Supplement of

WETCHIMP-WSL: intercomparison of wetland methane emissions models over West Siberia

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Table S1. Estimates of annual CH_4 emissions and June-July-August CH_4 emissions, contributing areas, and CH_4 intensities from models, observational flux-area estimates, and inversions, over the entire WSL and its Southern (< 61° N) and Northern halves, for the period 1993-2004.

Estimate	Average Annual CH_4 Emissions (Tg CH_4 y^{-1})			Average June-July-August CH_4 (Tg CH_4 $month^{-1}$)			Average June-July-August Contributing Area (10^3 km^2)			Average June-July-August CH_4 Intensity (g CH_4 m^{-2} mon^{-1})		
	WSL	S	N	WSL	S	N	WSL	S	N	WSL	S	N
Models												
CLM4Me	5.77	1.10	4.67	1.32	0.21	1.11	390	64	325	3.39	3.22	3.42
DLEM	3.72	1.23	2.49	0.75	0.19	0.56	368	92	276	2.03	2.05	2.03
DLEM2	3.28	0.43	2.85	0.74	0.07	0.67	398	49	350	1.85	1.34	1.92
IAP-RAS[a]	11.19	9.29	1.90	3.69	3.07	0.62	461	321	140	8.01	9.57	4.44
LPJ-Bern	5.49	0.99	4.50	1.03	0.14	0.89	635	112	523	1.63	1.28	1.70
LPJ-MPI	4.77	2.72	2.05	1.16	0.62	0.54	456	166	290	2.54	3.70	1.88
LPJ-WHyMe	7.87	1.26	6.61	1.75	0.26	1.49	405	51	354	4.31	5.09	4.21
LPJ-WSL	4.01	0.84	3.17	1.06	0.15	0.91	233	30	202	4.55	5.02	4.48
LPX-BERN (N)	3.07	1.90	1.17	0.67	0.39	0.28	710	341	369	0.94	1.15	0.76
LPX-BERN (DYPTOP-N)	2.42	1.36	1.06	0.49	0.27	0.22	563	223	340	0.88	1.21	0.66
ORCHIDEE	6.47	2.52	3.96	1.72	0.53	1.19	303	51	252	5.69	10.50	4.73
SDGVM	5.69	3.93	1.76	1.57	1.05	0.52	1165	549	616	1.35	1.92	0.84
UW-VIC (GIEMS)	5.05	2.07	2.98	1.03	0.52	0.51	681	292	389	1.51	1.77	1.32
UW-VIC (SWAMPS)	3.59	2.26	1.33	0.85	0.59	0.26	680	291	389	1.25	2.03	0.67
VIC-TEM-TOPMODEL	8.74	4.72	4.02	2.46	1.31	1.15	547	238	309	4.49	5.51	3.71
VISIT (GLWD)	4.62	1.66	2.96	0.76	0.22	0.54	590	252	337	1.29	0.88	1.59
VISIT (SHENG)	5.08	2.24	2.84	0.81	0.30	0.51	675	336	338	1.20	0.88	1.52
Mean	5.34	2.38	2.96	1.29	0.58	0.70	545	203	341	2.76	3.36	2.35
Std. Dev.	2.24	2.09	1.46	0.77	0.70	0.35	209	140	106	1.96	2.85	1.43
Std. Err.	0.54	0.51	0.35	0.19	0.17	0.09	51	34	26	0.47	0.69	0.35
Observations												
Glagolev2011	3.92	2.82	1.09	0.96	0.67	0.30	679	336	343	1.42	1.99	0.87
Inversions												
Kim2011	3.08	2.42	0.66	0.75	0.58	0.18	679	336	343	1.11	1.72	0.52
Bloom2010	3.71	2.22	1.49	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Winderlich2012	9.80	3.43	6.37	1.58	0.56	1.02	n/a	n/a	n/a	n/a	n/a	n/a
Bousquet2011K	6.98	2.30	4.68	1.47	0.49	0.98	n/a	n/a	n/a	n/a	n/a	n/a
Bousquet2011R	6.73	3.37	3.36	1.63	0.78	0.85	n/a	n/a	n/a	n/a	n/a	n/a
Mean	6.06	2.75	3.31	1.36	0.60	0.76	n/a	n/a	n/a	n/a	n/a	n/a
Std. Dev.	2.72	0.60	2.32	0.41	0.12	0.39	n/a	n/a	n/a	n/a	n/a	n/a
Std. Err.	1.22	0.27	1.04	0.20	0.06	0.20	n/a	n/a	n/a	n/a	n/a	n/a

