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Earth System
Science Data
Discussions

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° 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

Interactive comment on Earth Syst. Sci. Data Discuss., 5, 707, 2012.