Interactive comment on “Using deep learning for Digital Soil Mapping” by José Padarian et al.

Anonymous Referee #2

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I’m not an expert on convolutional neural networks, though I’m rather familiar with other machine learning techniques. As far as I can say from the little knowledge that I have on these subjects, the paper looks good. The methodology is promising and the results are quite accurate. The workflow is correct: data augmentation is a reasonable choice for increasing the volume of data, while the performance of the algorithm is measured with 10-fold cross validation and compared to other machine learning algorithm (Cubist). The predicted values of SOC are rather close to the observed ones, and I guess that estimation time is rather reduced compared to other methods.

From my point of view, incorporating contextual information of the landscape is a very important topic in Digital Soil Mapping.

In summary, the paper is very fine for me.

Minor comments

C1

p5 l4 -7 very difficult to follow. P5l 15: Is it possible to predict a set of properties at the same time? Eg CEC and Clay and C for example? P6 l13 ReLU?: not clear p8 l19 10.56 2 times? Copy paste error? P8 l24: this an important step I think. This should be highlighted in the introduction? Figure 5: it is very rare to observe lower error in the test dataset than train itself or even validation? Could you comment on that in the paper? Section 5.6 The discussion on the prediction of uncertainty needs more global result. I think you can provide a PICP plot using the test dataset to better justify your results.

Reviewer #1 did post his review and I strongly encourage you to answer in particular to his last comment. Thanks in advance,