Diploma thesis review – opponent

Author: **Bc. Jiří Valeš**
Thesis title: **Agro-climatic Factors of Pilsen Region**
Field of study: **Geomatics**
Opponent: **Dr. rer. nat. Christoph Ramshorn**

Fulfilment of the work goals

- Above standard
- **Very good**
- Fulfilled
- Fulfilled with remarks
- Not fulfilled

Novelty

- New results
- Unconventional results
- **Synthesis of results from various sources**
- Compilation of results from various sources
- No novelty

Professional level

- Excellent
- **Very good**
- Average
- Below average
- Not sufficient

Factual errors

- **Almost none**
- Reasonable in scope
- Not substantial, bigger amount
- Substantial, bigger amount
- Serious

Graphical, language and formal level

- Excellent
- **Very good**
- Average
- Below average
- Not sufficient

Opponent's evaluation of the Thesis

The thesis meets its goals and demonstrates practical ways to combine information from different fields (meteorology, climatology, agronomy) and present them in diagrams and maps. It takes advantage of open Copernicus ERA5 re-analysis data to obtain better results than would be achievable from measured climate data alone. The practical value of the various combinations of information in general terms is given. The applied algorithms are clearly described. Results are presented in easy-to-understand maps and diagrams. Colour scales for generated maps are judiciously chosen.

A factual error crept in when in referenced paper [20] an upper limit of 0.5 inches of rain for efficient recharging was converted to 12.7 cm instead of 12.7 mm, and this wrong order of magnitude was then used in the thesis. Is this just an error in the text or is the wrong value also used in code?

Language and formal presentation are very good although sometimes the description of individual parameters and why they are important is a bit short. For example, it wasn't immediately clear to me how "Farmers can increase the crop potential to capture sunlight based on information about the amount of sunlight falling in a given period." (They can seed earlier in the season, as I found out from the reference cited.) A few clerical mistakes could have been eliminated with careful proofreading, for example correcting "bellow" to "below".

Taking this work forward, it could be interesting to take into account more local factors from additional data sources, for example actual soil composition at the field level or influences of local topography. At that point the choice of IDW for interpolation should be revisited and a method chosen that can take additional information into account. It would then be interesting to assess the sensitivity of the results to the additional parameters in order to find out which of the extra processing required has a significant impact on the results. Finally, it would be good to collaborate with an agronomical practitioner to further clarify which decisions can be supported through the additionally obtained information.

Classification

I evaluate the thesis with a mark 2- very good and I recommend the thesis to the advocacy in front of the commission.

Basel, June 2, 2021

Dr. Christoph Ramshorn