

Temporal patterns and potential drivers of CO₂ emission from dry sediments of a large river

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Supplemental Information

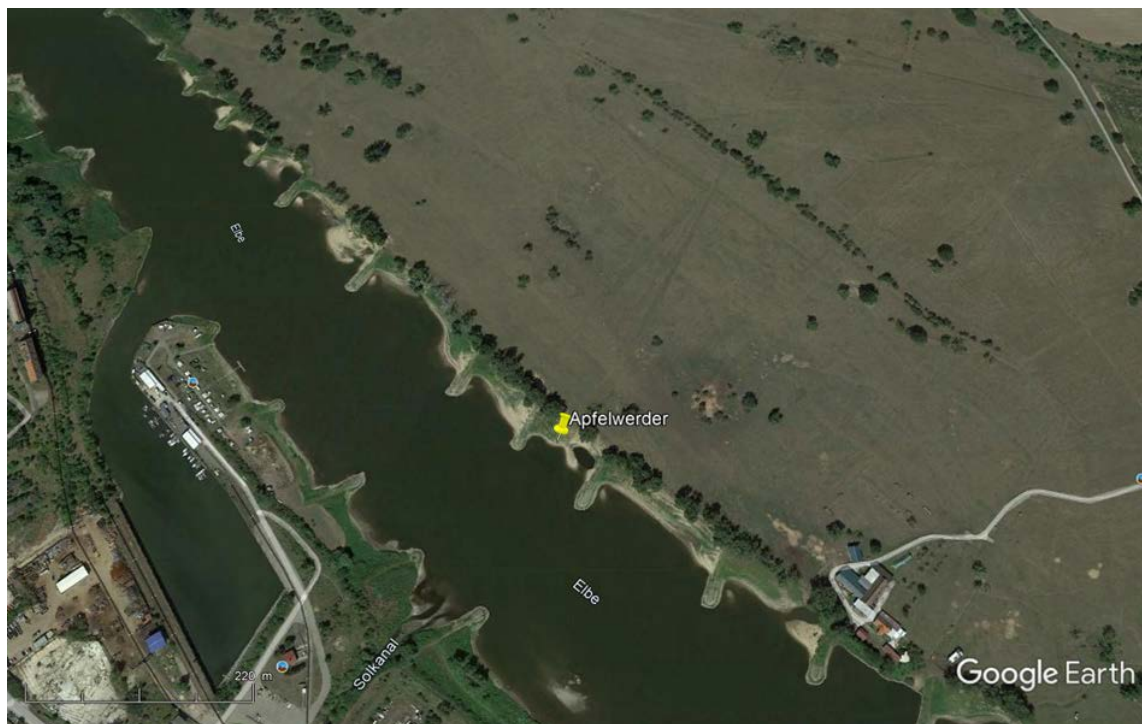


Fig.S1: Location of the intensive research site (image from Google Earth) and photographs of automatic chambers (left) and transect measurements during intensive campaigns (right) at river Elbe.

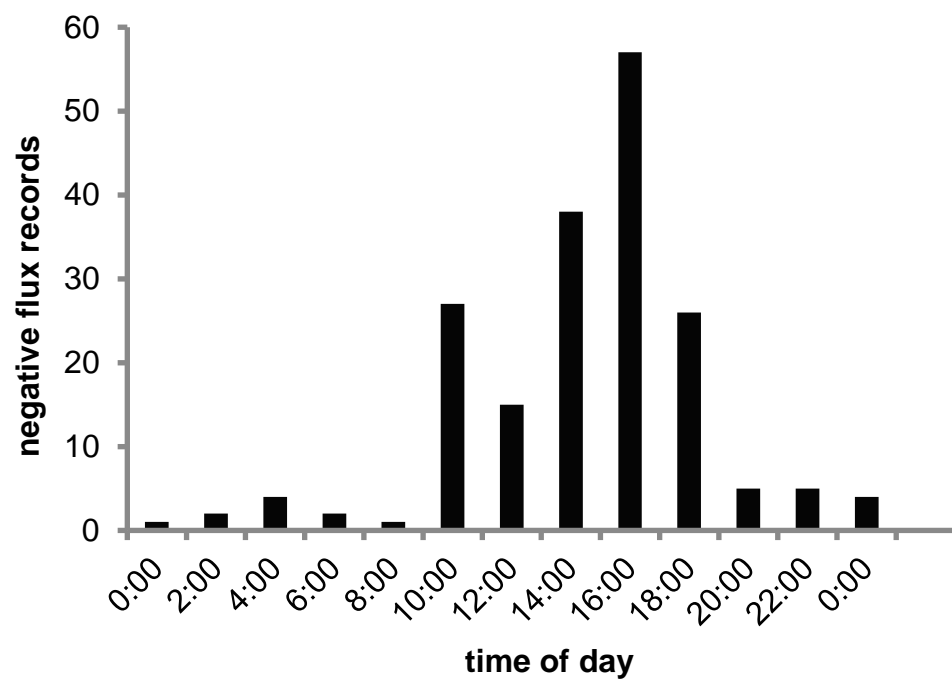


Fig.S2: Histogram of the frequency of negative fluxes depending on time of day.

