

## Supplementary Information

### Terrestrial and aquatic carbon dynamics in tropical peatlands under different land use types: a systematic review protocol

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## Supplementary Information

**Table S1.** List of used publications to test the effectiveness of search string.

No	Short ref.	Full reference	Document type
1	Ali et al., 2006	Ali, M., Taylor, D. & Inubushi, K. (2006) Effects of environmental variations on CO <sub>2</sub> efflux from a tropical peatland in Eastern Sumatra. <i>Wetlands</i> 26: 612–618.	Journal article
2	Basuki et al., 2012	Basuki, S., Suwardi & Munoz, C.P. (2012) Emission of CO <sub>2</sub> and CH <sub>4</sub> from plantation forest of <i>Acacia crassiparva</i> on peatlands in Indonesia. In: Proceedings of the 14th International Peat Congress. Stockholm, Sweden, 3–8 June.	Conference paper
3	Brady, 1997	Brady, M.A. (1997) Organic matter dynamics of coastal peat deposits in Sumatra, Indonesia [PhD thesis]. Department of Forestry, University of British Columbia, Vancouver, Canada.	Thesis
4	Chimner & Ewel, 2004	Chimner, R.A. & Ewel, K.C. (2004) Differences in carbon fluxes between forested and cultivated Micronesian tropical peatlands. <i>Wetlands Ecology and Management</i> 12: 419–427.	Journal article
5	Chimner & Ewel, 2005	Chimner, R.A. & Ewel, K.C. (2005) A tropical freshwater wetland: II. Production, decomposition, and peat formation. <i>Wetlands Ecology and Management</i> 13: 671–684.	Journal article
6	Chimner, 2004	Chimner, R.A. (2004) Soil respiration rates of tropical peatlands in Micronesia and Hawaii. <i>Wetlands</i> 24: 51–56.	Journal article
7	Comeau et al., 2013	Comeau, L.-P., Hergoualc'h, K., Smith, J.U. & Verchot, L. (2013) Conversion of intact peat swamp forest to oil palm plantation: effects on soil CO <sub>2</sub> fluxes in Jambi, Sumatra. Working Paper 110. Bogor, Indonesia: Center for International Forestry Research.	Working paper or report
8	Couwenberg & Hooijer, 2013	Couwenberg, J. & Hooijer, A. (2013) Towards robust subsidence-based soil carbon emission factors for peat soils in south-east Asia, with special reference to oil palm plantations. <i>Mires and Peat</i> 12: 1–13.	Journal article
9	Dariah et al., 2013	Dariah, A., Marwanto, S. & Agus, F. (2013) Peat CO <sub>2</sub> emissions from oil palm plantations, separating root-related and heterotrophic respirations. <i>Mitigation and Adaptation Strategies for Global Change</i> doi: 10.1007/S11027/013/95915/6.	Journal article

10	Darung et al., 2005	Darung, U., Morishita, T., Takakai, F., Dohong, S., Limin, H.S. & Hatano, R. (2005) The effects of forest fire and agriculture on CO <sub>2</sub> emissions from tropical peatlands, Central Kalimantan, Indonesia. In: Proceedings of the International Workshop on Human Dimension of Tropical Peatland under Global Environmental Changes, pp. 112–119. Bogor, Indonesia, 8–9 December 2004.	Conference paper
11	DID & LAWO, 1996	DID and LAWO (1996) Western Jahore integrated agricultural development project. Peat soil management study. Department of Irrigation and Drainage (DID), Kuala Lumpur, Malaysia, and Land and Water Research Group (LAWO), Wageningen, The Netherlands.	Working paper or report
12	Furukawa et al., 2005	Furukawa, Y., Inubushi, K., Ali, M., Itang, A.M. & Tsuruta, H. (2005) Effect of changing groundwater levels caused by land-use changes on greenhouse gas emissions from tropical peatlands. <i>Nutrient Cycling in Agroecosystems</i> 71: 81–91.	Journal article
13	Gill & Jackson, 2000	Gill, R.A. & Jackson, R.B. (2000) Global patterns of root turnover for terrestrial ecosystems. <i>New Phytologist</i> 147: 13–31.	Journal article
14	Hadi et al., 2005	Hadi, A., Inubushi, K., Furukawa, Y., Purnomo, E., Rasmadi, M. & Tsuruta, H. (2005) Greenhouse gas emissions from tropical peatlands of Kalimantan, Indonesia. <i>Nutrient Cycling in Agroecosystems</i> 71: 73–80.	Journal article
15	Hairiah et al., 1999	Hairiah, K., van Noordwijk, M. & Cadisch, G. (1999) Roots as part of the carbon and nitrogen input and output of three types of cropping systems on an Ultisol in North Lampung. In: Proceedings of the Seminar Toward Sustainable Agriculture in Humid Tropics Facing 21st Century, ed. C. Ginting, A. Gafur & FX Susilo, pp. 86–95. Bandar Lampung, Indonesia, 27–28 September. Bogor, Indonesia: International Centre for Research in Agroforestry.	Conference paper
16	Hairiah et al., 2000	Hairiah, K., van Noordwijk, M. & Cadisch, G. (2000) Crop yield, C and N balance of three types of cropping systems on an Ultisol in Northern Lampung. <i>Netherlands Journal of Agricultural Science</i> 48: 3–17.	Journal article
17	Harrison et al., 2007	Harrison, M.E., Cheyne, S.M., Sulistiyanto, Y. & Rieley, J.O. (2007) Biological effects of smoke from dryseason fires in non-burnt areas of the Sabangau peat swamp forest, Central Kalimantan, Indonesia. Paper presented at International Symposium and Workshop Carbon–Climate–Human Interactions: Carbon Pools, Fire, Mitigation, Restoration and Wise Use, Yogyakarta, Indonesia, 27–31 August. [www document] URL <a href="http://www.geog.le.ac.uk/carbopeat/media/pdf/yogyapapers/p9.pdf">http://www.geog.le.ac.uk/carbopeat/media/pdf/yogyapapers/p9.pdf</a>	Conference paper
18	Henson & Dolmat, 2003	Henson, I.E. & Dolmat, M.T. (2003) Physiological analysis of an oil palm density trial on a peat soil. <i>Journal of Oil Palm Research</i> 15: 1–27.	Journal article
19	Hergoualc'h & Verchot, 2011	Hergoualc'h, K. & Verchot, L.V. (2011) Stocks and fluxes of carbon associated with land-use change in Southeast Asian tropical peatlands: a review. <i>Global Biochemical Cycles</i> 25: GB2001. doi: 2010.1029/2009GB003718.	Journal article
20	Hertel et al., 2009	Hertel, D., Hartevel, M.A. & Leuschner, C. (2009) Conversion of a tropical forest into agroforest alters the fine root-related carbon flux to the soil. <i>Soil Biology and Biochemistry</i> 41: 481–490.	Journal article
21	Hirano et al., 2009	Hirano, T., Jauhiainen, J., Inoue, T. & Takahashi, H. (2009) Controls on the carbon balance of tropical peatlands. <i>Ecosystems</i> 12: 873–887.	Journal article
22	Hirano et al., 2012	Hirano, T., Segah, H., Kusin, K., Limin, S., Takahashi, H. & Osaki, M. (2012) Effects of disturbances on the carbon balance of tropical peat swamp forests. <i>Global Change Biology</i> 18: 3410–3422.	Journal article
23	Hooijer et al., 2012	Hooijer, A., Page, S., Jauhiainen, J., Lee, W.A., Lu, X.X., Idris, A. & Anshari, G. (2012) Subsidence and carbon loss in drained tropical peatlands. <i>Biogeosciences</i> 9: 1053–1071.	Journal article
24	Inubushi et al., 1998	Inubushi, K., Hadi, A., Okazaki, M. & Yonebayashi, K. (1998) Effect of converting wetland forest to sago palm plantations on methane gas flux and organic carbon dynamics in tropical peat soil. <i>Hydrological Processes</i> 12: 2073–2080.	Journal article

