Supplement of

Simulated high-latitude soil thermal dynamics during the past four decades

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Figure S1. Trends of annual (a) T_a and (b) precipitation in the climate forcing data averaged over boreal regions and sub-regions from 1960 to 2000.

Figure S2. Trends of annual (a) LWDR and (b) SWDR in the climate forcing data averaged over boreal regions and sub-regions from 1960 to 2000.

Figure S3. Simulated trends of annual T_s over (a) BONA, (b) BOEU and (c) BOAS as a function of soil depths 0 - 40 m for the nine models. Note the different total soil depths of the models.

21 Figure S4. Trends of annual snow fall averaged over boreal regions and sub-regions in the
 22 climate forcing data from 1960 to 2000. CoLM, JULES, LPJ-GUESS and UVic only provided
 23 total precipitation and did not provide rainfall and snowfall separately.

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Figure S5. Trends of simulated annual T_s at 20 cm and T_a in the climate forcing data over (a) BONA, (b) BOEU and (c) BOAS across the nine models.

Figure S6. Trends of simulated annual T_s at 20 cm and annual (a) SWDR and (b) precipitation in the climate forcing data over boreal regions across the models.

Figure S7. Trends of simulated summer T_s at (a) 20 cm and (b) 1 m and summer LWDR in the climate forcing data over boreal regions across the models.

Figure S8. Trends of simulated winter T_s at (a) 20 cm and (b) 1 m and winter LWDR in the climate forcing data over boreal regions across the models.