atmosphere

Supplementary Materials: Nongrowing Season CO_2 Emissions Determine the Distinct Carbon Budgets of Two Alpine Wetlands on the Northeastern Qinghai–Tibet Plateau †

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Table S1. The analysis of variance from the general linear model of monthly net ecosystem exchange (ln (*NEE*) with soil temperature (T_s, continuous variable) and site attributes (Site, categorical variable) during the nongrowing season.

Dependant	Factors	df	Mean squares	*P* value	R^2
Ln(*NEE*)	T_s	1	1.02	$P < 0.001$	0.80
	Site	1	2.64	$P < 0.001$	
	T_s× Site	1	0.0005	$P = 0.91$	
	Error	20	0.039		

Table S2. The Pearson correlation analysis between annual CO_2 fluxes (NEE, RES, GPP) with environmental controls (T_a: air temperature; Vapor: atmospheric water vapor; Rain: precipitation; R_n: net radiation; T_s: topsoil temperature; EVI_{sum}: accumulative enhanced vegetation index).

	NEE	RES	GPP	T_a	Vapor	Rain	R_n	T_s	EVI_{sum}
NEE	1	**.984***	.866	**-.952***	-.719	.770	.826	.081	**.960***
RES	**.984***	1	.941	-.911	-.610	.775	.724	.069	.940
GPP	.866	.941	1	-.751	-.345	.716	.464	.040	.818
T_a	**-.952***	-.911	-.751	1	.878	-.889	-.929	-.355	**-.993****
Vapor	-.719	-.610	-.345	.878	1	-.764	**-.980***	-.511	-.822
Rain	.770	.775	.716	-.889	-.764	1	.749	.684	.912
R_n	.826	.724	.464	-.929	**-.980***	.749	1	.356	.878
T_s	.081	.069	.040	-.355	-.511	.684	.356	1	.357
EVI_{sum}	**.960***	.940	.818	**-.993****	-.822	.912	.878	.357	1

Note: ** and *: Correlation is significant at the 0.01 and 0.05 level.

