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Interactive comment on "No Silver Bullet for Digital Soil Mapping: Country-specific Soil Organic Carbon Estimates across Latin America" *by* Mario Guevara et al.

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This paper, with the main group of authors from Latin America, suggests a regional collaboration for mapping SOC across the region based on country-specific soil organic carbon (SOC) maps. This bottom-up approach will be an ideal scenario to achieve the goals of global/regional projects like GlobalSoilMap. However, the paper presented another view, a top-down approach based on the global WoSIS database. We can only speak of the case of Chile, which actually doesn't appear in the list of WoSIS collaborators: (http://www.isric.org/explore/wosis/wosis-cooperating-institutions-and-experts). In a true case of collaboration, Chile wouldn't only have 44 point observations (Table 1

of the manuscript) but more than 400 (Padarian et al., 2016). We assume that these are the same institutions that participated on FAO the Global SOC Map, which was delivered on December 2017, so the Chilean data has already being processed. Another example in Brazil, where Samuel Rosa et al. (2017) are building a collaborative nationwide soil database from bottom-up. Such spirit of collaboration should be preferred in this era of open data.

Nevertheless, the paper attempted to compare country-specific estimates of SOC. Facilitating reproducibility is always appreciated but we don't think it justifies the use of a very coarse 5x5 km resolution, considering that current DSM studies can produce much finer resolution ranging from 100 to 1000 m for that extent.

The paper also deals with an interesting topic trying to find the right covariates for DSM, but the purpose is defeated when this study used a brute force approach of trying all 118 covariates. For example, why does mean night-time temperature, and not other temperature measures has the highest correlation for the case of Chile? Of course temperature is important in SOC dynamics, but it does that justify using 6 temperature variables (out of 10 covariates) for prediction (Table 2 of the manuscript)? A more conscious selection of relevant covariates should be stressed when developing such a regional model.

Finally, while this paper encouraged positive collaboration, it missed many country-specific SOC maps, including some from the countries listed in this paper (full disclosure: We are the co-authors of one of them. The first author of this manuscript has also done interesting work at the national extent for Mexico). To be a full collaborative project, a bottom up approach that takes full advantages of existing region-specific soil maps should be encouraged. This paper shows many methods can be used to derive SOC maps, the challenge is how to combine existing information with new digital products, or how to combine seamlessly SOC maps from different countries in a true collaborative effort.

References

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