Electronic Supplementary Material (ESI) for Environmental Science: Processes & Impacts.

Supplementary Materials

Mercury mobility and methylmercury formation in a contaminated agricultural flood plain: Influence of flooding and manure addition.

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Tab. S1. ICP-MS (Agilent 7700x) and HPLC-ICP-MS (Agilent 1200 series) instrumental settings for Hg analysis:

Parameter	Total	HPLC-ICP-MS
RF power	1550 W	1600 W
Carrier gas flow rate	1.05 L/min	0.85 L/min
Nebulizer pump	0.1 rps	0.3 rps
Spray chamber temperature	2 °C	-5 °C
Makeup Gas	0 mL/min	0.25 mL/min
LENSES:		
Extract 1	0 V	1.3 V
Extract 2	-180 V	-135 V
Omega bias	-95 V	-70 V
Omega lens	9.3 V	9 V
Cell entrance	-30 V	-40 V
Cell exit	-50 V	-60 V
Deflect	14.2 V	15.6 V
Plate bias	-40 V	-50 V
HPLC Column		Zorbax SB-C18 4.6 x 150 mm, 5 µm
Injection volume		100 µL
Column temperature		20°C
Mobile phase flow rate		1 ml/min
Mobile phase composition		2% MeOH + 98% of 0.1% w/v L-cysteine & 0.1% L-cysteine·HCl·H_2O pH = 2.3

Tab. S2. Detailed auto-sampler cleaning procedure to prevent carry-over of Hg between samples on the ICP-MS:

Solution	Contents	Rinsing time on auto-sampler
Matrix for all samples	1 % HNO_3 + 0.5 % HCl	-
Washing solution 1	DI Water	5 s
Washing solution 2	In 250 mL of DI water - 2.5g EDTA (acid not salt) - 0.2 g Triton X-100 - 15 g NH_4OH Dilute by 10 before use	40 s
Washing solution 3	5 % HNO_3 + 5 % HCl %	30 s
Washing solution 4	1 % HNO_3 + 0.5 % HCl	40 s