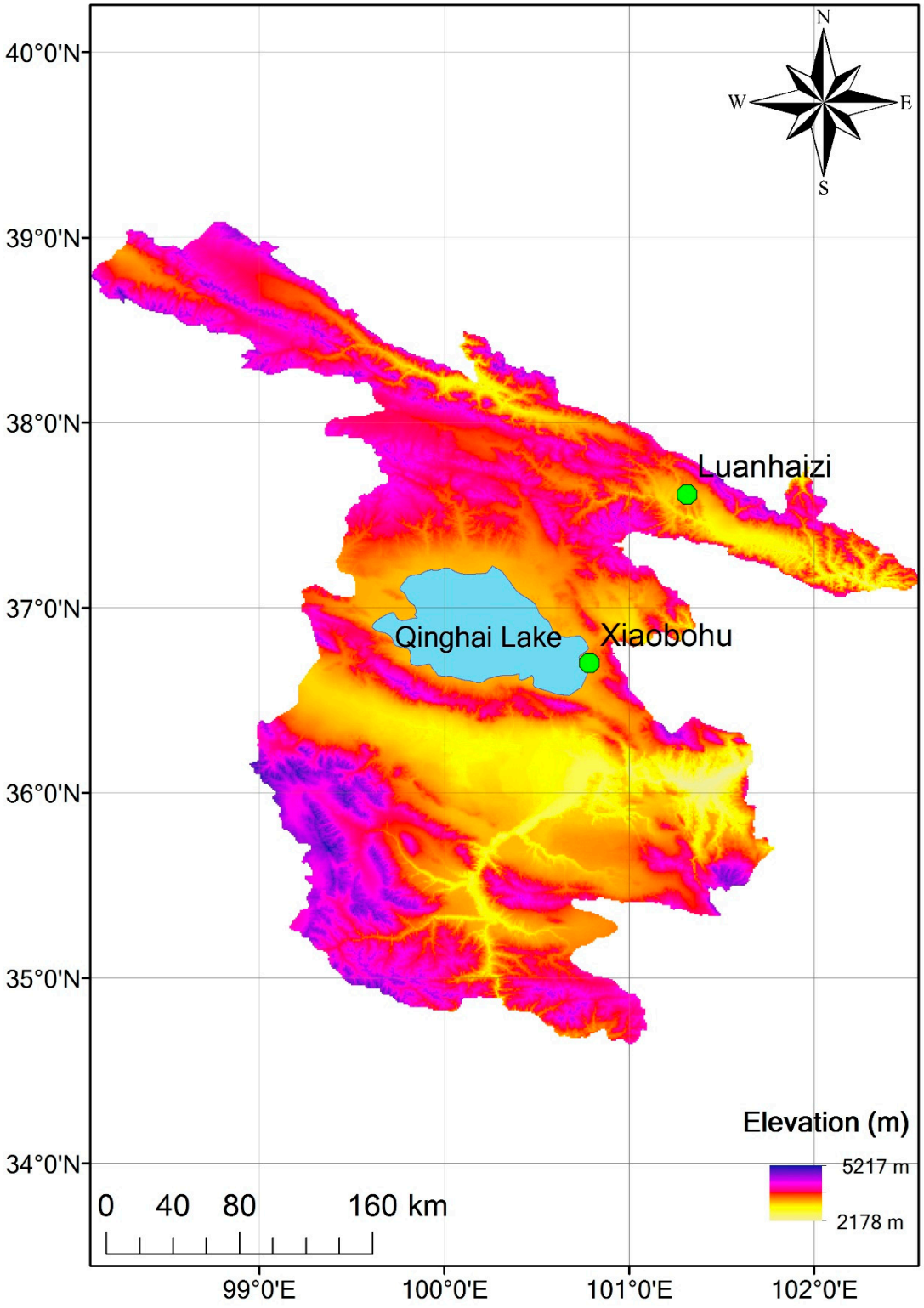


Figure S1. The geographic location of the two alpine wetlands.

