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| **Protocol**  Meeting Bachelor Thesis, FS 2024 | | | | | | | | | | | |
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| **Protocol-No.:** | 03 | | | | | **Project name:** | Bachelor Thesis | | | | |
| **Meeting type:** | Discussion | | | | | **Location:** | GIUB, Bern | | | | |
| **Date / Time:** | 8.04.2024 / 10:00 | | | | |  |  | | | | |
| **Topic / Goals:** | Modelling for one Gridpoint | | | | | | | | | | |
| **Lead:** | Benjamin Stocker | | | | | **Logger:** | Patricia Gribi | | | | |
|  | | | | | | | | | | | |
| **Participants** | |  |  | | **E-mail** | | | **Present** | **Excused** | **Distribution** |
| Prof. Benjamin Stocker | |  | GECO-Group | | benjamin.stocker@unibe.ch | | | x |  |  |
| Patricia Gribi | |  | Unibe | | patricia.gribi@students.unibe.ch | | | x |  |  |
|  | | | | | | | | | | | |
| **Items discussed:** | | | | | | | | | | | |
| 1 Final Proposal  **2** **Modelling for one Gridpoint** | | | | | | | | | | | |
| **Next meeting:** | | | | **Attachments:** | | | | | | | |
|  | | | |  | | | | | | | |

| *(Legend for type: D = Decision, P = Pending, I = Information)* | Typ | Resp.: | Date: |
| --- | --- | --- | --- |
| Server Access |  |  |  |
| * Got access to server (Workstation 2). With ubuntu login remotely to workstation 2. Use command: ssh -L 9090:localhost:8787 [patricia@130.92.119.132](mailto:patricia@130.92.119.132) and then my password I set. Username for R server: patricia and same password as before, http://localhost:9090/. The data on the workstation 2 is found here: /data/scratch/CMIP6ng/cmip6-ng/pr/day/native/ | I |  | 7.03 |
| Proposal |  |  |  |
| * **Summary:** Integrated model, simulation and scenario |  |  |  |
| * **Background and Motivation:** added link to CWD and the root zone water storage capacity |  |  |  |
| * **Objective:** Too many questions? (3) |  |  |  |
| * **Implementation:** Downloaded evspsbl but to be sure calculated evapotranspiration as well from latent heat flux, temperature and atmospheric pressure and converted it with the convert\_et function of the cwd package. Tran was not furthered described and evspsbl seems to be suitable. Description: flux of water into the atmosphere due to conversion of both liquid and solid phases to vapor (from underlying surface and vegetation) |  |  |  |
| * **Timeline:** Leave the daily resolution? One week planned for presentation preparation. |  |  |  |
| Modelling |  |  |  |
| * **Gridpoint extraction:** Random one fine? Should I conduct a grid conversion? Do I need to know what gridpoint it is? |  |  |  |
| * To calculate et I need daily values but of latent\_heat\_flux not available… So I did a linear interpolation. |  |  |  |
| * Difference of evspsbl and own calculated et is significant. Take evspsbl. |  |  |  |
| * **Calculation of evapotranspiration:** water-to-energy conversion factor \* net radiation flux \* conversion in desired units mm day-1 |  |  |  |
| * **Calculate potential evapotranspiration:** et\_e = pet = 1.26 \* Rnet. Potential evapotranspiration is related to the evapotranspiration by the Priestley–Taylor coefficient, which may be defined as 1 plus an entrainment factor, (Lhomme, 1997, p.6)   et\_e : latent\_heat\_flux. Rnet : SWnet + LWnet = (shortwave incoming- shortwave outgoing) + (longwave incoming – longwave outgoing). But why do we take for the evapotranspiration the latent\_heat\_flux and for the potential evapotranspiration the net Radiation? |  |  |  |
| * Why is there a correlation between et and precipitation? |  |  |  |
| 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 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? |  |  |  |
| 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 |  |  |  |
|  |  |  |  |