25	Inubushi et al., 2003	Inubushi, K., Furukawa, Y., Hadi, A., Purnomo, E. & Tsuruta, H. (2003) Seasonal changes of CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O fluxes in relation to land-use change in tropical peatlands located in coastal area of South Kalimantan. <i>Chemosphere</i> 52: 603–608.	Journal article
26	Ishida et al., 2001	Ishida, T., Suzuki, S., Nagano, T., Osawa, K., Yoshino, K., Fukumura, K. & Nuyim, T. (2001) CO <sub>2</sub> emission rate from a primary peat swamp forest ecosystem in Thailand. <i>Environmental Control in Biology</i> 39: 305–312.	Journal article
27	Jauhiainen & Silvennoinen, 2012	Jauhiainen, J. & Silvennoinen, H. (2012) Diffusion GHG fluxes at tropical peatland drainage canal water surfaces. <i>Suo</i> 63: 93–105.	Journal article
28	Jauhiainen et al., 2008	Jauhiainen, J., Limin, S., Silvennoinen, H. & Vasander, H. (2008) Carbon dioxide and methane fluxes in drained tropical peat before and after hydrological restoration. <i>Ecology</i> 89: 3503–3514.	Journal article
29	Jauhiainen et al., 2012a	Jauhiainen, J., Hooijer, A. & Page, S.E. (2012a) Carbon dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia. <i>Biogeosciences</i> 9: 617–630.	Journal article
30	Jauhiainen et al., 2012c	Jauhiainen, J., Hooijer, A. & Page, S.E. (2012c) Greenhouse gas emissions from a plantation on thick tropical peat. In: <i>Proceedings of the 14th International Peat Congress</i> . Stockholm, Sweden, 3–8 June.	Conference paper
31	Lamade & Bouillet, 2005	Lamade, E. & Bouillet, J.-P. (2005) Carbon storage and global change: the role of oil palm. <i>OCL: Oléagineux, Corps Gras, Lipides</i> 12: 154–160.	Journal article
32	Marwanto & Agus, 2013	Marwanto, S. & Agus, F. (2013) Is CO <sub>2</sub> flux from oil palm plantations on peatland controlled by water table, soil moisture, day/night rhythm and/or temperature? <i>Mitigation and Adaptation Strategies for Global Change</i> doi 10.1007/s11027-013-9518-3.	Journal article
33	Matthews et al., 2000	Matthews, R.B., Wassmann, R., Buendia, L.V. & Knox, J.W. (2000) Using a crop/soil simulation model and GIS techniques to assess methane emissions from rice fields in Asia: II. Model validation and sensitivity analysis. <i>Nutrient Cycling in Agroecosystems</i> 58: 161–177.	Journal article
34	Melling et al., 2005a	Melling, L., Hatano, R. & Goh, K.J. (2005a) Soil CO <sub>2</sub> flux from three ecosystems in tropical peatland of Sarawak, Malaysia. <i>Tellus</i> 57B: 1–11.	Journal article
35	Melling et al., 2007a	Melling, L., Goh, K.J., Beauvais, C. & Hatano, R. (2007a) Carbon flow and budget in a young mature oil palm agroecosystem on deep tropical peat. <i>International Symposium and Workshop on Tropical Peatland</i> , Yogyakarta, Indonesia, 27–31 August.	Conference paper
36	Melling et al., 2013	Melling, L., Chaddy, A., Goh, K.J. & Hatano, R. (2013) Soil CO <sub>2</sub> fluxes from different ages of oil palm in tropical peatland of Sarawak, Malaysia as influenced by environmental and soil properties. <i>Acta Horticulturae</i> 982: 25–35.	Journal article
37	Rahaoje et al., 2000	Rahajoe, J.S., Kohyama, T. & Limin, S.H. (2000) Litter decomposition process in two contrastive nutrient limited forest types in central Kalimantan. In: <i>Proceedings of the International Symposium on Tropical Peatlands</i> , ed. T. Iwakuma, pp. 223–231. Bogor, Indonesia, 22–23 November 1999. Hokkaido University and Indonesian Institute of Sciences, Bogor, Indonesia.	Conference paper
38	Shimamura & Momose, 2005	Shimamura, T. & Momose, K. (2005) Organic matter dynamics control plant species coexistence in a tropical peat swamp forest. <i>Proceedings of the Royal Society B: Biological Sciences</i> 272: 1503–1510.	Journal article
39	Sulistiyanto, 2004	Sulistiyanto, Y. (2004) Nutrient dynamics in different sub-types of peat swamp forest in central Kalimantan, Indonesia [PhD thesis]. University of Nottingham, Nottingham, UK.	Thesis
40	Sundari et al., 2012	Sundari, S., Hirano, T., Yamada, H., Kusin, K. & Limin, S. (2012) Effects of groundwater level on soil respiration in tropical peat swamp forests. <i>Journal of Agricultural Meteorology</i> 68: 121–134.	Journal article