[a]For IAP-RAS, JJA emissions were set equal to the annual total

Table S2. Temporal correlations between JJA CH_4 emissions and environmental drivers, 1993-2004

Model	WSL				S				N			
	CRU P	CRU T_{air}	GIEMS F_{inund}[a]	SWAMPS F_{inund}[a]	CRU P	CRU T_{air}	GIEMS F_{inund}[a]	SWAMPS F_{inund}[a]	CRU P	CRU T_{air}	GIEMS F_{inund}[a]	SWAMPS F_{inund}[a]
CLM4Me	-0.24	0.58	0.32	0.29	0.01	0.66	0.24	0.40	-0.05	0.41	0.28	0.23

DLEM	0.46	0.18	0.87	0.48	0.54	0.09	0.81	0.69	0.35	0.23	0.84	0.40
DLEM2	0.32	0.40	0.64	0.33	0.33	0.23	0.83	0.63	0.02	0.42	0.60	0.25
IAP-RAS[b]	0.03	0.65	-0.22	0.36	-0.26	0.74	-0.56	0.07	0.23	0.73	-0.12	0.28
LPJ-Bern	0.62	0.23	0.15	0.45	0.74	-0.19	0.50	0.65	0.38	0.40	0.07	0.41
LPJ-MPI	0.36	0.16	0.63	0.30	0.45	0.24	0.49	0.64	0.22	-0.04	0.71	0.20
LPJ-WHyMe	0.69	-0.07	0.35	0.51	0.46	-0.32	0.61	0.71	0.73	0.06	0.27	0.41
LPJ-WSL	0.55	0.11	0.93	0.63	0.30	0.07	0.95	0.79	0.47	0.17	0.91	0.57
LPX-BERN	-0.12	0.88	-0.28	0.13	-0.62	0.75	-0.40	-0.40	0.15	0.92	-0.05	0.36
LPX-BERN (DYPTOP)	-0.14	0.93	-0.02	0.30	-0.04	0.77	0.18	0.15	-0.18	0.95	-0.09	0.35
LPX-BERN (N)	-0.27	0.94	-0.33	-0.03	-0.54	0.86	-0.41	-0.46	-0.04	0.94	-0.08	0.23
LPX-BERN (DYPTOP-N)	-0.32	0.94	-0.14	0.09	-0.32	0.88	-0.17	-0.24	-0.28	0.95	-0.07	0.25
ORCHIDEE	-0.09	0.79	0.05	0.18	-0.04	0.75	0.13	0.21	0.16	0.66	-0.05	0.18
SDGVM	0.33	0.74	0.38	0.32	0.33	0.58	0.34	0.25	0.54	0.67	0.06	0.39
UW-VIC (GIEMS)	-0.34	0.10	-0.07	-0.57	-0.31	0.43	0.02	-0.20	-0.32	-0.11	-0.11	-0.64
UW-VIC (SWAMPS)	0.14	0.59	0.47	0.39	0.17	0.44	0.55	0.44	-0.01	0.67	0.10	0.23
VIC-TEM-TOPMODEL	0.67	0.20	0.53	0.41	0.71	0.08	0.42	0.54	0.43	0.29	0.46	0.47
VISIT (GLWD)	-0.03	0.95	0.03	0.16	0.01	0.90	-0.02	-0.07	-0.14	0.96	0.08	0.26
VISIT (Sheng)	-0.08	0.95	0.00	0.11	-0.01	0.91	-0.02	-0.07	-0.16	0.96	0.04	0.24
VISIT (GLWD-WH)	0.05	0.80	0.07	0.23	-0.08	0.84	0.12	0.12	0.15	0.76	0.07	0.33
VISIT (Sheng-WH)	-0.02	0.79	0.06	0.17	-0.08	0.84	0.12	0.12	0.10	0.74	0.06	0.29
Bousquet - Kaplan	0.53	0.24	0.37	0.26	0.52	0.21	0.44	0.48	0.39	0.25	0.32	0.21
Bousquet - Ref	0.46	-0.02	0.59	0.30	0.40	-0.02	0.60	0.63	0.38	-0.03	0.57	0.20

[a]F_{inund} = fractional inundated area

[b]For IAP-RAS, correlations are between annual CH_4 and annual average values of drivers