**Interactive comment on** “The Northern Circumpolar Soil Carbon Database: spatially distributed datasets of soil coverage and soil carbon storage in the northern permafrost regions” by G. Hugelius et al.

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**General Comments**

1) This dataset will be a valuable resource for researchers conducting studies on the permafrost-carbon-feedback to the global climate system. The authors do a nice job of discussing database development, potential database applications, and some limitations. The methods are generally described in enough detail, although I’ve recommended a few changes in the specific comments below.

2) The database had been used previously in a well-cited publication by Tarnocai et al. (2009), which estimated SOC stocks in the northern circumpolar permafrost region. Tarnocai et al. also provided estimates for deep C stocks, including Pleistocene yedoma deposits, alluvial deposits in delta regions, and peatlands. I recognize that there are limited data available for these deeper pools, but it seems important for the authors to discuss their reasoning for excluding these data here.

**Specific Comments**

1) Page 710, Lines 5-14: These discrepancies are well described but should be put in better context – for instance, state “A major challenge in developing this database was to overcome the varied soil classification methodologies across regions…”

2) Page 713, Line 7: Define “CRREL” as “Cold Regions Research and Engineering Laboratory”

3) Page 713, Line 7: I believe it is SIPRE, not SIPRIC. SIPRE should also be defined as “Snow, Ice, and Permafrost Research Establishment”.

4) Page 713, Lines 20-22: How does one take into consideration this disparity in soil core lengths?

5) Page 713, Line 26: Were all samples acidified, or only mineral soil samples?

6) Page 713, Line 28: By “older” samples, do you mean samples that were collected before a particular date?

7) Page 714, Line 20: The 105°C drying temperature was for mineral soils, correct? What temperature was used for drying organic or peat soils?

8) Page 715, Lines 1-2: This is unclear: “For organic horizons of mineral soils…”

9) Page 715, Line 5: Specify gravimetric or volumetric

10) Page 716, Line 17: change GF to CF

11) Page 716, Line 27 to Page 718, Line 2: I’m curious why you left out data from individual pedons…this seems to warrant a justification.

12) Page 719, Line 10: Changing wording from “are comprised” to “were developed” or something more appropriate

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