41	Warren et al., 2012	Warren, M.W., Kauffmann, J.B., Murdiyarso, D., Anshari, G., Hergoualc'h, K., Kurnianto, S., Purbopuspito, J., Gusmayanti, E., Afifudin, M., Rahajoe, J., Alhamd, L., Limin, S. & Iswandi, A. (2012) A cost-efficient method to assess carbon stocks in tropical peat soil. <i>Biogeosciences</i> 9: 4477–4485.	Journal article
42	Watanabe et al., 2009	Watanabe, A., Purwanto, B.H., Ando, H., Kakuda, K.-i. & Jong, F.-S. (2009) Methane and CO <sub>2</sub> fluxes from an Indonesian peatland used for sago palm ( <i>Metroxylon sagu</i> Rottb.) cultivation: effects of fertilizer and groundwater level management. <i>Agriculture, Ecosystems and Environment</i> 134: 14–18.	Journal article

## Supplementary Information

**Table S2.** The development of search string for literature search in the databases.

No	Database	Search string	Date of literature search	Search results	Duplicates	Total literature record minus duplicates	Note
#1	Web of Science	TOPIC: (peatland* AND tropic*) AND TOPIC: (undisturb* OR clear* OR pristine OR intact OR plantation OR log* OR harvest* OR agricultur* OR "land use change" OR "oil palm" OR "rice cultivation" OR "rice farm*" OR mining OR degrad* OR disturb* OR "land cover change" OR deforest* OR conversion OR rehabilit* OR restor*) AND TOPIC: (ecosystem OR biomass OR soil* OR NPP OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR GHG OR flux*) AND TOPIC: ("carbon stock*" OR methane OR CO <sub>2</sub> or CH <sub>4</sub> OR 13C OR 14C OR "stable isotope*")	10th May 2020	202	0	202	
#2	Web of Science	TOPIC: (peat* AND tropic*) AND TOPIC: (ecosystem OR biomass OR soil* OR NPP OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR GHG OR flux* OR river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water") AND TOPIC: ("carbon stock*" OR methane OR CO <sub>2</sub> or CH <sub>4</sub> OR 13C OR 14C OR "stable isotope*" OR carbon OR "greenhouse gas*" OR GHG* OR outgas* OR CO <sub>2</sub> OR CH <sub>4</sub> OR methane OR "organic matter")	4th June 2020	743	0	743	
#3	Web of Science	TOPIC: (peat* AND tropic*) AND TOPIC: (ecosystem OR biomass OR soil* OR NPP OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR GHG OR flux* OR river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water" OR <u>area</u> OR <u>extent</u> ) AND TOPIC: ("carbon stock*" OR methane OR CO <sub>2</sub> or CH <sub>4</sub> OR 13C OR 14C OR "stable isotope*" OR carbon OR "greenhouse gas*" OR GHG* OR outgas* OR CO <sub>2</sub> OR CH <sub>4</sub> OR methane OR "organic matter")	4th June 2020	799		799	Similar to search #2, with adding "area" and "extent"
#4	Web of Science	TS=("black-water" OR "black water" OR blackwater OR peat* AND tropic*) AND TS=(ecosystem OR biomass OR soil* OR NPP OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR	5th June 2020	1,151		1151	Similar to search #3, with adding "black-water"

