

Comment on **essd-2020-363**

Anonymous Referee #4

Referee comment on "*STH-net: a soil monitoring network for process-based hydrological modelling from the pedon to the hillslope scale*" by Edoardo Martini et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-363-RC4>, 2021

Review of the manuscript 'STH-net: a model-driven soil monitoring network for process-based hydrological modelling from the pedon to the hillslope scale' by Martini et al. (essd-2020-363)

General comment

I'm the fifth (!) reviewer of this manuscript and I have very little to add to this manuscript. This is a great site, a very detailed and dataset useful for several hydrological applications. The manuscript is overall well written and illustrated. I only noted some vague terms in Section 1 and I invite the Authors to be more specific in their statements. In addition to the comments by the previous reviewers, I have only few minor comments below.

Specific comments

1. As one of the previous reviewers, I'm not convinced about the "model-driven" part in the title...it looks as it would exclude the need of any purely experimental analysis.

35. I agree but why only models are necessary? On the contrary, I would say that a strong observational basis is necessary in order to understand these non linearities.

73. Yes, true, but it's not described how it is possible to move from the hillslope the catchment scale. Please, elaborate on this.

Minor comments and technical corrections

16. What are the most relevant variables? A bit vague, please specify.

22. What does "high quality" mean? Please, specify. Also at 69.

27. "Larger" compared to what? Please, specify.

32. "Grandient"...in which terms? Soil types? Soil properties? Any reference? This is confusing, please clarify.

33. Which "phenomena"? Vagueness again, please specify.

40. "Landscape" is not so appropriate for hydrological applications...what about catchment?

42. What does "intermediate" refer to? Specify. Analogously, what does "larger" mean?

44. Why only "non linearities"? Please explain.

47. Small-scale = plot scale?

59-64. Long sentence, please rephrase.

Fig. 4 and 5. Include precipitation in the top panel. Increase the font size of legend and axis labels.

Fig. 6. "Rainfall" should be "Rainfall rate (mm/hr- or whatever time step it is displays)". Increase the font size of legend and axis labels.

