Table S5A. Standard emission factors [μgC g(DW)$^{-1}$ h^{-1}] calculated from measurements data: isoprene (**EFiso**); constitutive monoterpenes from de novo production (**EFmono_P**) and storages (**EFmono_S**); stress-induced monoterpenes (**EFmono_I**); sesquiterpenes (**EFsqt**), benzenoids (**EFbz**), and green leaf volatiles (**EFglv**) . Values have been corrected according the relation of simulated maximum enzyme

	day measured	**Rseas**	**LMA**	**EF_iso**	**EF_mono_P**	**EF_mono_S**	**EF_mono_I**	**EF_sqt**	**EF_bz**	**EF_glv**
Ailanthus altissima	259	0.19	50.32	2.4	5.1	0.0	0.0	2.8	0.4	8.4
Berberis poiretii	252	0.34	53.20	56.6	73.6	0.0	1.9	126.7	65.4	121.1
Catalpa bungei	249	0.42	37.21	3.2	0.3	0.0	1.0	4.7	0.9	28.4
Diospyros kaki	279	0.27	58.53	0.0	13.5	0.0	0.5	39.0	0.6	18.1
Euonymus japonicus	242	0.51	43.03	19.2	46.2	23.7	0.0	37.6	53.8	28.3
Forsythia ovata	269	0.21	49.03	1.3	23.1	0.0	0.8	9.3	6.8	24.5
Fraxinus velutina	266	0.23	44.54	0.0	5.1	0.0	0.0	5.2	2.8	27.3
Ginkgo biloba	241	0.45	55.04	9.5	1.9	0.0	0.7	2.1	3.4	3.6
Koelreuteria paniculata	256	0.24	48.29	2.2	41.2	0.0	0.3	1.3	36.1	29.3
Ligustrum vicaryi	251	0.39	58.11	7.1	0.0	0.0	0.5	11.7	6.4	23.5
Liriodendron chinense	245	0.42	45.88	5.1	28.6	0.0	1.9	10.7	2.3	34.8
Lonicera maackii	277	0.14	35.79	0.0	0.0	0.0	4.9	85.5	0.6	33.7
Magnolia denudata	283	0.09	54.67	0.0	1.0	0.0	1.0	114.3	3.7	26.9
Malus micromalus	244	0.41	59.66	7.1	2.9	0.0	0.4	18.9	10.8	111.6
Platanus acerifolia	284	0.08	44.94	152.0	0.0	0.0	2.4	119.5	3.8	27.7
Populus tomentosa	238	0.43	75.92	216.7	11.1	0.0	0.2	3.4	8.2	8.5
Populus tomentosa (in fall)	270	0.10	75.92	52.1	29.0	0.0	0.1	26.6	3.1	28.1
Prunus cerasifera	275	0.15	41.30	0.0	37.6	0.0	0.0	37.6	5.6	234.5
Prunus persica	258	0.18	39.29	3.4	4.1	0.0	0.1	0.0	0.7	14.0
Salix babylonica	239	0.38	54.40	206.9	36.0	0.0	1.2	20.3	21.7	34.1
Salix babylonica (in fall)	273	0.08	54.40	43.4	11.7	0.0	0.0	14.8	3.4	63.9
Sophora japonica	240	0.50	34.57	43.5	30.5	0.0	1.0	18.4	13.0	99.0
Syringa pekinensis	265	0.22	47.85	0.0	40.5	0.0	1.0	28.6	29.3	54.2
Ulmus pumila	282	0.10	54.98	0.0	0.0	0.0	0.0	69.7	1.8	37.9

Table S5B. Standard emission factors [ugC g(DW)$^{-1}$ h^{-1}] for isoprene (**Efiso**) and monoterpenes (**Efmono**) from literature.

	Efiso	**ref**	**Efmono**	**ref**
Acer truncatum	1.0	6, 8, 33,36	1.4	7, 8, 19, 20, 33, 36
Albizia julibrissin	40.9	4, 13, 30	0.2	13, 30
Eucommia ulmoides	19.7	23	0.8	23
Robinia pseudoacacia	49.8	1, 10, 12, 14, 18, 19, 28, 34, 35, 36	3.3	18, 19, 22, 35, 36
Cedrus deodara	0.0	36, 38	3.9	5, 22, 36
Juniperus chinensis	0.3	15, 25, 26, 27, 31, 32, 36	2.1	15, 25, 26, 27, 31, 36
Picea koraiensis	2.6	16, 17, 18, 31	2.5	2, 17, 18, 31
Pinus bungeana	0.1	4, 17, 21, 26, 31, 33, 36	5.3	5, 17, 21, 26, 31, 33, 36
Pinus tabulaeformis	0.1	4, 17, 21, 26, 31, 33, 36	5.3	5, 17, 21, 26, 31, 33, 36
Platycladus orientalis	0.0	35	2.2	35
Cornus alba	0.1	9	1.6	9
Jasminum nudiflorum	0.0	29	1.5	**
Kerria japonica	3.3	**	1.5	**
Lagerstroemia indica	0.2	5, 23, 32, 36	0.0	5, 23, 36
Prunus triloba	1.9	20, 28, 37	0.2	3, 37
Sorbaria kirilowii	3.3	**	1.4	**
Weigela florida	3.3	**	1.4	**
Buxus microphylla	14.2	3, 11, 24, 26	0.1	3, 11, 24
Sabina vulgaris (Juniperus)	0.3	15, 25, 26, 27, 31, 32, 36	0.1	15, 25, 26, 27, 31, 36

** average of all other deciduous trees

ref:

1 Benjamin et al., 1996. Low-emitting urban forests: A taxonomic methodology for assigning isoprene and monoterpene emission rates. Atmos. Environ. 30, 1437-1452.