		R GHG OR flux* OR river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water" OR area OR extent) AND TS=("carbon stock*" OR methane OR CO2 OR CH4 OR 13C OR 14C OR "stable isotope*" OR carbon OR "greenhouse gas*" OR GHG* OR outgas* OR CO2 OR CH4 OR methane OR "organic matter") Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years					OR "black water" OR blackwater
#5	Web of Science	TS=("black-water" OR "black water" OR blackwater OR peat* OR "peat swamp*" OR PSF) AND TS=(tropic* OR neotropic* OR SEA OR "Southeast Asia" OR "South east Asia" OR "Latin America" OR "Central America" OR Amazon* OR Peru* OR Panama) AND TS=(ecosystem OR biomass OR soil* OR NPP OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR GHG OR flux* OR river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water" OR area OR extent) AND TS=("carbon stock*" OR methane OR CO2 OR CH4 OR 13C OR 14C OR "stable isotope*" OR carbon OR "greenhouse gas*" OR GHG* OR outgas* OR CO2 OR CH4 OR methane OR "organic matter" OR POC OR DOC OR DIC) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC.	8th June 2020	1389		1389	similar to search #4, with additional keywords for geographical location justification.
#6	Scopus	TITLE-ABS-KEY ("black-water" OR "black water" OR blackwater OR peat* OR "peat swamp*" OR psf) AND TITLE-ABS-KEY (tropic* OR neotropic* OR sea OR "Southeast Asia" OR "South east Asia" OR "Latin America" OR "Central America" OR amazon* OR peru* OR panama) AND TITLE-ABS-KEY (ecosystem OR biomass OR soil* OR npp OR productivity OR "root product*" OR respiration OR efflux OR sequest* OR "greenhouse gas*" OR ghg OR flux* OR river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water" OR area OR extent) AND TITLE-ABS-KEY ("carbon stock*" OR methane OR co2 OR ch4 OR 13c OR 14c OR "stable isotope*" OR carbon OR "greenhouse gas*" OR ghg* OR outgas* OR co2 OR ch4 OR methane OR "organic matter" OR poc OR doc OR dic)	8th June 2020	1,390		1390	Search string composition similar to search #4.
#7	Scopus	(peat* OR black-water OR "black water" OR blackwater OR Amazon* OR Peru* OR Pantanal OR Guyana* OR Panama* OR Congo*) AND (river OR fluvial OR stream OR canal OR channel OR leaching OR porewater OR "pore water" OR NPP OR "product*" OR respiration OR *flux* OR sequest OR emission*, OR dynamics OR accumulation OR subsidence OR balance OR cycling OR stor* OR	8th June 2020	22,998			

		mineralization OR decomposition OR pool OR outgas* ) AND (carbon OR "greenhouse gas*" OR GHG* OR CO2 OR CH4 OR methane OR "organic matter" OR Soil* OR biomass)					
#8	Scopus	(peat* OR black-water OR "black water" OR blackwater OR river OR floodplain OR swamp OR fluvial OR "organic soil*" OR "peat swamp*" OR PSF) AND (amazon* OR peru* OR pantanal OR guyana* OR panama* OR venezuela OR bolivia* OR tropic* OR borne* OR congo* OR tropical OR sumatra OR borne* OR malaysi* OR "Southeast Asia*" OR indonesia* OR serawak OR sarawak OR Kalimantan OR neotropic* OR "Latin America") AND (product* OR respiration OR *flux* OR sequest* OR emission*, OR dynamics OR accumulation OR subsidence OR balance OR cycl* OR stor* OR mineralization OR *composition OR pool OR outgas* OR sink* OR source* OR release* OR content OR substance* OR transport OR origin* OR processing OR distribution OR consumption OR character* OR export* OR change OR variation OR concentration OR degradation OR properties OR input OR loss* OR stock* OR ecosystem OR biomass OR soil* OR "npp" OR "root product*" OR sequest* OR heterotro* OR autotro* OR aboveground OR area OR extent) AND (carbon OR "greenhouse gas*" OR ghg* OR co2 OR ch4 OR methane OR "organic mat*" OR biomass OR C OR humic OR biogeochem* OR DOC OR POC OR DIC OR 14C OR radiocarbon OR 13C)	11th June 2020	8585		8585	
#9	Scopus	TITLE-ABS-KEY ( ( peat* OR "black water" OR "black*water" OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol ) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pantanal OR guyana* OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR sumatra OR borneo OR bornean OR malaysi* OR indonesia* OR brunei OR sarawak OR kalimantan ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )	18th June 2020	8565			
#10	Web of Science	TS=(( peat* OR "black water" OR "black*water" OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol ) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pantanal OR guyana* OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR sumatra OR borneo OR bornean OR malaysi* OR indonesia* OR brunei OR sarawak OR kalimantan ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )	18th June 2020	12526			
#11	Web of Science	TS=( ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "orga	24th June 2020	12,464			

		nic soil*" OR histosol*) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pentanal OR guyana * OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )					
#12	Scopus	TITLE-ABS-KEY ( ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol*) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pentanal OR guyana * OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )	24th June 2020	8,513			
#13	Scopus	TITLE-ABS-KEY ( ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol*) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pentanal OR guyana * OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak ) AND ( product* OR respiration OR *flux* OR sequest* OR emission*, OR dynamics OR accumulation OR subsidence OR balance OR cycle* OR storage* OR mineralization OR *composition OR pool OR outgas* OR sink* OR source* OR release* OR content OR substance* OR transport OR origin* OR processing OR distribution OR consumption OR character* OR export* OR change OR variation OR concentration OR degradation OR properties OR input OR loss* OR stock* OR ecosystem OR biomass OR soil* OR "npp" OR "root product*" OR sequest* OR heterotrophic* OR autotrophic* OR aboveground OR area OR extent ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )	24th June 2020	8,176			
#14	Web of Science	TS=( ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol*) AND ( tropic* OR neotropic* OR amazon* OR peru* OR pentanal OR guyana * OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )	24th June 2020	12,023			

