

Protocol

Meeting for Bachelor Thesis, FS 2024

Protocol-No.:	01	Project name:	Bachelor Thesis
Meeting type:	Discussion	Location:	GIUB, Bern
Date / Time:	22.02.2024 / 10:20		
Topic / Goals:	Discussion on the start of the thesis		
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 Start of the Bachelor Thesis Trends in Seasonal Water Deficits
-

Next meeting:

- 15.15 PM, 5. March 2024

Attachments:

- Thesis Requirements
- Coloquium

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

		Typ	Resp.:	Date:
1	Start of the Bachelor Thesis Trends in Seasonal Water Deficits			
-	Write the proposal of the thesis. The structure should be the same as in the proseminar. The proposal should include the relevance of CWD and other indices for water stress.	P	P	7.-14.3
-	Create a project repository on github with the GECCO-template		P	
-	Download the data: from one model, daily outputs, over 100 years, global (start with one grid-point)		P	
-	If the data is not provided in mass units, they have to be converted	I		
-	Find a suitable research question and possible hypothesis (the hypothesis is not mandatory)		P	
-	The cwd-Algorithm: The cwd is calculated ET-P. thresh_drop Level, relative to the CWD maximum of the same event, after which all data during the remainder of the event is set to missing values. This is to avoid interpreting data after rain events but before full compensation of CWD (Defaults to 0.9). There is greater resistance of water absorption at the top of the soil. The soil dries from top to bottom. This cwd-algorithm considers only the water balance. When it rains, the upper part of the soil is moist. Water does not have to penetrate the entire soil column. This describes the thresh-drop. A soil where the upper 10% of the column is already moist is sufficient.	I		
-	Install Zotero plug-in and cite with Copernicus	I	P	
-	Due date of the thesis is in mid-July			
-	The research project requires the participation in the Colloquium (see Attachment)	I		

Bachelor-Thesis Information

1.1.1 Important dates and meetings

- Week 2-3: Draft research plan to be handed in, meeting to discuss it.
- Week X-3: Draft of thesis to be handed in, feedback from advisor and supervisor within max. 2 weeks
- Week X-(1-2): Presentation in group meeting or PG4um, 15 min.
- Week X: Thesis to be handed in
- Week X+(1-2): Code and data hand-over
- Regular meetings for guiding the work with the advisor are commonly held every two weeks

1.1.2 Logistics and studies

- 10 ECTS (~ 300 h = 7.15 weeks at 100% = ~6 months at 30% or ~4 months at 50%)
- Individual work plan over the course of the duration of the thesis work, see point above.
- supervision by Prof. B. Stocker; advisor is other person in the group
- Prerequisite: successful completion of *Applied Geodata Science I* course, or self-study of course material on <https://geco-bern.github.io/agds/> during the first phase of the Bachelor's thesis (in this case, the duration of the research can be extended).
- Mandatory: follow Colloquium during period of BSc
- BSc students work on their own personal computers

1.1.3 Thesis requirements

- Write in the form of a research article
- Max. 8000 words (excluding references and Supplementary Material)
- Structure:
 - Abstract (300-500 words)
 - Introduction (~1/4 of article length without abstract and conclusion)
 - Context and motivation of research question Wissenschaftliche Fragestellung der Arbeit erläutern und in Kontext stellen
 - Methods (~1/4 of article length and conclusion)
 - Explain data and methods so that analyses and modelling could be reproduced in a general way based on text.
 - Results (~1/4 of article length without abstract and conclusion)
 - 3-5 display items visualising the main results to support conclusions.
 - Discussion (~1/4 of article length without abstract and conclusion)
 - Meaning of results, relevance of the study, relation to the published literature, implications for the general understanding, limitations.
 - Conclusion and outlook (200-500 words)
 - Summary of main the result, opened opportunities and required steps to get there.
 - Supplementary Material: free form, include materials supporting the research presented in the main part of the thesis, also materials and text documenting "side-paths" taken.
 - Code and data: Analysis code must be made accessible as a git repository, providing and documenting reproducible code organised following the https://github.com/geco-bern/R_proj_template, or equivalent (see also <https://geco-bern.github.io/agds/>).

1.1.4 Grading criteria

- Thesis (3/4):
 - Content: 40%:
 - Scientific content and argumentation
 - Interpretation, explaining relevance and context
 - Critical reflections on data and methods
 - Process: 30%
 - Research plan
 - Time management
 - Form: 30%
 - Code and reproducibility of analyses
 - Work plan and time management

- Layout of visuals and slides
- Presentation (1/4)
 - Content: 75%:
 - Scientific content and argumentation
 - Interpretation, explaining relevance and context
 - Critical reflections on data and methods
 - Discussion lead
 - Form: 25%
 - Time management
 - Layout of visuals and slides

1.1.5 Learning objectives

- Research project management
- Scientific process and writing, [link to some resources](#)
- Conducting a data-intensive research project