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Table 3. COS compensation point (*CP*), the ordinate intercepct, the slope and the correlation coefficent (*R*) of the regression line of the observed COS exchange rates versus concentrations in this study compared with other studies (P1: Paddy soil in Jiaxing (Zhejiang Province); P2: Paddy soil in Guangzhou (Guangdong Province); W1: wheat soil in Beijing; W2: wheat soil in Zibo (Shandong Province); F: forest soil in Beijing).

Table 4. Field measurements for COS exchange rates from the paddy soil in Jiaxing, Zhejiang province.

Fig. 4. COS exchange rates in relation to the temperatures. (W1: wheat soil in Beijing, 8.00% moisture; W2: wheat soil in Zibo (Shandong Province), 17.2% moisture; P1: Paddy soil in Jiaxing (Zhejiang Province), 20.7% moisture; P2: Paddy soil in Guangzhou (Guangdong Province), 19.4% moisture; F: forest soil in Beijing, 43.9% moisture). The error bars are calculated from formula (2); each exchange rate measurement was conducted twice.

Fig. 5. COS exchange rates in relation to soil water content at 17°C. (W1: wheat soil in Beijing; W2: wheat soil in Zibo (Shandong Province); P1: Paddy soil in Jiaxing (Zhejiang Province); P2: Paddy soil in Guangzhou (Guangdong Province); F: forest soil in Beijing). The error bars are calculated from formula (2); each exchange rate measurement was conducted twice.

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Soil	pH	$C_{organic}$ g/kg	N_{total} g/kg	P_{total} g/kg	S_{total} g/kg	S_{effect}[a] mg/kg
W1	6.31	8.24	0.92	0.618	0.12	25.0
W2	7.74	15.1	1.13	0.783	0.40	94.8
P1	6.14	24.5	2.26	0.579	0.45	31.5
P2	6.42	29.1	2.42	0.860	0.65	56.2
F	6.44	61.5	4.94	0.967	0.90	21.2

[a] S_{effect}: S_{effect} means the sulfur in the soil can be used for crops assimilation, including soluble sulfur, part of adsorption sulfur and organic sulfur. It was measured by turbidimetry method after extraction from soils with 0.5 mol L^{-1} $NaHCO_3$ (Liu, 1996).

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Soil	Water content (%)[a]	*CP* (ppt)	Ordinate intercept	Slope	*R*	*CP* (ppt)	Ordinate intercept	Slope	*R*	Reference
		17 ^{O}C				25 ^{O}C				
W1	8.00	255	1.054	-0.0041	-0.997	267	1.454	-0.0055	-0.999	This study (laboratory)
W2	17.2	120	1.413	-0.0118	-0.997	149	2.260	-0.0152	-0.999	This study (laboratory)
P1	20.7	491	4.125	-0.0084	-0.995	765	5.292	-0.0069	-0.998	This study (laboratory)
P2	19.4	572	4.388	-0.0077	-0.995	780	10.048	-0.0129	-0.998	This study (laboratory)
F	43.9	80.0	0.775	-0.0097	-0.998	225	2.748	-0.0122	-0.997	This study (laboratory)
Oak woodland		< 100								Kuhn et al. (1999) (field)
Sandy clay soil		~ 53								Kesselmeier et al. (1999) (laboratory)
Forest soil						785				Conrad and Meuser (2000) (laboratory)
Rape field soil						1470				Conrad and Meuser (2000) (laboratory)

[a] The water content of the soil is the original as found in the field.