		tra OR borneo OR bornean OR sarawak ) AND ( product* OR respiration OR *flux* OR sequest* OR emission*, OR dynamics OR accumulation OR subsidence OR balance OR cycl* OR stor* OR mineralization OR *composition OR pool OR outgas* OR sink* OR source* OR release* OR content OR substance* OR transport OR origin* OR processing OR distribution OR consumption OR character* OR export* OR change OR variation OR concentration OR degradation OR properties OR input OR loss* OR stock* OR ecosystem OR biomass OR soil* OR "npp" OR "root product*" OR sequest* OR heterotro* OR autotro* OR aboveground OR area OR extent ) AND ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon ) )					
#15	Scopus	TITLE-ABS-KEY ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol* ) AND TITLE-ABS-KEY ( tropic* OR neotropic* OR amazon* OR peru* OR pantanal OR guyana* OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak ) AND TITLE-ABS-KEY ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon )	25th June 2020	8,586			Similar to search #13, but correcting the spelling of “pentanal” to “pantanal”
#16	Web of Science	TS=(peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR “organic soil*” OR histosol*) AND TS=(tropic* OR neotropic* OR amazon* OR peru* OR pantanal OR guyana* OR panama* OR venezuela OR bolivia* OR congo* OR "southeast asia*" OR indonesia* OR malaysi* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak) AND TS=(carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR C OR humic OR biogeochem* OR DOC OR POC OR DIC OR 13C OR 14C OR radiocarbon)	25th June 2020	12,767			Similar to search #12, but correcting the spelling of “pentanal” to “pantanal”
#17	Scopus	TITLE-ABS-KEY ( peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol* ) AND TITLE-ABS-KEY ( tropic* OR neotropic* OR amazon* OR pantanal OR colombia* OR guyana OR peru* OR venezuela OR panama* OR "southeast asia*" OR indonesia* OR malaysia* OR brunei OR papua OR borneo OR bornean OR sumatra OR kalimantan OR sarawak OR uganda OR congo* OR okavango ) AND TITLE-ABS-KEY ( carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon )	30th June 2020	9,002			Updated [geographical location] category



#18	Web of Science	TS=(peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol*) AND TS=(tropic* OR neotropical* OR amazon* OR peru* OR pantanal OR guyana OR panama* OR venezuela OR congo* OR "southeast asia*" OR indonesia* OR malaysia* OR brunei OR kalimantan OR sumatra OR borneo OR bornean OR sarawak OR colombia* OR papua OR okavango OR uganda) AND TS=(carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR C OR humic OR biogeochem* OR DOC OR POC OR DIC OR 13C OR 14C OR radiocarbon)	30th June 2020	13,344			Updated [geographical location] category
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## Supplementary Information

**Table S3.** List of structured questions and stratified responses to assess study validity

Sections	Questions	High quality study (Response score: 1)	Medium quality study (Response score: 0.5)	Low quality study (Response score: 0)
Study Site	Is there information provided on the study site's environment?	Relevant information including climate, hydrology, geology, human activities or disturbances condition	Minimum single relevant information is required	No available relevant information
	Does the study present spatial variability (multiple plots)?	Data are primary collected from more than one location	Study data are obtained from at least single location	Not available or No relevant data on carbon dynamics are presented
	Does the study have or present temporal variability (multiple field visit)?	Data are primary collected from more than one time of measurement	Study data are obtained from at least single time of measurement	Not available or No relevant data on carbon dynamics are presented
	Is the sampling strategy clearly described?	Multiple factors describing data variation must be presented (e.g., different land cover, vegetation stand, land elevation, coastal vs upland peatland, seasonal variation)	Minimum single factor describing data variation is presented	Not available or No sampling strategy is presented
Material and Methods	Are the data collection methods clearly explained and replicable?	Study must describe total samples collected, methods and equipment used, period of data collection	Study presents at least number of samples or sampling	No number of sample is described
	Are the data analysis clearly explained (e.g., repeatable data analysis)?	Details of replicable data analysis method or code must be described	Study presents partly data analysis	Not available
Results	Are the results being describe accordingly to the variables assessed?	Data are described following multiple factors such as land uses or covers, season, elevation, vegetation stand, peat depth, peat characteristics	Data are described following at least single factor	Not available or No carbon dynamic data are presented
	Does the results includes means, standard deviation or range (min; max) and amount of samples?	Data presentation must contains mean or average, standard error or deviation, and number of samples	Study data contain at least mean or average	Not available or No carbon dynamic data are presented
Additional Information	Are the carbon data easily and precisely accessible?	Data must be presented in table or figure with average value and standard deviation	Study data contain at least mean or average in either figure, table or text	Not available or No carbon dynamic data are presented

	Does the paper include an additional information file?	Yes or no (this question is used to identify raw data presentation in the Supplementary Information for future data extraction stage)	Yes or no (this question is used to identify raw data presentation in the Supplementary Information for future data extraction stage)	Yes or no (this question is used to identify raw data presentation in the Supplementary Information for future data extraction stage)
	Is the study related to terrestrial, aquatic or both?	Study is relevant to at least either terrestrial, aquatic, both terrestrial and aquatic carbon pathways	Study is relevant to at least either terrestrial, aquatic, both terrestrial and aquatic carbon pathways	Study is relevant to at least either terrestrial, aquatic, both terrestrial and aquatic carbon pathways

## Supplementary Information

**Table S4.** List of data extraction variables and sub-variables for tropical peatlands carbon cycling systematic review

