Depth range Geographic region	Upscaling class	n:	Soil area km2 / %		SOC storage[o] Mean / StD (kg C m-2)		Representation error rep_errStD / covStD		95% CI	Upscaled SOC stocks Pg C / %		Percent of total contribution to upscaled uncertainty weighted for area, SOC stocks and StD
0-30 cm	Alfisols	339	629230	4%	4.7	3.6			0.4	3	1%	0%
Northern Circumpolar Permafrost Region	Entisols	198	765829	4%	1.1	6.1			0.8	1	0%	0%
	Inceptisols	871	2797127	16%	4.9	3.1			0.2	14	6%	0%
	Spodosols	88	1528291	9%	11.7	9.7			2.0	18	8%	6%
	Natric soils	67	54368	0%	2.9	2.4			0.6	0.2	0%	0%
	Aquic soils	531	255544	1%	9.2	4.9			0.4	2	1%	0%
	Vertisols	11	0.1	0%	5.7	3.1			2.1	0.0	0%	0%
	Mollisols	320	611235	3%	6.4	3.5			0.4	4	2%	0%
	Histosols	417	848390	5%	22.5	18.4			1.8	19	9%	1%
	Aridisols	79	51874	0%	1.6	1.6			0.4	0.1	0%	0%
	Andisols	160	33535	0%	11.4	7.9			1.2	0.4	0%	0%
	Ultisols	309	0.2	0%	5.1	4.2			0.5	0.0	0%	0%
	Turbels	256	6210667	35%	14.7	12.5			1.5	92	42%	57%
	Orthels	131	2500423	14%	15.8	14.9			2.6	39	18%	26%
	Histels	87	1202416	7%	18.1	14.2			3.0	22	10%	8%
Applies to Gelisols in the High Arctic, sectors Russia, Svalbard and Greenland	High Arctic Gelisols	8	284430	2%	9.8	8.5	2.2	8.8	7.4	3	1%	2%
0-100 cm	Alfisols	339	626225	4%	7.9	6.1			0.7	5	1%	0%
Northern Circumpolar Permafrost Region	Entisols	198	760348	4%	7.7	12.3			1.7	2	0%	0%
	Inceptisols	871	2780008	16%	9.5	5.8			0.4	25	5%	0%
	Spodosols	49	1520461	9%	21.3	17.4			5.0	33	7%	7%
	Natric soils	67	54199	0%	10.6	8.9			2.2	0	0%	0%
	Aquic soils	531	254267	1%	16.8	8.1			0.7	4	1%	0%
	Vertisols	11	0	0%	13.5	7.3			4.9	0	0%	0%
	Mollisols	290	609248	3%	12.2	6.4			0.7	7	2%	0%
	Histosols	417	844171	5%	69.1	56.5			5.4	60	13%	3%
	Aridisols	49	51645	0%	1.7	0.8			0.2	0	0%	0%
	Andisols	120	33349	0%	25.4	17.5			3.2	1	0%	0%
	Ultisols	269	0	0%	9.4	7.7			0.9	0	0%	0%
	Turbels	256	6361383	35%	33	28.1			3.5	204	43%	61%
	Orthels	131	2540231	14%	25.3	23.9			4.1	63	13%	14%
	Histels	87	1200224	7%	49.3	39.4			8.4	62	13%	15%
Applies to Gelisols in the High Arctic, sectors Russia, Svalbard and Greenland	High Arctic Gelisols	8	284430	2%	17.8	12.7	3.8	13.2	11.0	5	1%	1%
100-200 cm	Histosols	67	582515	9%	58.0	36.7			9.0	34	21%	13%
Regions of thick sediment overburden	Non-permafrost mineral soils	68	1631975	26%	9.5	13.5			3.3	15	10%	14%
following Heginbottom et al. (1993)	Turbels	78	2624186	42%	23.2	18.0			4.1	61	38%	54%
	Orthels	61	485651	8%	27.0	37.0			9.5	13	8%	10%
	Histels	147	865672	14%	43.6	31.6			5.1	38	23%	10%
100-200 cm	Histosols	8	265471	2%	95.7	47.2	21.5	51.9	43.4	25	13%	4%
Regions of thin sediment overburden	Non-permafrost mineral soils	34	5079799	44%	9.1	12.9	2.3	13.2	4.6	46	24%	5%
following Heginbottom et al. (1993)	Turbels	6	2987656	26%	31.6	30.1	9.4	31.5	33.1	94	49%	90%
	Orthels	8	1910528	16%	2.6	2.1	1.2	2.4	2.0	5	3%	0%
	Histels	35	325717	3%	49.0	26.3	5.6	26.9	9.2	16	8%	0%
	High Arctic soils	8	1009905	9%	6.9	7.7	2.2	8.0	6.7	7	4%	1%
200-300 cm	Histosols	67	582515	9%	29.8	26.3			9.0	17	15%	5%
Regions of thick sediment overburden	Non-permafrost mineral soils	19	1631975	26%	10.3	8.9			3.3	17	14%	16%
following Heginbottom et al. (1993)	Turbels	25	2624186	42%	20.1	13.6			4.1	53	44%	72%
	Orthels	34	485651	8%	21.6	16.1			9.5	11	9%	3%
	Histels	146	865672	14%	24.8	25.5			5.1	21	18%	5%
200-300 cm	Histosols	8	265471	2%	46.1	50.5	15.8	52.9	44.2	12	14%	7%
Regions of thin sediment overburden	Non-permafrost mineral soils	11	5079799	44%	0.5	0.9	0.1	0.9	0.6	3	3%	1%
following Heginbottom et al. (1993)	Turbels	5	2987656	26%	19.5	13.0	5.6	14.1	17.5	58	66%	90%
	Orthels	2	1910528	16%	1.3	1.8	0.6	1.9	16.9	2	3%	2%
	Histels	35	325717	3%	30.5	25.1	5.2	25.7	8.8	10	11%	1%
	High Arctic soils	4	1009905	9%	2.8	3.3	1.3	3.5	5.6	3	3%	1%

