

Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on **essd-2020-344**

Anonymous Referee #1

Referee comment on "CLIGEN parameter regionalization for mainland China" by Wenting Wang et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-344-RC1>, 2021

This paper presents a valuable dataset that may encourage greater application of soil erosion modelling in China. The results of the cross-validation show good agreement, and an interesting comparison of ordinary and universal kriging is made. Some details of the methodology could be clarified, particularly in terms how the covariates and parameter layers are used in universal kriging. Importantly, spatial interpolation error could also be discussed more. Overall, the paper is well written and describes a valuable dataset.

Line 22: Word "in" is not needed in this context.

Line 23: typo: available

Line 78: WGEN has not been defined. This is another stochastic weather generator?

Line 152: This statement could be clarified: "Rainfall intensity is basically assumed to be ranked from high to low in CLIGEN".

Line 173: How was TimePk determined in Wang et al. (2018b). More information would be helpful beyond the fact there was available hourly precip and MX.5P values to estimate TimePk. More detail could be given about how the other intensity parameter, MX.5P was determined if it requires high-resolution data.

Line 191: typo: CLIGEN parameters.

Line 191: Clarify how twelve groups were used.

Line 195: How many iterations of leave-one-out cross-validation were there that produced the four performance metrics? Is this equal to the number of stations?

Line 197: How was the 131 input parameter number arrived at?

Line 210: Word "of" not needed.

Line 210: Clarify how the 156 number of parameter layers was arrived at.

Line 234: Clarify "the value became convergent from cold season to warm".

Line 285: Interpolation accuracy is stated here to be temporally dependent, but more discussion of how it is spatially dependent would be helpful. I would guess that in data sparse areas, interpolation error is much higher. The leave-one-out cross-validation does not account for the fact that data sparse areas could actually represent large parts of the total interpolated area, so it could be the case that error would be much higher if more observations were available to check error in data sparse areas. Is it indeed the case that error is higher in western China? Would it be possible to make an error map for MeanP and TMAX as examples? Or, consider some way of presenting spatial error.

Table 3: RMSE for TimePk of 0.01 is very small considering TimePk ranges from 0-1. Why is NSE particularly low for TimePk? Is it the small numeric scale of TimePk?