Variable	Sub-variable 1	Sub-variable 2	Description	Expected unit(s)
<b>General information</b>		ID_key	Original ID assigned to the paper at the start of the systematic review	
		Data_extractor	Initials (First name, Last name) of person extracting data	
		Data_extraction_date (DD/MM/YYYY)	Date that data is being extracted	
<b>Publication information</b>		Authors	Authors of the paper	
		Title	Title of the paper	
		Pub_year	Year that the paper was published	
		Aims_objectives	Aims and/or objectives of the paper. This is usually found in the last paragraph of the first section (Introduction)	
<b>Full-text screening outcome</b>		Full-text_screening_rating	Score assigned to a paper (0 to 9) during the full-text screening	
		Population	One or more keywords in search string: (peat* OR "black water" OR black*water OR river* OR floodplain OR swamp* OR "organic soil*" OR histosol*)	
		Site_name_or_geographical_location	One or more keywords in search string: (tropic* OR neotropic* OR amazon* OR pantanal OR colombia* OR guyana OR peru* OR venezuela OR panama* OR "southeast asia*" OR indonesia* OR malaysia* OR brunei OR papua OR borneo OR bornean OR sumatra OR kalimantan OR sarawak OR uganda OR congo* OR okavango)	
		Country	Country or list of countries studied	

		Outcome	One or more keywords in search string: (carbon OR "greenhouse gas*" OR ghg* OR *co2 OR *ch4 OR methane OR "organic mat*" OR biomass OR c OR humic OR biogeochem* OR doc OR poc OR dic OR 13c OR 14c OR radiocarbon)	
		Study_type	One of the following study types: field-based (F), lab-based (L), remote sensing (RS), review (R), modelling (M))	
		Supplementary_information_file_availability	Whether there is additional supplementary/supporting information provided	
		Terrestrial_aquatic_or_both	Whether the study is related to terrestrial components, aquatic components or both	
		Comments_from_full-text_screening	Comments from the full-text screening (column AC)	
<b>Study site information</b>		Land_use_type	Select from these options: Disturbed or undisturbed	
		Land_use_description	Select from these options: <u>For Land_use_type - "Undisturbed":</u> - Undisturbed PSF (intact or natural forest) <u>For Land_use_type - "Disturbed":</u> - Acacia plantation - Agroforestry - Burnt peatland - Cropland - Drained PSF (drained but not logged or converted to plantation) - Logged PSF (logged/deforested/cleared forest) - Oil palm plantation - Secondary PSF (regeneration or vegetation regrowth) - Others	

		Site_or_catchment_name	Name of the river/river basin, national park, or watershed/catchment unit	
		Site_ID	Self-generated based on land use description and site/catchment name. Try to use the terminology used in the paper for so that it'll be easier for extracting data and faster if we need to recheck the data at some point. E.g. you may choose to label a natural PSF and an oil palm plantation in the Kampar peninsula as nPSF_Kampar and OPP_Kampar, respectively.	
		Latitude		Expressed in Decimal Degrees (DD) - use this convertor: <a href="https://www.pgc.umn.edu/apps/convert/">https://www.pgc.umn.edu/apps/convert/</a>
		Longitude		Expressed in Decimal Degrees (DD) - use this convertor: <a href="https://www.pgc.umn.edu/apps/convert/">https://www.pgc.umn.edu/apps/convert/</a>
		Sampling_season	Please input: Dry, wet, dry and wet or what the paper states	
		Sampling_date	Month(s) and/or year(s) of sampling campaign	
		Historical_precipitation_records	Annual mean precipitation in study location	mm
		Precipitation_during_sampling_period	Monthly or annual precipitation during sampling period	mm
		Historical_temperature_records	Annual mean temperature in study location	degree Celsius
		Temperature_during_sampling_period	Monthly or annual temperature during sampling period	degree Celsius
		Catchment_area	Area of catchment under study	ha; m2; km2
		Percentage_peat_coverage	Proportion of catchment where there are peat deposits	%

<b>Sample type</b>		Sample_type	Select from these options: GHG, peat soil, vegetation, porewater, channel water	
<b>Carbon stocks</b>		Aboveground_biomass	Includes all biomass in living vegetation above the soil including stems, stumps, branches, bark, seeds and foliage	ton dry weight/ha or ton carbon/ha or mega gram dry weight/ha or mega gram carbon/ha
		Belowground_biomass	Includes biomass of all live roots (does not include dead and/or dislocated root tissue, nor does it include soil organic matter)	ton dry weight/ha or ton carbon/ha or mega gram dry weight/ha or mega gram carbon/ha
		Litter_carbon_stocks	Includes dead plant material such as leaves, branches and twigs that was once attached to living plants but have fallen to the ground	ton dry weight/ha or ton carbon/ha or mega gram dry weight/ha or mega gram carbon/ha
		Soil_carbon_stocks	Includes soil organic matter with known carbon content	ton carbon/ha or mega gram carbon/ha
<b>Forest structure</b>		Tree_density	Usually expressed as the number of trees per unit area	trees/ha or stems/ha
		Basal_area	Defined as the total cross-sectional area of all stems in a stand measured at breast height, and expressed as per unit of land area	m <sup>2</sup> /ha
		Tree_diameter	Diameter at breast height (DBH)	cm
<b>Productivity</b>		Litter_production	Rate of litter biomass productivity per unit area per unit time	ton dry weight/ha/yr or ton carbon/ha/yr
		Stem_productivity	Rate of stem/tree biomass productivity per unit area per unit time	ton dry weight/ha/yr or ton carbon/ha/yr
		Root_productivity	Rate of coarse or fine root biomass productivity per unit area per unit time	ton dry weight/ha/yr or ton carbon/ha/yr
		Litter_decomposition	Rate of litter organic matter decomposition per unit area per unit time	ton dry weight/ha/yr or ton carbon/ha/yr
<b>Depth</b>		Peat_depth	Depth of peat (or peat dome)	m; cm
		Peat_sampling_depth	Depth of peat that was sampled	m; cm
		Porewater_sampling_depth	Depth of porewater that was sampled	m; cm

