

## ***Interactive comment on “Decomposability of soil organic matter over time: The Soil Incubation Database (SIDb, version 1.0) and guidance for incubation procedures” by Christina Schädel et al.***

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General comments

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This manuscript describes a new Soil Incubation Database (SIDb), an effort to build a platform for current and, critically, future synthesis and meta-analysis work revolving around soil incubations. I strongly applaud this effort—we have to get away from bespoke one-off syntheses, as valuable as they are, and have these kinds of architectures going forward, so that future incubation studies can (i) be designed with these data re-

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quirements in mind and (ii) it's very easy to leverage the database. The manuscript does a nice job of describing these issues. The writing is generally clear and the ms is very appropriate for ESSD.

There are a few problems. First, the documentation of the package itself is pretty bare-bones. There's no vignette, no usage license (this is actually really important—what's on the GitHub page isn't adequate), and the built-in help files are short and not always informative.

Second, QC, of both data and code, isn't really discussed. This is something that the R package format makes both powerful and easy, but (from looking at the repository) it looks like currently you only depend on R CMD CHECK, not any custom-written tests for continuous integration. (See e.g. the SRDB repository which does this; every pull request is subjected to a battery of automated checks and the results reported on the PR page.) I strongly encourage you to think about developing some that test both the code (e.g. correct behavior of package functions) and data (e.g. QC of data entries). This would also help e.g. reviewers, of this manuscript and future efforts, to easily see correctness. For example, while I installed the package, I didn't check that its functionality was as described. You might look at the ROpenSci repositories for good examples of this.

Third, it seems like the curators of SIDb, COSORE, ISRaD, and SRDB need to talk to each other, and probably with some data specialists, to plan for interoperability and data compatibility so that future studies can make maximum (and easiest) use of these valuable data. This is a meta-issue, and not a problem with this manuscript, but worth considering. I wonder if e.g. Ameriflux/ESS-DIVE or Powell Center would support an effort like this.

In summary, this is a great effort, and a well written ms. It needs moderate revisions in a number of areas, both text and code, to maximize its clarity and utility for researchers. Thank you for your work on this!

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Specific comments

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1. Line 41: yes! Excellent
2. L. 48: site-level measurements are used in incubation studies? A bit unclear
3. L. 79-83: might move this sentence to the beginning of the paragraph
4. L. 101-103: maybe! But note Sulman et al. (2019, <http://dx.doi.org/10.1007/s10533-018-0509-z>) – it's not guaranteed
5. L. 111-116: great to call out these other efforts here
6. L. 144: perhaps start new paragraph for readability
7. L. 279: is served at a local host? But the URL isn't a local one. Confusing
8. Table 1 is excellent
9. Table 2 could use a few clarifying details: dataset under consideration, etc.

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