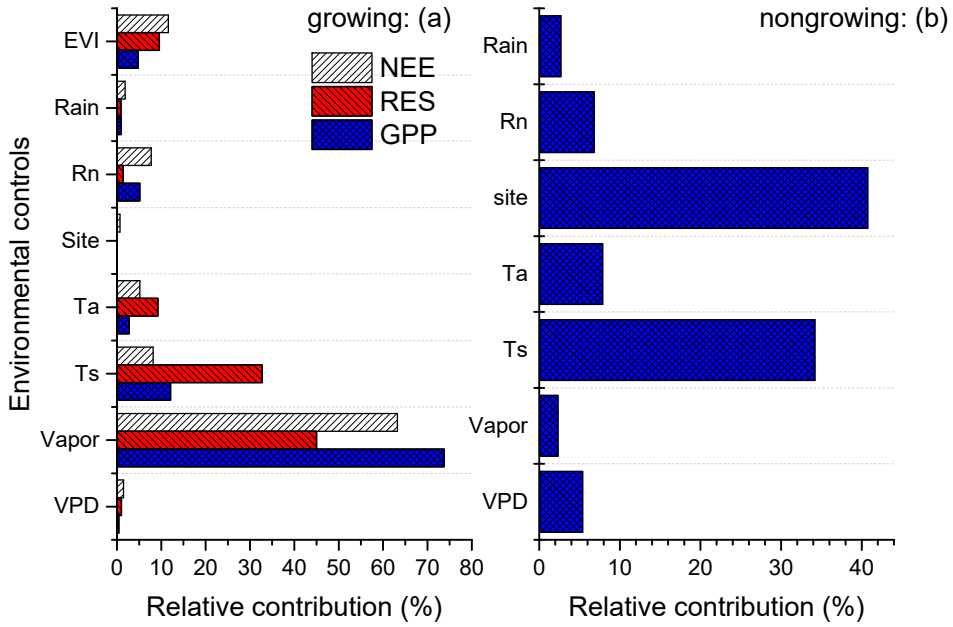
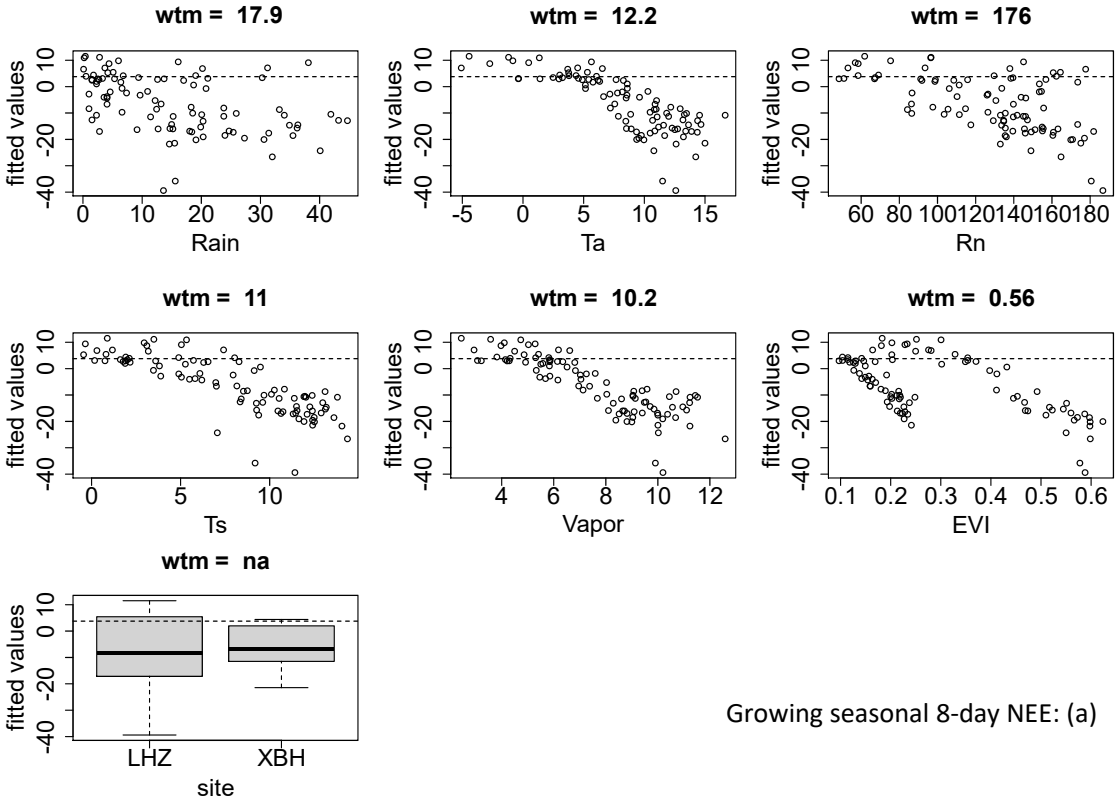
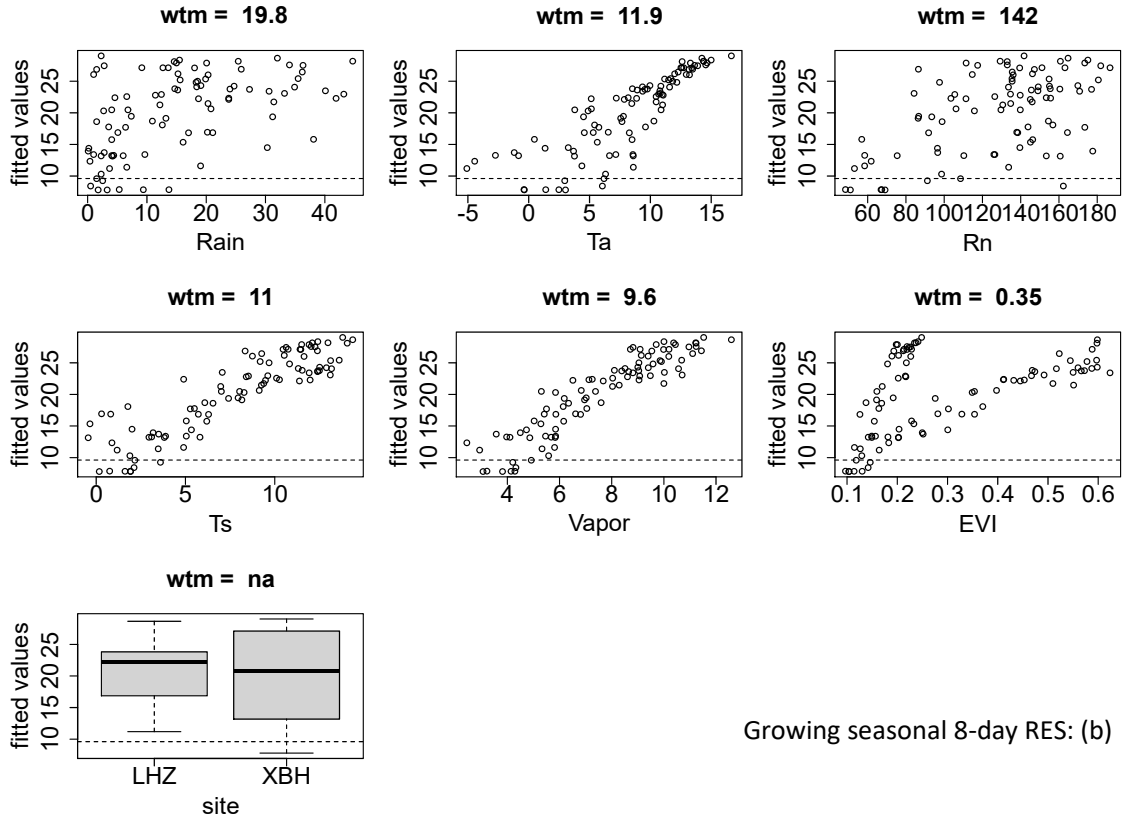