Foot notes:

[o]Because of the variuos gapfilling that has been done with the NCSCDv2, the mean SOCC for the 0-30 and 0-100 cm depth ranges deviate from those reported in Tarnocai et al., 2009.
Therefore all StD for the 0-30 and 0-100 cm depth ranges were based on the coefficient of variation (standard deviation relative to the mean) from the original cited sources.
*The n used for calculations of CI should not be summative when mean values from three different classes are combined.
Because Tarnocai et al. (2009) reports summative n for all the classes used from Batjes et al. (1996) n was adjusted to include only the mean n of the different classes

Depth range Geographic region	Source of data for n	Source of data for Std	Source of data for SOCC
0-30 cm	Calculated from Batjes, 1996 and Tarnocai et al., 2009*	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Alfisol SOCC are based on a mean value of Luvisols and Podzoluvisols from Batjes (1996)
Northern Circumpolar Permafrost Region	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Entisol SOCC are based on a mean value of Fluvisols and Regosols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Inceptisol SOCC are based on Cambisols from Batjes (1996)
	Calculated from Batjes, 1996 and Tarnocai et al., 2009*	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Spodosol SOCC are based on Podsols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Natric soil SOCC are based on Solonetz from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Aquic soil SOCC are based on Gleysols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
	Calculated from Batjes, 1996 and Tarnocai et al., 2009*	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Mollisol SOCC are based on a mean value of Chernozems, Phaeozems and Kastanozems from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Histosol SOCC are based on Histosols from Batjes (1996)
	Batjes, 1996	Batjes, 1996	All Aridisol SOCC are based on a mean value of Xerosols and Yermosols from Batjes (1996)
	Batjes, 1996	Batjes, 1996	All Andisol SOCC are based on a mean value of Andosols from Batjes (1996)
	Batjes, 1996	Batjes, 1996	All Ultisol SOCC are based on a mean value of Acrisols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
Applies to Gelisols in the High Arctic, sectors Russia, Svalbard and Greenland	Hugelius et al. 2013a	Hugelius et al. 2013a	Mean of Gelisol pedons in within the High Arctic region from Hugelius et al 2013a (pedon dataset v2)
0-100 cm	Calculated from Batjes, 1996 and Tarnocai et al., 2009*	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Alfisol SOCC are based on a mean value of Luvisols and Podzoluvisols from Batjes (1996)
Northern Circumpolar Permafrost Region	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Entisol SOCC are based on a mean value of Fluvisols and Regosols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Inceptisol SOCC are based on Cambisols from Batjes (1996)
	Calculated from Batjes, 1996 and Tarnocai et al., 2009*	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Spodosol SOCC are based on Podsols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Natric soil SOCC are based on Solonetz from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2. Eastern hemisphere Aquic soil SOCC are based on Gleysols from Batjes (1996)
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	Batjes, 1996	Batjes, 1996	All Ultisol SOCC are based on a mean value of Acrisols from Batjes (1996)
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
	Tarnocai et al., 2009	Tarnocai et al., 2009	Mean circumpolar SOCC calculated from the NCSCDv2.
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Applies to Gelisols in the High Arctic, sectors Russia, Svalbard and Greenland	Hugelius et al. 2013a	Hugelius et al. 2013a	Mean of Gelisol pedons in within the High Arctic region from Hugelius et al 2013a (pedon dataset v2)
100-200 cm Regions of thick sediment overburden following Heginbottom et al. (1993)	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a
	"	"	"
	"	"	"
	"	"	"
	"	"	"
100-200 cm Regions of thin sediment overburden following Heginbottom et al. (1993)	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a
	"	"	"
	"	"	"
	"	"	"
	"	"	"
200-300 cm Regions of thick sediment overburden following Heginbottom et al. (1993)	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a
	"	"	"
	"	"	"
	"	"	"
	"	"	"
200-300 cm Regions of thin sediment overburden following Heginbottom et al. (1993)	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a	All data from Hugelius et al 2013a
	"	"	"
	"	"	"
	"	"	"
	"	"	"

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