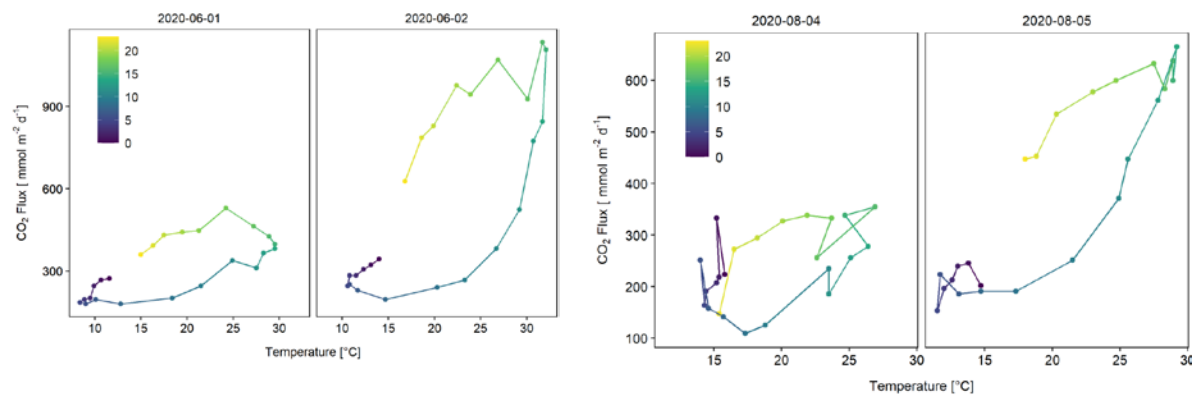


Fig.S3: Temperature response of CO₂ fluxes on selected days. The colors represent the hour of the day.

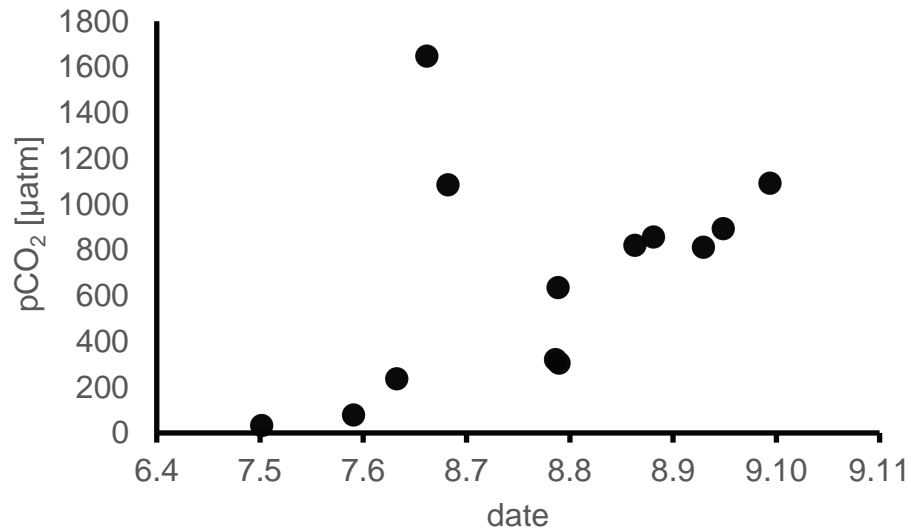


Fig.S4: CO₂ concentration in river Elbe water measured by a membrane equilibrator (Liqui Cell MM, 3M) connected to a CO₂ analyzer (EGM4, PP-Systems).

Table S1: results of mixed effect linear models (n=3128). Tsoil=soil temperature, msoil=soil moisture, diff= thickness of unsaturated zone.

Predictors	Full model			Final model		
	Estimates	CI	p	Estimates	CI	p
(Intercept)	5.63	5.12 – 6.14	<0.001	5.01	4.73 – 5.29	<0.001
tsoil	-0.04	-0.06 – -0.01	0.006	-0.02	-0.03 – -0.01	<0.001
msoil	-0.02	-0.03 – -0.01	0.002			
diff	-0.05	-0.08 – -0.02	0.001	0.02	0.01 – 0.03	<0.001
tsoil * msoil	0.00	-0.00 – 0.00	0.104			
tsoil * diff	0.01	0.00 – 0.01	<0.001	0.00	0.00 – 0.00	<0.001
msoil * diff	0.00	0.00 – 0.00	<0.001			
(tsoil * msoil) * diff	-0.00	-0.00 – -0.00	<0.001			
Random Effects						
σ ²	0.13			0.13		
τ ₀₀	0.11 _{site}			0.12 _{site}		
ICC	0.45			0.46		
N	7 _{site}			7 _{site}		
Observations	3128			3128		
Marginal R ² / Conditional R ²	0.287 / 0.605			0.267 / 0.606		