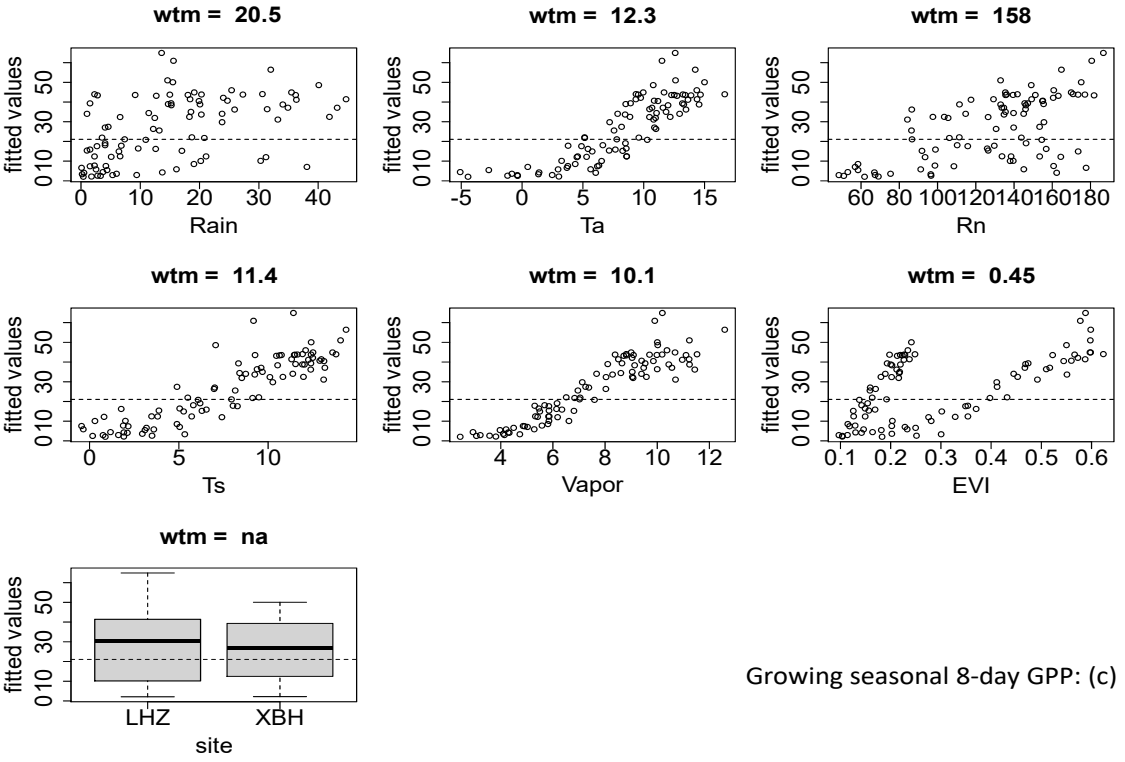
Figure S2. The relative contributions of environmental controls on variations of the growing season (**a**) and the nongrowing season (**b**) 8-day CO_2 fluxes of the two alpine wetlands.