2 Bourtsoukidis et al., 2014. From emissions to ambient mixing ratios: online seasonal field measurements of VOCs over a Norway spruce-dominated forest in central Germany. ACP. 14: 6495-6510

3 Bracho-Nunez et al., 2013. Leaf level emissions of volatile organic compounds (VOC) from some Amazonian and Mediterranean plants. Biogeosciences, 10: 5855-5873.

4 Chang et al., 2012. An inventory of biogenic volatile organic compounds for a subtropical urban-rural complex. Atmos. Environ. 56: 115-123.

5 Corchnoy et al., 1992. Hydrocarbon emissions from twelve urban shade trees of the Los Angeles, California, Air Basin. Atmospheric Environment. Part B. Urban Atmosphere 26, 339-348

6 Cronn et al., 1982. Analysis of atmospheric hydrocarbons during winter MONEX. Tellus 34, 159-165.

7 Curtis et al., 2014. Biogenic volatile organic compound emissions from nine tree species used in an urban tree-planting program. Atmos. Environ. 95: 634-643.

8 Evans et al., 1982. Estimates of isoprene and monoterpene emission rates in plants. Bot. Gaz. 143, 304-310

9 Geron et al., 1994. An improved model for estimating volatile organic compound emissions from forests in the eastern United States. Journal of Geophysical Research 99(D6): 12773-12791.

10 Geron et al., 2001. Isoprene emission capacity for US tree species. Atmos. Environ. 35, 3341-3352

11 Guenther & Greenberg, 2000. Not published (ENCLOSURE Database)

12 Guenther et al.,1996. Estimates of regional natural volatile organic compound fluxes from enclosure and ambient measurements. J.Geophys.Res. 101, 1345-1359.

13 Guenther et al., 1996. Leaf, branch, stand and landscape scale measurements of volatile organic compound fluxes from U.S. woodlands. Tree Physiology 16: 17-24.

14 Guenther et al., 1994. Natural volatile organic compound emission rate estimates for U.S. woodland landscapes. Atmos. Environ. 28, 1197-1210

15 Hewitt et al., 1992. A qualitative assessment of the emission of non-methane hydrocarbon compounds from the biosphere to the atmosphere in the U.K.: present knowledge and uncertainties. Atmos. Environ. 26: 3069-3077

16 Isebrands et al, 1999. Volatile organic compound emission rates from mixed deciduous and coniferous forests in Northern Wisconsin, USA. Atmos. Environ. 33, 2527-2536

17 Karl et al., 2009. A new European plant-specific emission inventory of biogenic volatile organic compounds for use in atmospheric transport models. Biogeosciences 6, 1059-1087

18 Klinger et al., 2002. Assessment of volatile organic compound emissions from ecosystems of China. J.Geophys.Res. 107(D21): 4603.

19 Lamb et al., 1983. Natural hydrocarbon emission rate measurements from vegetation in Pennsylvania and Washington. PB84-124981. Nat. Tech. Inf. Serv.. Springfield, Virginia, U.S.A., US. Environmental Protection Agency

20 Lamb et al., 1987. A national inventory of biogenic hydrocarbon emissions. Atmos. Environ. 21(8): 1695-1705.

21 Lenz et al., 1997. Scaling up the biogenic emissions from test sites at Castelporziano. Atmos. Environ. 31(SI): 239-250.

22 Noe et al., 2008. Monoterpene emissions from ornamental trees in urban areas: a case study of Barcelona, Spain. Plant Biol 10, 163-169

23 Nowak et al., 2002. Brooklyn's urban forest.In. Newtown Square, PA: U. S. 1-107.

24 Owen et al., 1998 PhD Thesis Lancaster University (from ENCLOSURE Database)

25 Owen et al., 2000. Extrapolating branch enclosure measurements to estimates of regional scale biogenic VOC fluxes in the northwestern Mediterranean basin. Journal of Geophysical Research, 105(D9): 11573-11584

26 Owen et al., 2001. Volatile organic compounds (VOCs) emitted from 40 Mediterranean plant species: VOC speciation and extrapolation to habitat scale. Atmos. Environ. 35(32): 5393-5409.

27 Papiez et al., 2009. The impacts of reactive terpene emissions from plants on air quality in Las Vegas, Nevada. Atmos. Environ. 43(27): 4109-4123.

28 Préndez et al., 2013. Biogenic volatile organic compounds from the urban forest of the Metropolitan Region, Chile. Environmental Pollution 183: 143-150.