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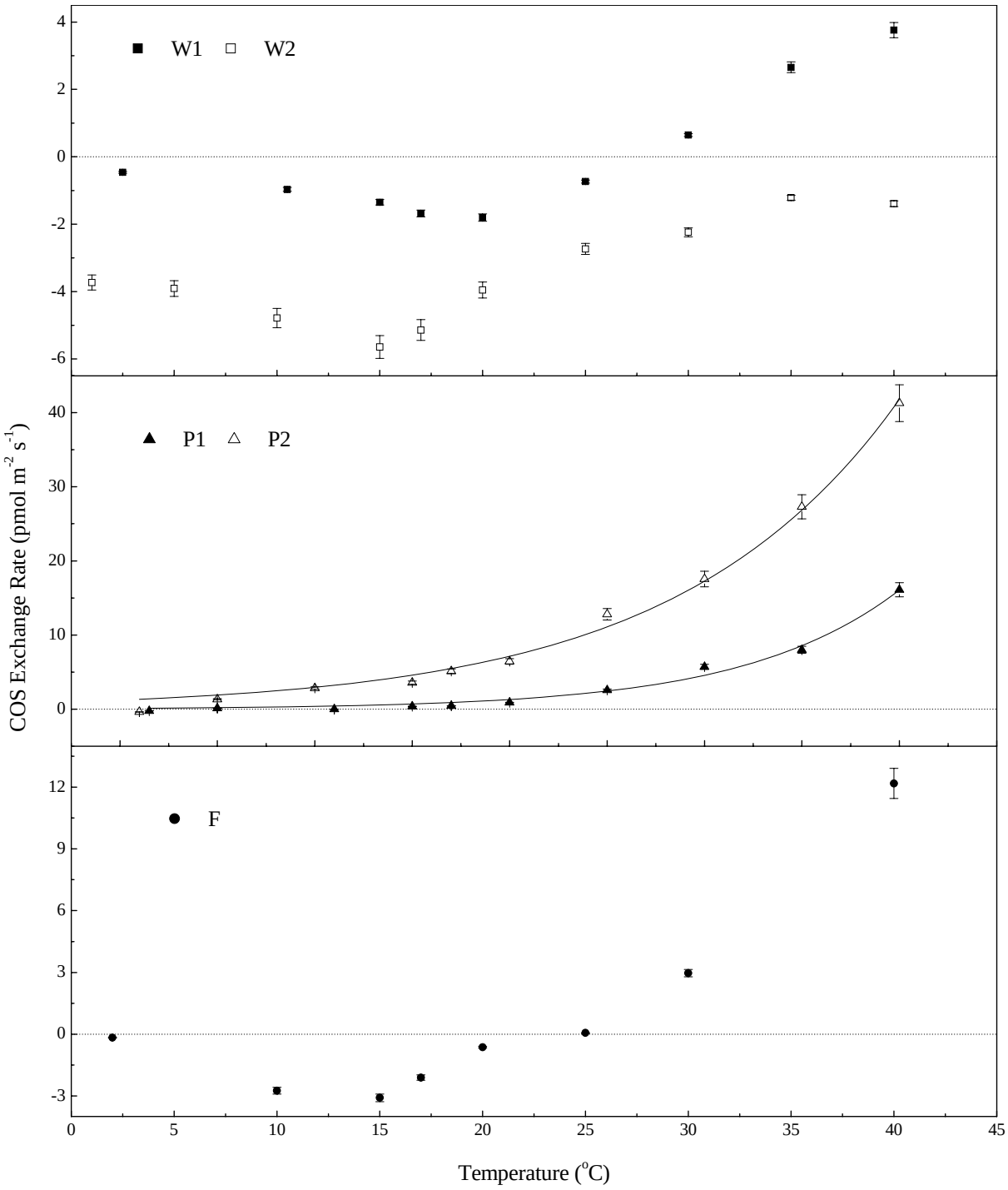
Patch	Soil temperature (°C)	Soil water content (%)	Ambient COS concentration (ppt)	Exchange Rate (pmol m^{-2} s^{-1})
1	22	19.6	3008	-57.9 (sink)
			1390	19.6 (source)
2	26	25.3	1695	26.8 (source)
			1866	18.0 (source)
3	24	31.0 (under waterlogging)	1764	-2.11(sink)
			1762	0



