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Soil organic carbon stocks are systematically overestimated by misuse of the parameters bulk density and rock fragment content

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Supplement

Table S1: List of reviewed articles and the respective method used to calculate SOC stocks.

ID	Reference	Method	Land use
1	Adame et al., 2015	M1	Forest
2	Babu et al., 2012	M1	Cropland
3	Barancikova et al., 2010	M1	Cropland
4	Batlle-Bayer et al., 2010	M1	Forest
5	Benbi et al., 2015	M1	Diverse
6	Boyx-Fayos et al., 2009	M1	Diverse
7	Cambule et al., 2014	M1	Forest
8	Cardinael et al., 2015	M1	Cropland
9	Carvalho et al., 2010	M1	Diverse
10	Cierjacks et al., 2010	M1	Diverse
11	Cook et al., 2016	M1	Forest
12	Denef et al., 2008	M1	Cropland
13	Dielemann et al., 2013	M1	Forest
14	Dos Santos et al., 2016	M1	Forest
15	Frogbrook et al., 2009	M1	Grassland
16	Galdos et al., 2009	M1	Cropland
17	Gauder et al., 2016	M1	Cropland
18	Gelaw et al., 2014	M1	Diverse
19	Goodrick et al., 2015	M1	Diverse
20	Guan et al., 2015	M1	Forest
21	Hernanz et al., 2002	M1	Cropland
22	Kalinina et al., 2015	M1	Diverse
23	Lee et al., 2009	M1	Cropland
24	Li et al., 2010	M1	Diverse
25	Lopez-Fando and Pardo, 2011	M1	Cropland
26	Lunstrum and Chen, 2014	M1	Forest
27	Maia et al., 2010	M1	Cropland
28	Manojlovic et al., 2011	M1	Diverse
29	Marques et al., 2016	M1	Forest
30	Martinez-Mena et al., 2008	M1	Diverse
31	Mestdagh et al., 2004	M1	Grassland
32	Miranda et al., 2016	M1	Cropland
33	Neill et al., 1997	M1	Cropland
34	Neto et al., 2010	M1	Cropland
35	Olson and Al-Kaisi, 2015	M1	Cropland
36	Padmanabhan et al., 2013	M1	Forest
37	Page et al., 2014	M1	Cropland
38	Qiao et al., 2015	M1	Diverse
39	Ratnayake et al., 2014	M1	Cropland
40	Sausen et al., 2014	M1	Forest
41	Schulp et al., 2008	M1	Forest

42	Sharma et al., 2014	M1	Diverse
43	Shi and Han, 2014	M1	Cropland
44	Srinivasarao et al., 2009	M1	Cropland
45	Strey et al., 2016	M1	Diverse
46	Sun et al., 2004	M1	Forest
47	Tue et al., 2014	M1	Forest
48	Toriyama et al., 2011	M1	Forest
49	Usuga et al., 2010	M1	Forest
50	Venkanna et al., 2014	M1	Diverse
51	Zhiyanski et al., 2016	M1	Forest
52	Zinn et al., 2005	M1	Diverse
53	Don et al., 2007	M2	Grassland
54	Heim et al., 2009	M2	Forest
55	Henker et al., 2016	M2	Grassland
56	Prietzel and Christophel, 2014	M2	Forest
57	Wellock et al., 2011	M2	Forest
58	Baritz et al., 2010	M3	Forest
59	Chiti et al., 2012	M3	Forest
60	Christiansen et al., 2012	M3	Forest
61	Demessie et al., 2013	M3	Diverse
62	Dinca et al., 2015	M3	Forest
63	Fonseca et al., 2012	M3	Forest
64	Gonzalez Gonzalez et al., 2012	M3	Forest
65	Hewitt et al., 2012	M3	Diverse
66	Kucuker et al., 2015	M3	Diverse
67	Kunkel et al., 2011	M3	Diverse
68	Li et al., 2015	M3	Cropland
69	Madeira et al., 2002	M3	Forest
70	Matsuura et al., 2012	M3	Grassland
71	Morisada et al., 2004	M3	Forest
72	Olsson et al., 2009	M3	Forest
73	Parras-Alcantara et al., 2015	M3	Forest
74	Perrouchaud et al., 2000	M3	Forest
75	Phachomphon et al., 2010	M3	Diverse
76	Martin et al., 2016	M3	Diverse
77	Schrumpf et al., 2011	M3	Diverse
78	Tan et al., 2014	M3	Diverse
79	Tsui et al., 2013	M3	Forest
80	Umrit et al., 2014	M3	Cropland
81	Wang et al., 2013a	M3	Forest
82	Wang et al., 2013b	M3	Diverse
83	Wang et al., 2016	M3	Diverse
84	Wiesmeier et al., 2012	M3	Diverse
85	Xie et al., 2007	M3	Diverse
86	Yimer et al., 2006	M3	Diverse
87	Zhao et al., 2015	M3	Forest
88	Barcena et al., 2014	M4	Forest

89	De Vos et al., 2015	M4	Forest
90	Dörfer et al., 2013	M4	Grassland
91	Gasparini and Di Cosmo, 2015	M4	Forest
92	Grüneberg et al., 2014	M4	Forest
93	Hoffmann et al., 2014	M4	Forest
94	Kollia et al., 2009	M4	Diverse
95	Lo Seen et al., 2010	M4	Diverse
96	Rytter, 2012	M4	Cropland
97	Schulz et al., 2016	M4	Diverse
98	Tashi et al., 2016	M4	Forest
99	Vesterdal et al., 2008	M4	Forest
100	Wasige et al., 2014	M4	Diverse

Table S2: Proportion of investigated land-use type in each calculation method and proportion of each calculation method in each land-use type.

Method	Cropland	Grassland	Forest	Diverse
M1	34.6	3.8	32.7	28.8
M2	0	40	60	0
M3	6.7	3.3	46.7	43.3
M4	7.7	7.7	53.8	30.8
Land-use	M1	M2	M3	M4
Cropland	85.7	0.0	9.5	4.8
Grassland	33.3	33.3	16.7	16.7
Forest	41.4	7.3	34.1	17.1
Diverse	46.9	0.0	40.6	12.5

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