		Water_table_depth	Groundwater level - positive values indicate that the surface is submerged, negative values indicate water table levels below the surface (e.g. if water table is 60 cm below the surface, report as -60)	m; cm
		Channel_depth	Depth of water channel, where channel can be a natural river and/or stream or an artificial drainage canal	m; cm
<b>Soil physicochemical properties</b>		Soil_dry_weight	Dry weight of soil sample	g
		Soil_bulk_density	Usually termed dry bulk density; weight of dry soil divided by the total soil volume	g cm-3
		Soil_C_content	Amount of carbon in soil sample	% or mg/g
		Soil_C_density	Density of carbon in soil sample	gC cm-3
		Soil_N_content	Amount of nitrogen in soil sample	% or mg/g
		Soil_CN_ratio	Ratio of soil C / soil N	no units
		Soil_organic_matter_content	Organic matter content in soil	%
		Soil_ash_content	Amount of ash in soil sample determined by combusting sample	%
		Soil_soluble_organic_C		mg/kg
		Soil_13C	Isotopic 13C signature of soil	per-mille (‰)
		Soil_15N	Isotopic 15N signature of soil	per-mille (‰)
		Soil_14C_age	Radiocarbon age of soil; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Soil_redox_potential	Also termed Eh	volts (V; mV)
		Soil_cation_exchange_capacity		mval/100g; cmol(+)/kg
		Ammonium_NH4+		mg/kg
		Nitrate_NO3-		mg/kg
		Iron_Fe2+		mg/kg
<b>Vegetation physicochemical properties</b>		Leaf_C_content	Amount of carbon in leaf sample	%
		Leaf_N_content	Amount of nitrogen in leaf sample	%
		Leaf_CN_ratio	Leaf C / Leaf N	No units



		Leaf_13C	Isotopic 13C signature of leaf	per-mille (‰)
		Leaf_15N	Isotopic 15N signature of leaf	per-mille (‰)
		Root_C_content	Amount of carbon in root sample	%
		Root_N_content	Amount of nitrogen in root sample	%
		Root_CN_ratio	Root C / Root N	no units
		Root_13C	Isotopic 13C signature of root	per-mille (‰)
		Root_15N	Isotopic 15N signature of root	per-mille (‰)
<b>pH</b>		Soil_pH	pH is a measure of acidity	No units
		Porewater_pH	pH is a measure of acidity	No units
		Channel_pH	pH is a measure of acidity	No units
<b>Salinity</b>		Porewater_salinity		ppm
		Channel_salinity		ppm
<b>Conductivity</b>		Soil_conductivity	Usually termed specific conductivity or electrical conductivity	mS/m or $\mu$ S/cm
		Porewater_conductivity	Usually termed specific conductivity or electrical conductivity	mS/m or $\mu$ S/cm
		Channel_conductivity	Usually termed specific conductivity or electrical conductivity	mS/m or $\mu$ S/cm
<b>Temperature</b>		Soil_temperature		degree Celsius
		Porewater_temperature		degree Celsius
		Channel_temperature		degree Celsius
<b>Dissolved oxygen</b>		Porewater_DO	mg/L is the preferred unit	mg/L; $\mu$ mol/L; % sat
		Channel_DO	mg/L is the preferred unit	mg/L; $\mu$ mol/L; % sat
<b>Discharge</b>		Channel_discharge	Expressed as volume per unit time	m <sup>3</sup> /s; m <sup>3</sup> /min; L/s
<b>CO2 (carbon dioxide)</b>	Flux	Total_soil_efflux_CO2	Usually termed total soil/ecosystem respiration = heterotrophic respiration + autotrophic respiration; CO2 emitted from soil surface to the atmosphere	g/cm <sup>2</sup> /s; mol/m <sup>2</sup> /s; Mg/ha/yr
		Heterotrophic_soil_efflux_CO2	Usually termed heterotrophic respiration - the metabolism of organic matter by bacteria and fungi; it excludes autotrophic respiration which includes metabolism of organic matter by plants (e.g. living roots); CO2	g/cm <sup>2</sup> /s; Mg/ha/yr

			emitted from soil surface to the atmosphere	
		Autotrophic_soil_efflux_CO2	Usually termed autotrophic respiration - the metabolism of organic matter by plants (e.g. living roots); CO2 emitted from soil surface	g/cm2/s; mol/m2/s; Mg/ha/yr
		Channel_efflux_CO2_vertical	CO2 emitted from channel surface to the atmosphere	g/cm2/s; mol/m2/s; Mg/ha/yr
Concentration		Porewater_dissolved_CO2_or_pCO2	Dissolved CO2 = aqueous phase of CO2; pCO2 = partial pressure of CO2 (gaseous phase)	µatm; ppm; µmol/L
		Channel_dissolved_CO2_or_pCO2	Dissolved CO2 = aqueous phase of CO2; pCO2 = partial pressure of CO2 (gaseous phase)	µatm; ppm; µmol/L
Yield/export		Channel_lateral_export_dissolved_CO2	Lateral export of dissolved CO2 from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour
14C-CO2		Soil_efflux_14C-CO2_age	Radiocarbon age of soil CO2 efflux; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_efflux_14C-CO2_age_vertical	Radiocarbon age of channel CO2 efflux; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Porewater_14C-CO2_age	Radiocarbon age of porewater dissolved CO2; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_14C-CO2_age	Radiocarbon age of channel dissolved CO2; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
13C-CO2		Soil_efflux_13C-CO2	Isotopic 13C signature of soil CO2 efflux	per-mille (‰)