29 Rasmussen, 1978. "Isoprene plant species list" Special report of Air Pollut. Res. Section, Washington State University,Pullman.

30 Singh et al., 2014. Ozone forming potential of tropical plant species of the Vidarbha region of Maharashtra state of India. Urban Forestry & Urban Greening 13(4): 814-820.

31 Steinbrecher et al., 1999. A Revised Parameterisation for Emission Modelling of Isoprenoids for Boreal Plants. Biogenic VOC emissions and photochemistry in the boreal regions of Europe – Biphorep: European Commission.

32 Tambunan et al., 2006. Isoprene emission from tropical trees in Okinawa Island, Japan. Chemosphere, 65: 2138-2144.

33 Tiwary et al., 2013. Systems scale assessment of the sustainability implications of emerging green initiatives. Environmental Pollution 183: 213-223.

34 Wang et al., 2002. Study on emission of isoprene from major plants living in Taihu Basin. Chinese Bulletin of Botany (in Chinese). 19(2):224-230; http://wenku.baidu.com/view/ab5bfe2bdd36a32d737581eb.html

35 Wang et al., 2003. A biogenic volatile organic compounds emission inventory for Beijing. Atmos. Environ. 37, 3771-3782

36 Winer et al., 1983. Investigation of the role of natural hydrocarbons in photochemical smog formation in California. Contract No. AO-056-32. 1983. Riverside, California, U.S.A., Statewide Air Pollution Research Center.

37 Winer et al., 1992: Emission rates of organics from vegetation in California’s central valley, Atmos. Environ. 26a, 2647–2659.

38 Xiaoshan et al., 2000. Seasonal variations of isoprene emissions from deciduous trees. Atmos. Environ. 34(18): 3027-3032.

Table S5C. Height, diameter at breast height (in case of trees) or crown diameter (in case of shrubs) used for calculating the BVOC emission budget.

Plant species	morphological type	phenological type	height	dbh	crown diam
Berberis poiretii	shrub	deciduous	1.4	-	1.3
Cornus alba	shrub	deciduous	1.2	-	0.5
Forsythia ovata	shrub	deciduous	2.1	-	2.1
Jasminum nudiflorum	shrub	deciduous	0.9	-	1
Kerria japonica	shrub	deciduous	1.4	-	2.1
Lagerstroemia indica	shrub	deciduous	1.8	-	0.9
Ligustrum vicaryi	shrub	deciduous	1.1	-	1.3
Lonicera maackii	shrub	deciduous	3.5	-	3.6
Prunus triloba	shrub	deciduous	2.4	-	3
Sorbaria kirilowii	shrub	deciduous	2.0	-	1.9
Syringa pekinensis	shrub	deciduous	2.9	-	2.8
Weigela florida	shrub	deciduous	1.8	-	0.5
Acer truncatum	tree	deciduous	8.5	17.4	-
Ailanthus altissima	tree	deciduous	9	18.1	-
Albizia julibrissin	tree	deciduous	8.1	16.7	-
Catalpa bungei	tree	deciduous	7.6	16.3	-
Diospyros kaki	tree	deciduous	8	13.9	-
Eucommia ulmoides	tree	deciduous	10.1	25.3	-
Fraxinus velutina	tree	deciduous	10.4	19.9	-
Ginkgo biloba	tree	deciduous	8.9	16.6	-
Koelreuteria paniculata	tree	deciduous	10.2	22.3	-
Liriodendron chinense	tree	deciduous	8.3	15.8	-
Magnolia denudata	tree	deciduous	3.8	5.7	-
Malus micromalus	tree	deciduous	4.7	15	-
Platanus acerifolia	tree	deciduous	10.5	23.2	-
Populus tomentosa	tree	deciduous	14.6	30.1	-
Populus tomentosa (in fall)	tree	deciduous	14.6	30.1	-
Prunus cerasifera	tree	deciduous	4.9	16.6	-
Prunus persica	tree	deciduous	3	13.8	-
Robinia pseudoacacia	tree	deciduous	10.5*	22.0*	-
Salix babylonica	tree	deciduous	11.3	23.6	-
Salix babylonica (in fall)	tree	deciduous	11.3	23.6	-
Sophora japonica	tree	deciduous	10.5	23.5	-
Ulmus pumila	tree	deciduous	11.4	18.7	-
Buxus microphylla	shrub	evergreen	1.3	-	1.5
Euonymus japonicus	shrub	evergreen	1.3	-	0.3
Sabina vulgaris (Juniperus)	shrub	evergreen	0.8	-	0.3
Cedrus deodara	tree	evergreen	8.7	24.1	-
Juniperus chinensis	tree	evergreen	8.0	15.4	-
Picea koraiensis	tree	evergreen	4.2	13.8	-
Pinus bungeana	tree	evergreen	6.2	14.8	-

Pinus tabulaeformis	tree	evergreen	5.0	15.1	-
Platycladus orientalis	tree	evergreen	7.8	18.7	-

* calculated as average of literature values from other deciduous shrub species