Growing seasonal 8-day NEE: (a)



Growing seasonal 8-day RES: (b)



Growing seasonal 8-day GPP: (c)

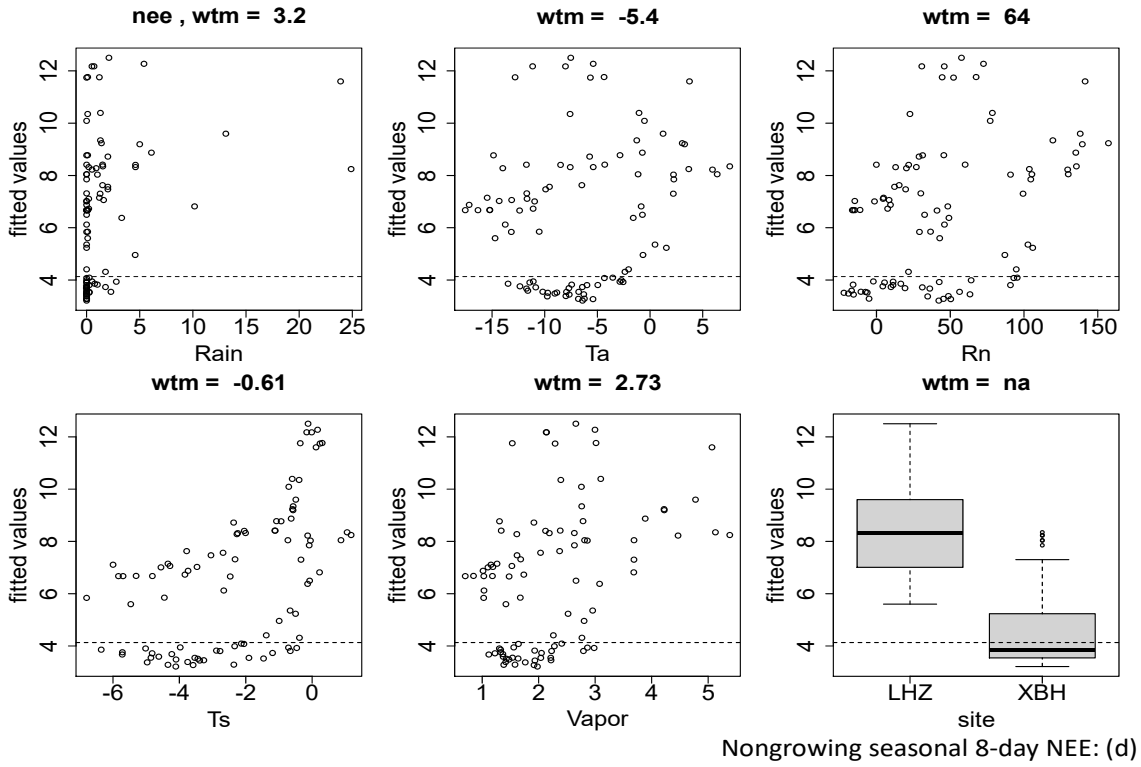


Figure S3. The fitted 8-day CO_2 fluxes (NEE: (**a**, **d**); RES (**b**); GPP (**c**)) in relation to each of the predictors (Rain: precipitation; T_a: air temperature; R_n: net radiation; Vapor: atmospheric water vapor; T_s: topsoil temperature; EVI: enhanced vegetation index; Site: categorical variable, LHZ and XBH) used in the model during the growing season (**a**, **b**, **c**) and nongrowing season (**d**).