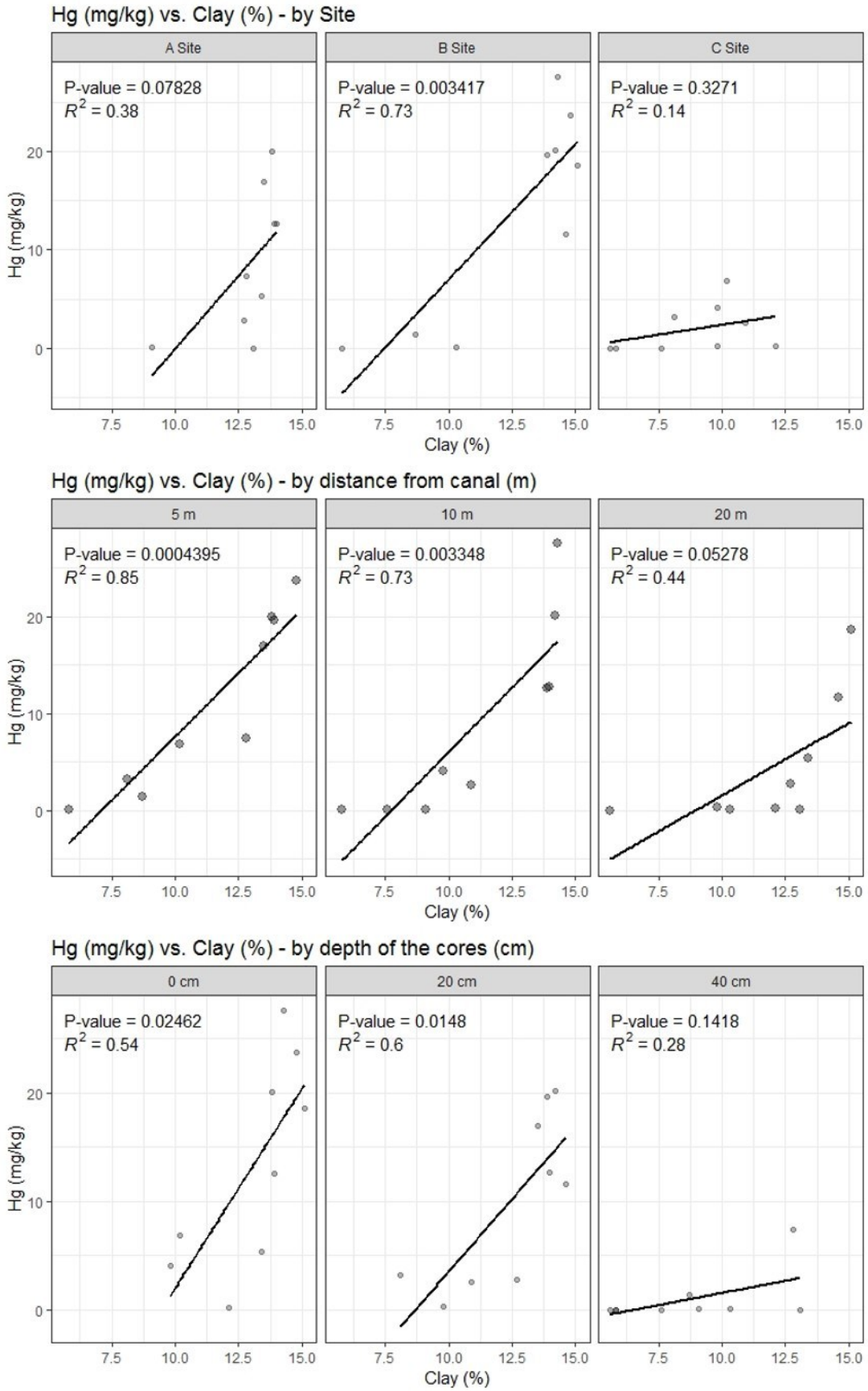

Fig. S1. Correlations between Hg concentrations and clay content by site, by distance from the canal and by soil depth.

