SUPPORTING INFORMATION

Tree size and age induced stem carbon content variations cause an uncertainty in forest carbon stock estimation

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This file includes:

Table S1-S3

Figure S1

Appendix 1

Table S1. Carbon content of trees was affected by the organ, tree age, species, sites and their interactions.

Term	Df	Sum Sq	Mean Sq	F value	p
Organ	5	128.00	25.60	13.67	< 0.001
Age	1	532.00	531.80	283.66	< 0.001
Site	29	3966.00	136.80	72.95	< 0.001
Species	2	26.00	13.00	6.91	0.001
Organ * Age	5	50.00	10.00	5.33	< 0.001
Organ * Site	96	1567.00	16.30	8.71	< 0.001
Age * Site	29	179.00	6.20	3.30	< 0.001
Organ * Species	6	19.00	3.10	1.68	0.126
Organ * Age * Site	96	241.00	2.50	1.34	0.033
Residuals	306	574.00	1.90		

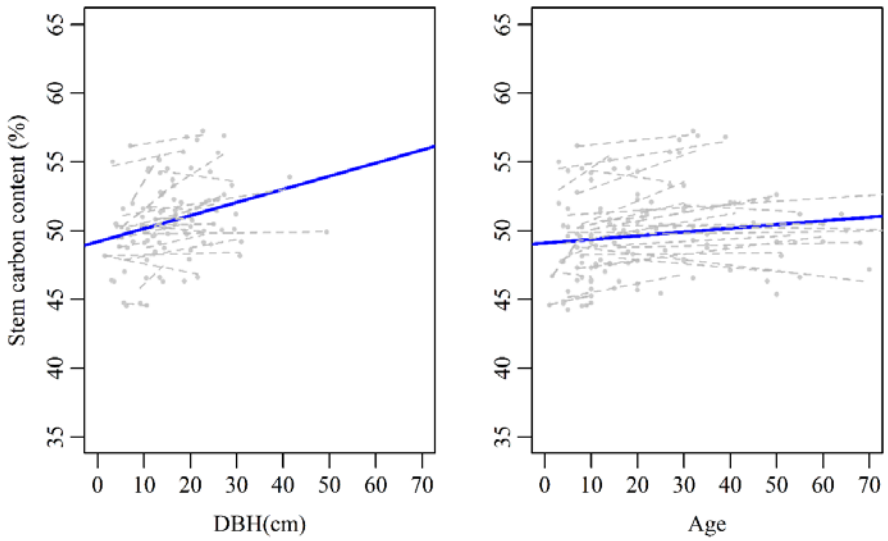
Table S2. The variation of carbon content of bark, branch, leaf, reproductive organ and root explained by stem carbon content based on a general linear model.

Organ	Bark	Branch	Leaf	Reproductive organ	Root
Explanation	2.59	60.10	36.90	11.90	34.60

Table S3. The relative error of using 50% and stem carbon content as tree carbon content in forest C stock estimations. N indicates the sample size. SD indicates the standard deviation. 5% and 95% indicate the 5th percentile and the 95th percentile, respectively.

Relative error	N	Mean	SD	Median	5%	95%
50%	79	1.08	6.13	0.91	-8.62	13.71
stem carbon content	79	0.66	2.17	0.38	-2.49	5.87

Figure S1. Stem carbon content of tree increased significantly with tree age and DBH. Solid lines indicate the results of pooled data, while dotted lines indicate the relationships of stem carbon content with DBH and age of each species in each sites.



Appendix 1：

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