-sent	Ex-cused	Distri-bution
Prof. Benjamin Stocker	GECO-Group	benjamin.stocker@unibe.ch	x		
Patricia Gribi	Unibe	patricia.gribi@students.unibe.ch	x		

Items discussed:

- 1 Data Download
- 2 Proposal

Next meeting:

-

Attachments:

- Link to proposal
-

(Legend for type: D = Decision, P = Pending, I = Information)

		Typ	Resp.:	Date:
1	Data Download			
-	Got access to server (Workstation 2). With ubuntu login remotely to workstation 2. Use command: <code>ssh -L 9090:localhost:8787 patricia@130.92.119.132</code> and then my password I set. Username for R server: patricia and same password as before, <code>http://localhost:9090/</code> . The data on the workstation 2 is found here: <code>/data/scratch/CMIP6ng/cmip6-ng/pr/day/native/</code>	I		7.03
-	Download following variables: Surface Upward Latent Heat Flux (hfls), Surface Upwelling Longwave Radiation (rlus), Surface Downwelling Shortwave Radiation (rsds), Surface Upwelling Shortwave Radiation (rsus). The variables can be downloaded using the following script: https://github.com/geco-bern/CMIP6ng_download	D	P	11.03
-	The data is from the model CESM2 and the simulation taken is the ssp585 . Which corresponds to the future scenarios SSP -RCP8.5 that assume the highest CO2 emissions and predict the strongest warming.	I		11.03
-	Each model runs standard simulations and produces outputs for the different variables. Ensemble members have the same model, with the same forcing, but the initial conditions are each slightly manipulated.	I		11.03
-	historical refers to observations and actual recordings	I		11.03
-	To convert ET into mass units atmospheric pressure (Pa) is required as parameter according to the cwd algorithm. We will assume a default value.	D		11.03
-	Rain and snow will also be differentiated. As there are no variables for snow in the CMIP6-ng data, it will be modelled (function contained in the cwd algorithm).	I		11.03
-	The liquid_to_soil variable in the cwd-example takes precipitation and snowmelt into account.	I		11.03
2	Proposal			
-	Implementation-Section: In the implementation section it should be described what the cwd algorithm does and what is needed for it to calculate the cwd.	I		11.03
-	Methods: In this work, the following 2 approaches are used to calculate the cumulative water deficit. The 1st approach is based on the calculation $cwd = ET - P$. The 2nd approach is based on the calculation $pcwd = PET - P$. After the calculations carried out by the algorithm, the trends will be analyzed.	I		11.03
-	Background and Motivation: I just took the information provided in the thesis-theme overview. Do you expect more there? Yes. The expectation is to read several papers and to formulate the background and motivation in own words.	I		11.03
-	Impact: The cwd algorithm has never been applied to the CMIP6 data, nor to future models. In general, the daily resolution and the units in mm help to establish a concrete link to the storage capacity of the soil and the soil depth. Finally, the results allow direct and concrete conclusions to be drawn.	I		11.03
3	Admin			
-	Got access to my personal notion folder	I		11.03
-	Next steps: hand in the proposal on Thursday	P	P	14.03
4	Literature Research			
-	In the paper you published you take this mass balance approach. So you take the CWD as an indicator for rooting-zone water-storage capacity. In the CWD-estimation section you explain your approach and how you calculated the CWD with an algorithm. Would it be enough to cite your paper and how you calculate the CWD? Or do I have to go a			

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step further and find a source, where there is described why I can actually take the CWD as an indicator for rooting-zone water-storage capacity?				
5	Open Questions			
- I will not be able to put the data in the repository. Is that bad? How will it be a reproducible workflow?				
- Readme on infos about data download needed in the repo? I put it under data raw although it's not the actual data				