



Fig. S1 Photos of examples of above- and below-tree-line lakes

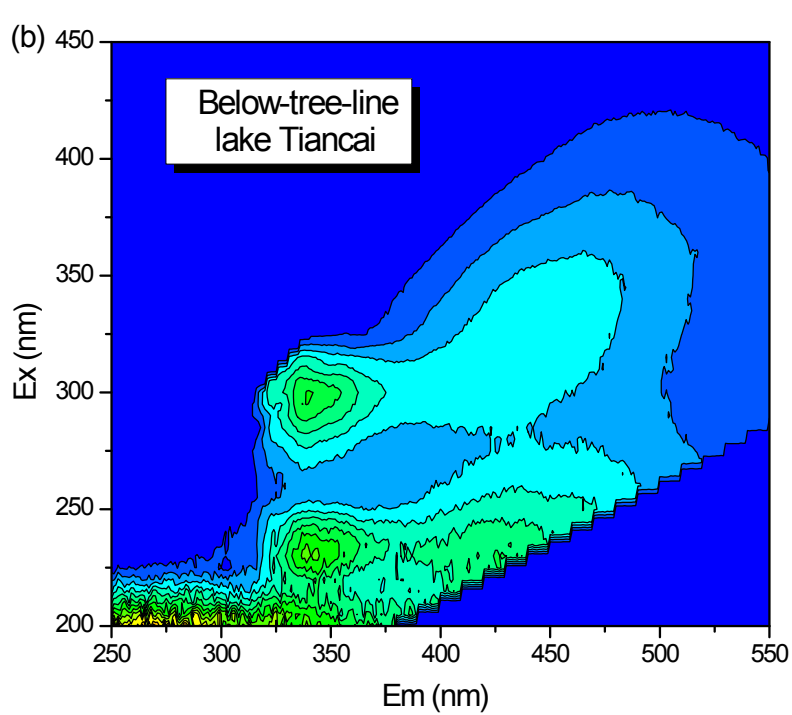
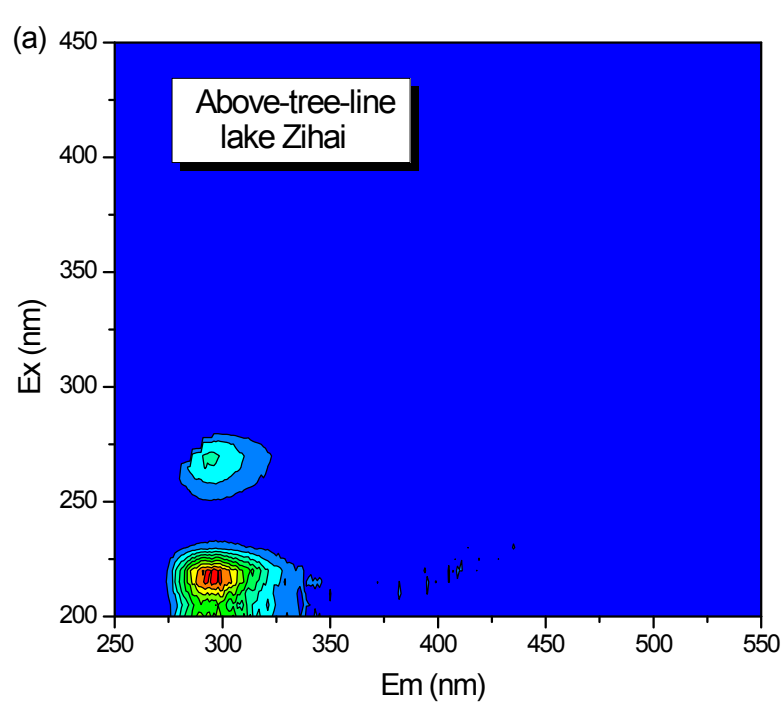


Fig. S2. Examples of EEMs for sample from (a) above-tree-line lake Zihai and (b) below-tree-line lake Tiancai.

Table S1. Spectral characteristics Ex_{max} and Em_{max} of 4 components compared with fluorescence peaks identified in previous work.

Component No.	Ex_{max} (nm) *	Em_{max} (nm)	Peaks in other previous work *	Property and probable source
S1	230-245	285-295 (310-375)	Ex_{max} : < 240 Em_{max} : 330-370 ^{a-d} (300) ^e	(T, A, M) ^{**} Tryptophan-like fluorescence
S2	210-220	265-270 (285-295)	Ex_{max} : < 240 Em_{max} : 300-312 ^{a,c, e}	(T, A, M) Tyrosine-like fluorescence
S3	230 (300)	338	Ex_{max} : 240 (300) Em_{max} : 338 ^f Ex_{max} : 280, Em_{max} : 325 ^g ;	(T, A, M) Tryptophan-like or phenolic fluorescence
S4	300-340	400-450	Ex_{max} : 320-360 Em_{max} : 420-480 ^{a,b,h,i}	(T) UV humic-like fluorescence

* Secondary excitation band is listed in brackets.

** T: Terrestrial source; A: Autochthonous source; M: Microbial source.

^a Stedmon et al. (2003).

^b Stedmon and Markager (2005a).

^c Stedmon and Markager (2005b).

^d Cory and McKnight (2005).

^e Zhu et al. (2012).

^f Murphy et al. (2006).

^g Maie et al. (2007).

^h Coble (1996).

ⁱ Coble et al. (1998).