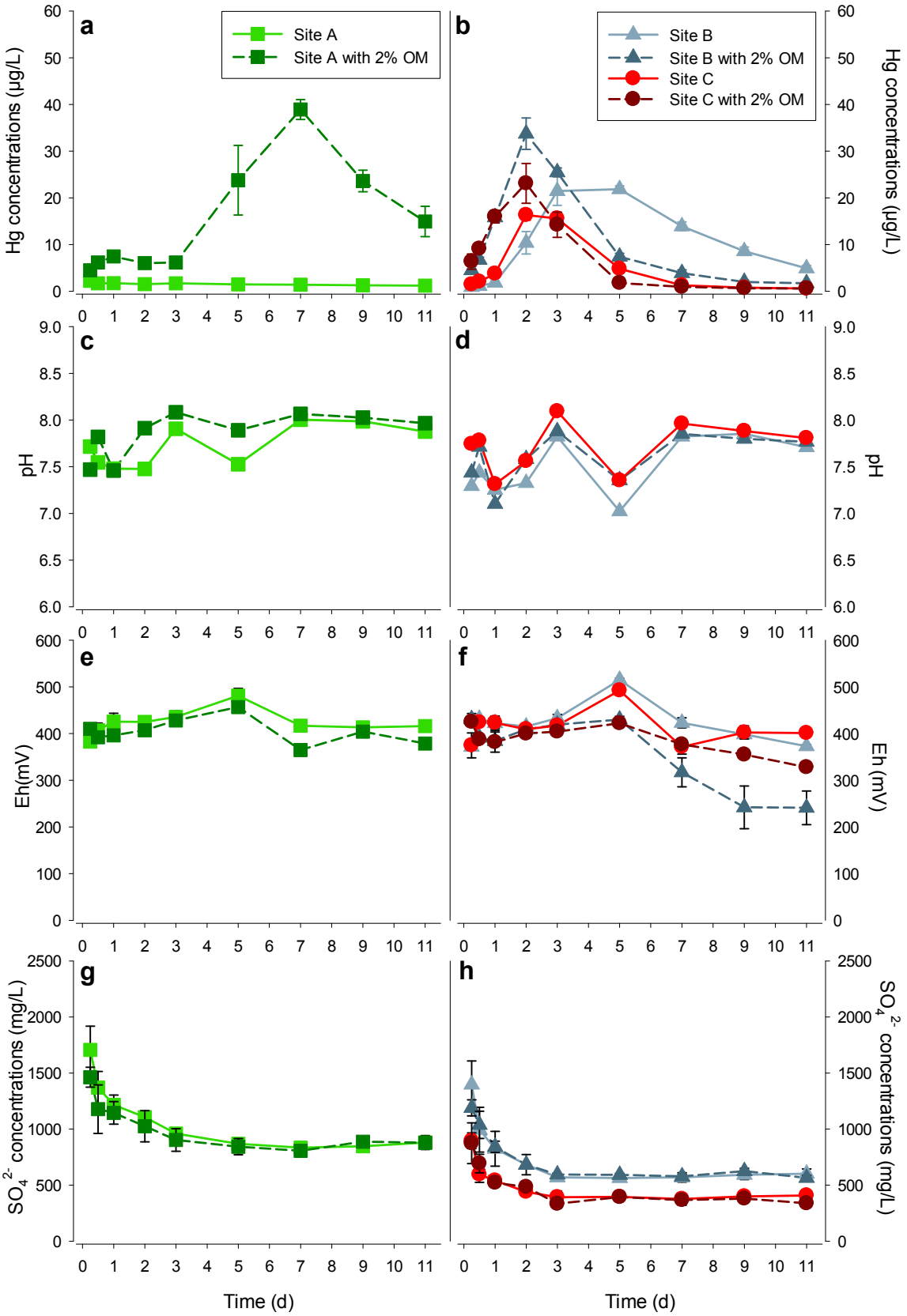

Fig. S2. Hg concentrations (a,b), pH (c,d), Eh (e,f) and SO_4^{2-} concentrations (g,h) in soil solution during the incubation experiment. The left panels (a,c,e,g) represent Site A. The right panels (b,d,f,h) represent Sites B and C (mean ± sd, *n* = 3 separate microcosms).

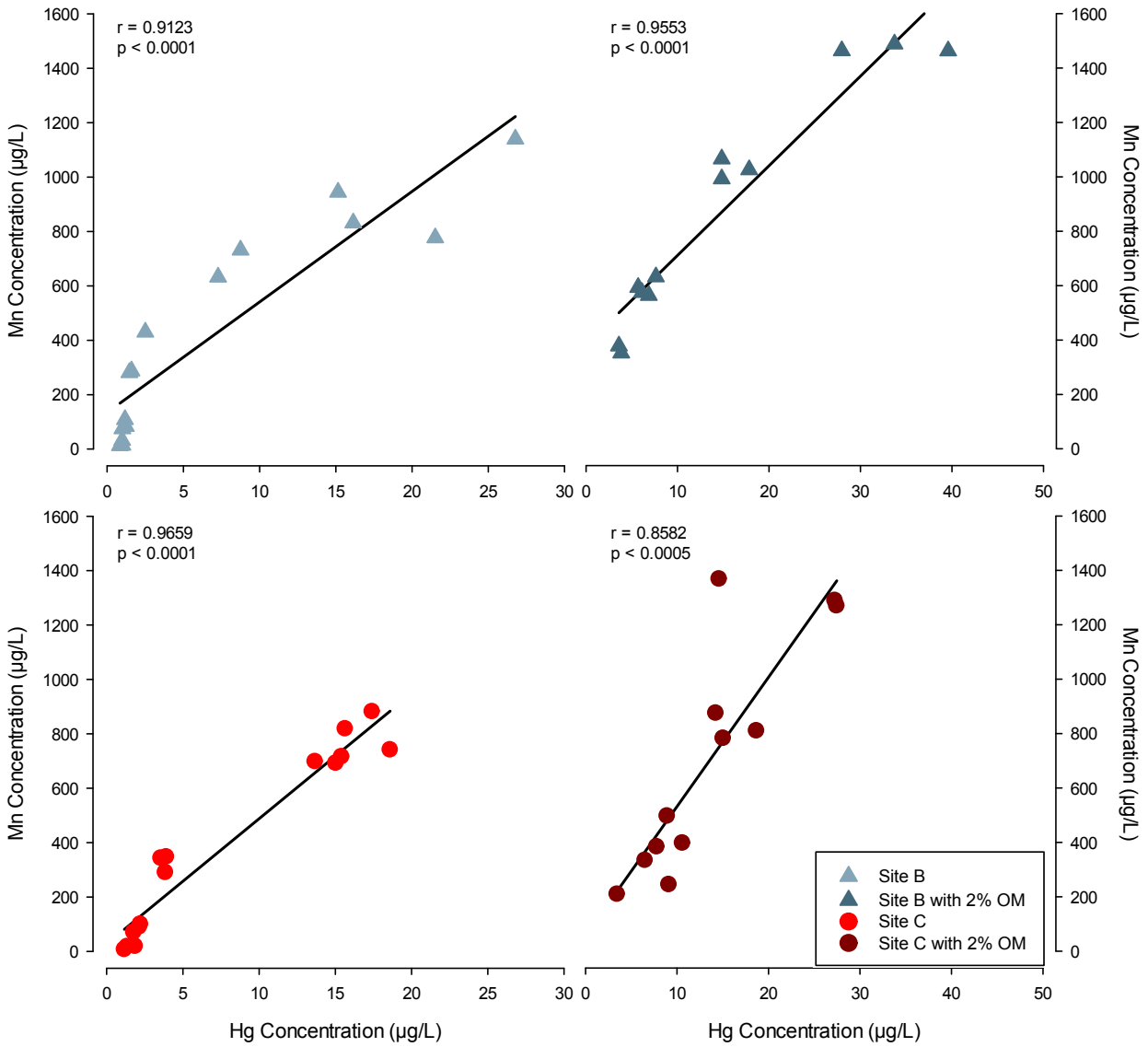

Fig. S3. Relationship between the concentrations of Hg and Mn in soil solution between day 0 and day 2 of the incubation at Sites B and C.