

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/hess-2022-96-RC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on hess-2022-96

Geoff Pegram (Referee)

Referee comment on "FarmCan: a physical, statistical, and machine learning model to forecast crop water deficit for farms" by Sara Sadri et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-96-RC2>, 2022

++++
++++

Review

This is a short, informative and to my mind original, article on the development of a tool to improve grain farming in Canada. This topic is new to me in the reviews I have done and found I had a sharp learning experience to enlighten me.

There is nothing seriously poor herein that needs to be attended to. Most of my remarks are attached to the Figures and the odd Table, to make reading easier. To repeat a passage I wrote as a comment after the conclusion, I make an appeal which I hope will help the readers of the article: "Most potential readers will probably scan the Abstract, look at the Figures and possibly read the Conclusion, before they decide to read the whole. Please repeat the text referred to by the acronyms in this passage. Because you have a lot of them, please add them in an appendix for reference below the text. Your article is relatively short, so an extra page will not hurt!"

After some tidying up, I recommend that a reviewed version will likely be acceptable to the Editor. I would be happy to see the revision. My comments to the Authors follows my Signature below this passage, which is my wont.

Geoff Pegram

6 May 2022

++++
++++

Details of comments inserted in the article. Clips of your text are numbered and my remarks follow introduced by #. I will not copy the trivial suggested corrections, but I will take the more pithy selections and add them here.

11 MSWEP

Multi-Source Weighted-Ensemble Precipitation

24 population of 9.1 billion (UN/ISDR, 2007; FAO, 2009

I checked and found World Population Clock 2 May 2022: They give 7.9 Billion People (2022) – Worldometer

Table 1

What do these numbers mean? Please make your caption more informative. Add PET = Potential ET. Rotate the table so we don't have to crane our necks! It fits if you make the columns a bit thinner and deeper.

Page 8

At this stage, I have copied as many acronyms that I can find, some of them having their meaning explained, but after listing 23 at this stage, I **plead** for a list of acronyms that we can check out after the conclusion, before Refs.

1490.1 is the scale factor meaning that the data had to be corrected by multiplying them by 0.1

(Running et al., 2019).

I do not understand this sentence; reducing the data by a factor of 10? What for?

167 V280 combined with the MSWX product (?)

\$ In place of (?) I suggest "as they match in frequency (3 hr) and pixel size (0.10)"

175

Getting info from the farmers is very smart

Fig.2

Good informative layout

2.5 Relative importance of FarmCan inputs to P

Does not make sense - **inputs FROM Precipitation ?**

230 variables (ET, PET, SM, and RZSM) are used first as predictants

predictant is not a word in the Oxford English Dictionary, nor could I find it on the Web. Nice try but you might substitute: "seen as items to be estimated"

Fig. 3

That is seriously good corroboration cell for cell - almost identical - by eye (I did it in one minute) and I would estimate a cross correlation average of 95%

Figure 4. Spatial patterns of climatology. Data was collected from 2015-2020 for the agricultural months (Apr-Oct).

Please expand the legend in this relatively short article, as most readers will check the abstract, then possibly the figures which need to be self-explanatory. Then they might take the challenge of the text if they have been enticed! Expand the acronyms here, as well as listing them at the end of the text.

Fig. 5

In the caption please change Apr—Oct to "April and October". Also, please give horizontal definition of columns in legend - it took me a while to unpack ...

Fig. 6

Make these sample bars thicker as in the figure - their colours are indistinguishable in this legend; Fig. 7 gets it right. What is 'Teal'? Light green? Make the bar-chart thicker? The dates are ununpackable - they are a jumble. In my first look I had no clue as to which is day, month nor year and what the numbers below the blank spaces are designed to tell the reader. Why not give dates, of start and finish, of the readings?

Fig. 8

What about (b) & (c). Nevertheless, our figures are well laid out imbedded in the text. Also, the 3 & D are chopped off ... the images are very readable and can be reduced in size without loss of message - same for Fig. 7 which I missed

Fig. 9

Enlarge the words **Predicted** as they are unreadable at an A4 size - **Observed** as well. There's enough space. Also please make the caption more informative

4 Conclusions#

Most potential readers will probably scan the Abstract, look at the Figures and possibly read the Conclusion, before they decide to read the whole. Please repeat the text referred to by the acronyms in this passage. Because you have a lot of them, please add them in an appendix for reference below the text. Your article is relatively short at 350 lines including Figs & Tables, so an extra page will not hurt!

++++
++++

Please also note the supplement to this comment:

<https://hess.copernicus.org/preprints/hess-2022-96/hess-2022-96-RC2-supplement.pdf>