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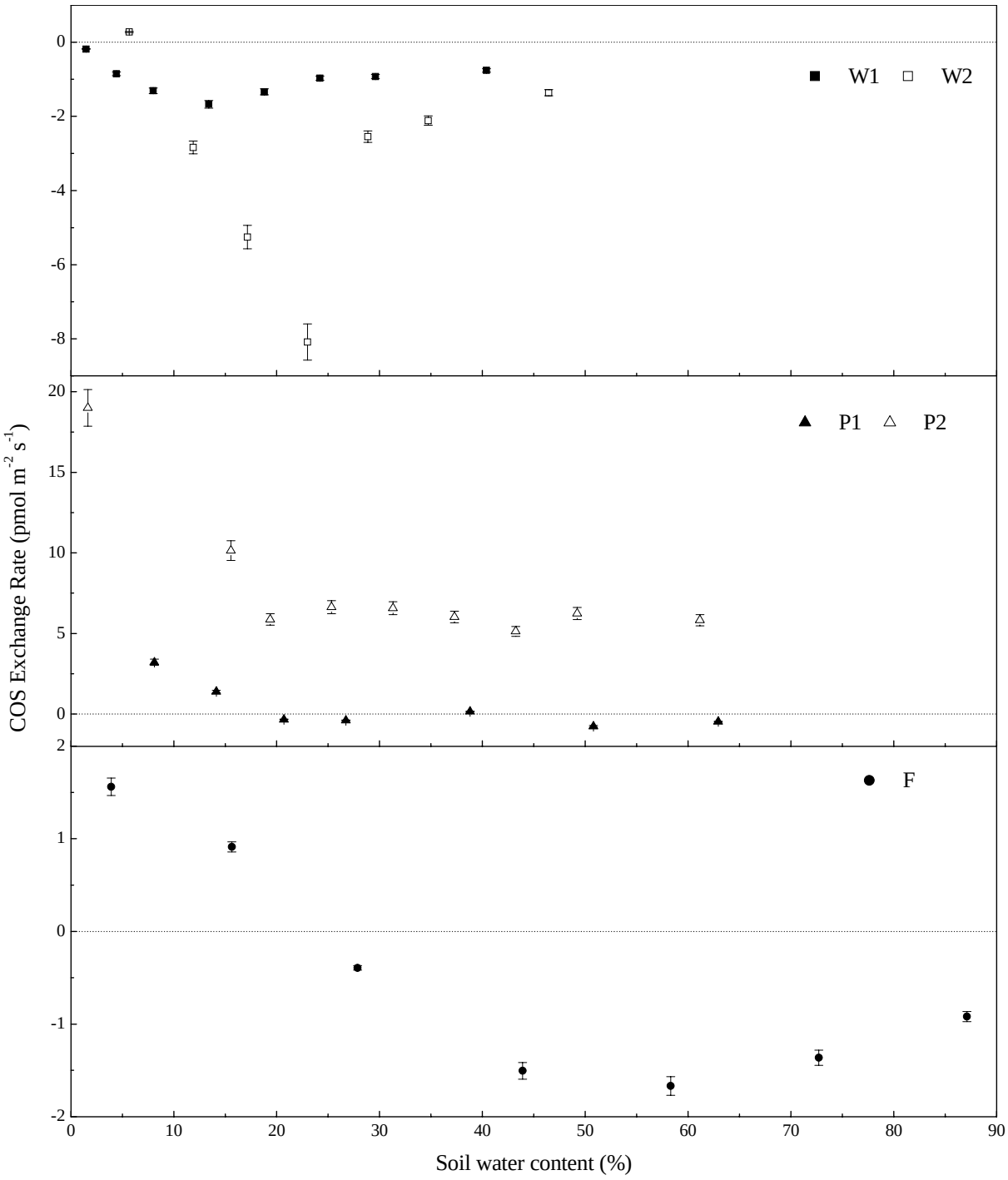

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