		Channel_efflux_13C-CO2_vertical	Isotopic 13C signature of channel CO2 efflux	per-mille (‰)
		Porewater_13C-CO2	Isotopic 13C signature of porewater dissolved CO2	per-mille (‰)
		Channel_13C-CO2	Isotopic 13C signature of channel dissolved CO2	per-mille (‰)
<b>CH4 (methane)</b>	Flux	Soil_efflux_CH4	CH4 emitted from soil surface to the atmosphere	g/cm2/s; Mg/ha/yr
		Channel_efflux_CH4_vertical	CH4 emitted from channel surface to the atmosphere	g/cm2/s; Mg/ha/yr
	Concentration	Porewater_dissolved_CH4_or_pCH4	Dissolved CH4 = aqueous phase of CH4; pCH4 = partial pressure of CH4 (gaseous phase)	µatm; ppm; µmol/L
		Channel_dissolved_CH4_or_pCH4	Dissolved CH4 = aqueous phase of CH4; pCH4 = partial pressure of CH4 (gaseous phase)	µatm; ppm; µmol/L
	Yield/export	Channel_lateral_export_dissolved_CH4	Lateral export of dissolved CH4 from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour
	14C-CH4	Soil_efflux_14C-CH4_age	Radiocarbon age of soil CH4 efflux; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_efflux_14C-CH4_age	Radiocarbon age of channel CH4 efflux; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Porewater_14C-CH4_age	Radiocarbon age of porewater dissolved CH4; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_14C-CH4_age	Radiocarbon age of channel dissolved CO2; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
	13C-CH4	Soil_efflux_13C-CH4	Isotopic 13C signature of soil CH4 efflux	per-mille (‰)
		Channel_efflux_13C-CH4	Isotopic 13C signature of channel CH4 efflux	per-mille (‰)

		Porewater_13C-CH4	Isotopic 13C signature of porewater dissolved CH4	per-mille (‰)
		Channel_13C-CH4	Isotopic 13C signature of porewater dissolved CH4	per-mille (‰)
<b>DIC (dissolved inorganic carbon)</b>	Concentration	Porewater_DIC	DIC concentration in the peat porewater	mg/L; µmol/L
		Channel_DIC	DIC concentration in a channel or any fluvial component	mg/L; µmol/L
	Yield/export	Channel_lateral_export_DIC	Lateral export of DIC from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour; mgC/sec; mgC/min; mgC/hour
	14C-DIC	Porewater_14C-DIC_age	Radiocarbon age of porewater DIC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_14C-DIC_age	Radiocarbon age of channel DIC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
	13C-DIC	Porewater_13C-DIC	Isotopic 13C signature of porewater DIC	per-mille (‰)
		Channel_13C-DIC	Isotopic 13C signature of channel DIC	per-mille (‰)
<b>DOC (dissolved organic carbon)</b>	Concentration	Porewater_DOC	DOC concentration in the peat porewater	mg/L; µmol/L
		Channel_DOC	DOC concentration in a channel or any fluvial component	mg/L; µmol/L
	Yield/export	Channel_lateral_export_DOC	Lateral export of DOC from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour; mgC/sec; mgC/min; mgC/hour
	14C-DOC	Porewater_14C-DOC_age	Radiocarbon age of porewater DOC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_14C-DOC_age	Radiocarbon age of channel DOC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
	13C-DOC	Porewater_13C-DOC	Isotopic 13C signature of porewater DOC	per-mille (‰)

		Channel_13C-DOC	Isotopic 13C signature of channel DOC	per-mille (‰)
<b>POC (particulate organic carbon)</b>	Concentration	Channel_POC	POC concentration in a channel or any fluvial component	mg/L; µmol/L
	CN ratio	Channel_CN	TOC / TN	No units
	Yield/export	Channel_lateral_export_POC	Lateral export of POC from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour; mgC/sec; mgC/min; mgC/hour
	14C-POC	Channel_14C-POC_age	Radiocarbon age of channel POC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
	13C-POC	Channel_13C-POC	Isotopic 13C signature of channel POC	per-mille (‰)
<b>TOC (total organic carbon)</b>	Concentration	Porewater_TOC	TOC (DOC + POC) concentration in the peat porewater	mg/L; µmol/L
		Channel_TOC	TOC (DOC + POC) concentration in channel	mg/L; µmol/L
		Channel_TSS	Total Suspended Sediment (or Suspended Particulate Matter - SPM) concentration in channel	mg/L; µmol/L
	Yield/export	Channel_lateral_export_TOC	Lateral export of TOC from channel or any fluvial component	µmol/sec; µmol/min; µmol/hour; mgC/sec; mgC/min; mgC/hour
	14C-TOC	Porewater_14C-TOC_age	Radiocarbon age of porewater TOC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
		Channel_14C-TOC_age	Radiocarbon age of channel TOC; usually expressed in BP (before present) or %modern/pMC (percent modern carbon)	BP; %modern; pMC
	13C-TOC	Porewater_13C-TOC	Isotopic 13C signature of porewater TOC	per-mille (‰)
		Channel_13C-TOC	Isotopic 13C signature of channel TOC	per-mille (‰)