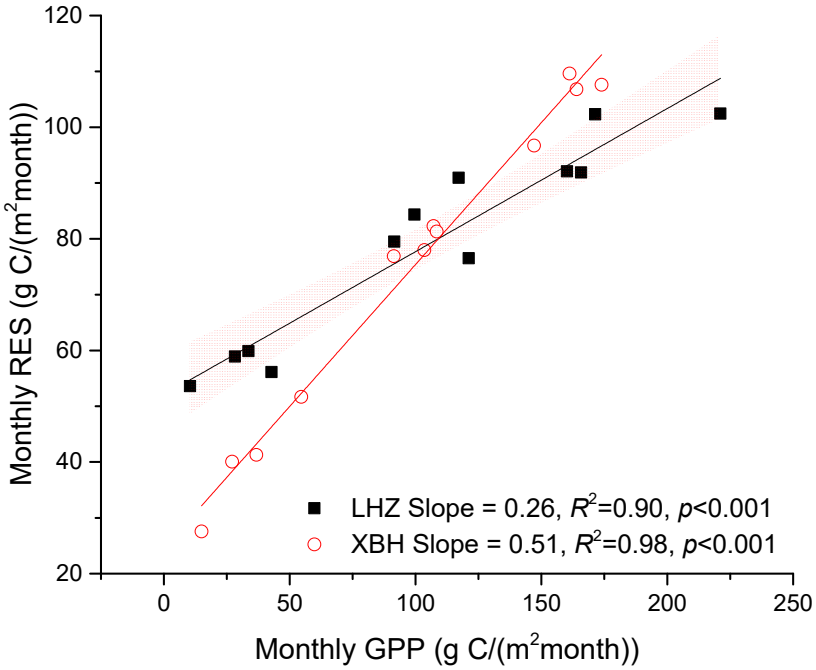


Figure S4. The relationship between monthly ecosystem respiration (RES) and monthly gross primary productivity (GPP) during the growing season of the two alpine wetlands (LHZ: Luanhaizi and XBH: Xiaobohu). The shading areas are 95% confidence intervals.

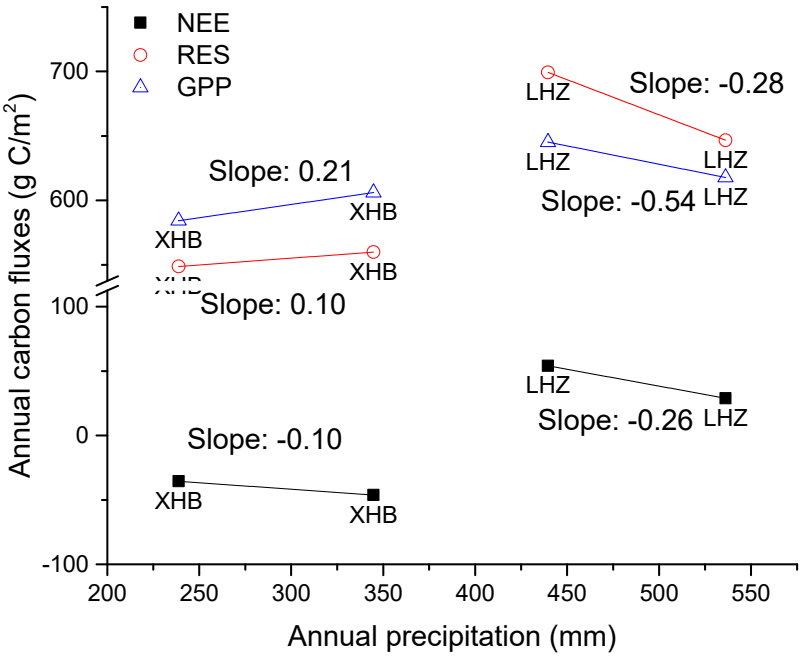


Figure S5. The relationships of annual carbon fluxes and annual precipitation of the two alpine wetland sites (Xiaobohu: XBH and Luanhaizi: LHZ).