Characterization of atmospheric methane release in the outer Mackenzie River Delta from biogenic and thermogenic sources – Supplemental Material.

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Table S1: Site locations and CH$_4$ source isotopic signatures.

Site	Latitude	Longitude	Source δ^{13}C-CH$_4$ (‰)	R^2	Max CH$_4$ (ppm)	Max wind speed (km/h)	Site Type
Wetland 1 (fall)	68.9691°	-134.7168°	-88.3	0.999	62.50	16.2	Aquatic seep
Pingo 3 (fall)	68.9393°	-134.4114°	-73.6	0.987	3.19	2.6	Aquatic seep
channel seep	69.3197°	-135.4775°	-42.5	0.982	27.00	10.5	Aquatic seep
Wetland 1 (summer)	68.9691°	-134.7168°	-56.4	0.927	18.46	5.0	Aquatic seep
Pingo 2	69.2856°	-135.5039°	-63.6	0.845	2.58	10.5	Polar V
Pingo 1	69.0888°	-135.7951°	-53.0	0.722	5.62	5.5	Polar V
Wetland 3	69.2088°	-135.2714°	-71.9	0.675	2.23	6.0	Polar V
Wetland 2	68.9243°	-135.3883°	-78.4	0.596	2.19	10.0	Polar V
Lake 1 (summer)	69.2294°	-135.2441°	-44.7	0.480	7.57	N/A	Aquatic seep
Sites sampled but not reported due to low R^2							
Pingo 1 (fall)	69.0888°	-135.7951°	-2.9	0.434	2.02	14.2	Polar V
Pingo 3 (summer)	68.9393°	-134.4114°	-59.0	0.119	2.26	3.6	Aquatic seep
Lake 1 (fall)	69.2294°	-135.2441°	-79.3	0.040	2.09	14.0	Aquatic seep
Site 9	68.9466°	-135.8452°	-35.0	0.016	1.98	3.5	Polar V

Table S2: Flux rates for Pingo 3 and Lake 1. Pingo 3 and Lake 1 were both sources of CH$_4$ and CO$_2$.

Site	Pingo 3	Lake 1
CH$_4$ (mg CH$_4$-C/hr/m^2)	0.8667	2.2551
standard deviation	0.1329	0.9219
CO$_2$ (mg CO$_2$-C/hr/m^2)	1.703	52.7348
Standard deviation	0.2061	45.9352
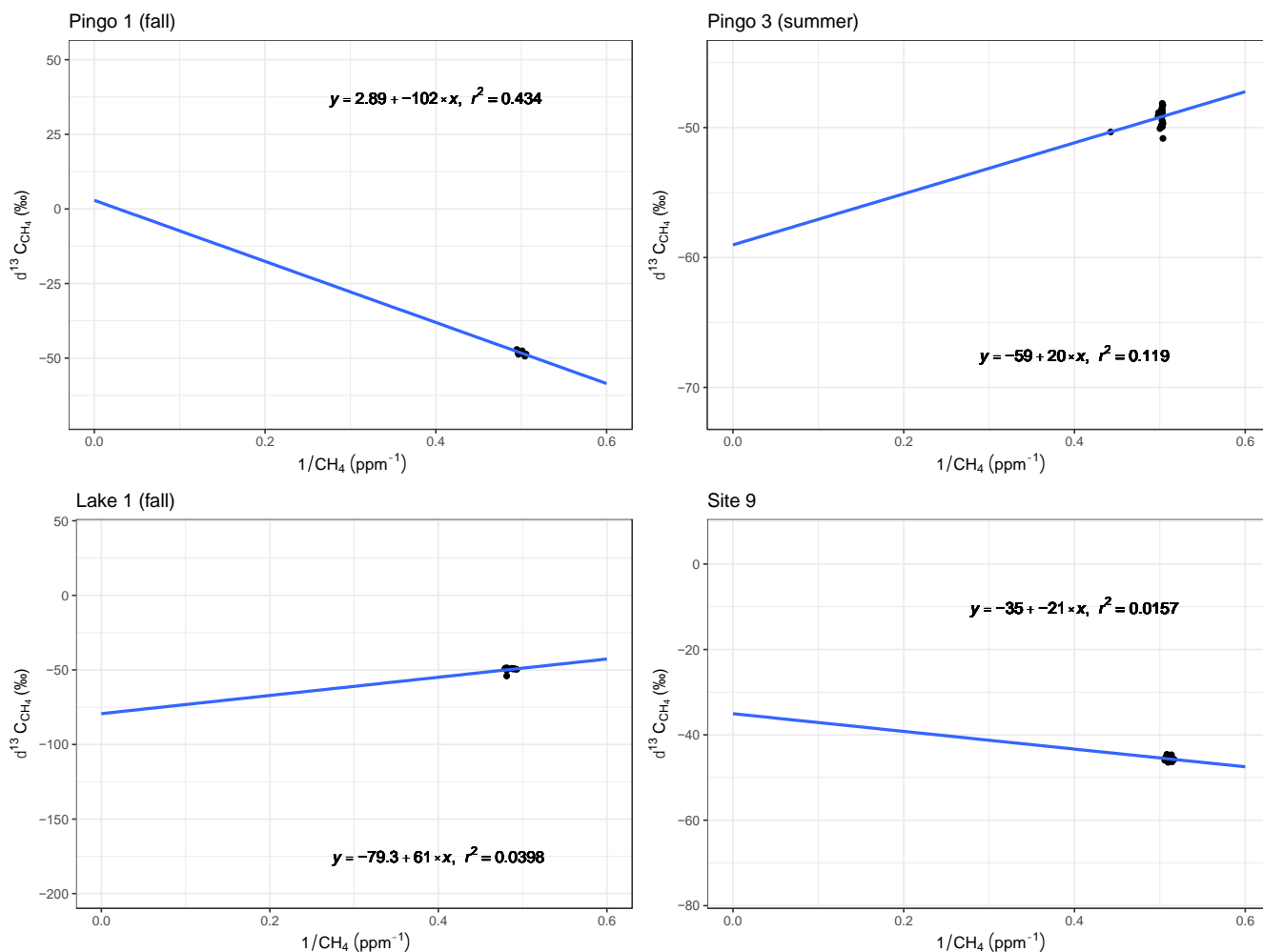
Figure S1: Keeling plots for Pingo 1 (fall), Site 9, Pingo 3 (summer), Lake 1 (fall) and Site 10. Pingo 1, Site 9 and Site 10 were identified as areas of high flux rate by aerial surveys but could not be verified during this study. Pingo 3 and Lake 1 were identified in October by holes in the ice caused by high rate ebullition. Regression analysis was inconclusive and not included in the main analysis. All plots had low R^2 values due to low CH$_4$ concentrations. The maximum CH$_4$ measured at any site was at Pingo 3 and was 2.261 ppm.
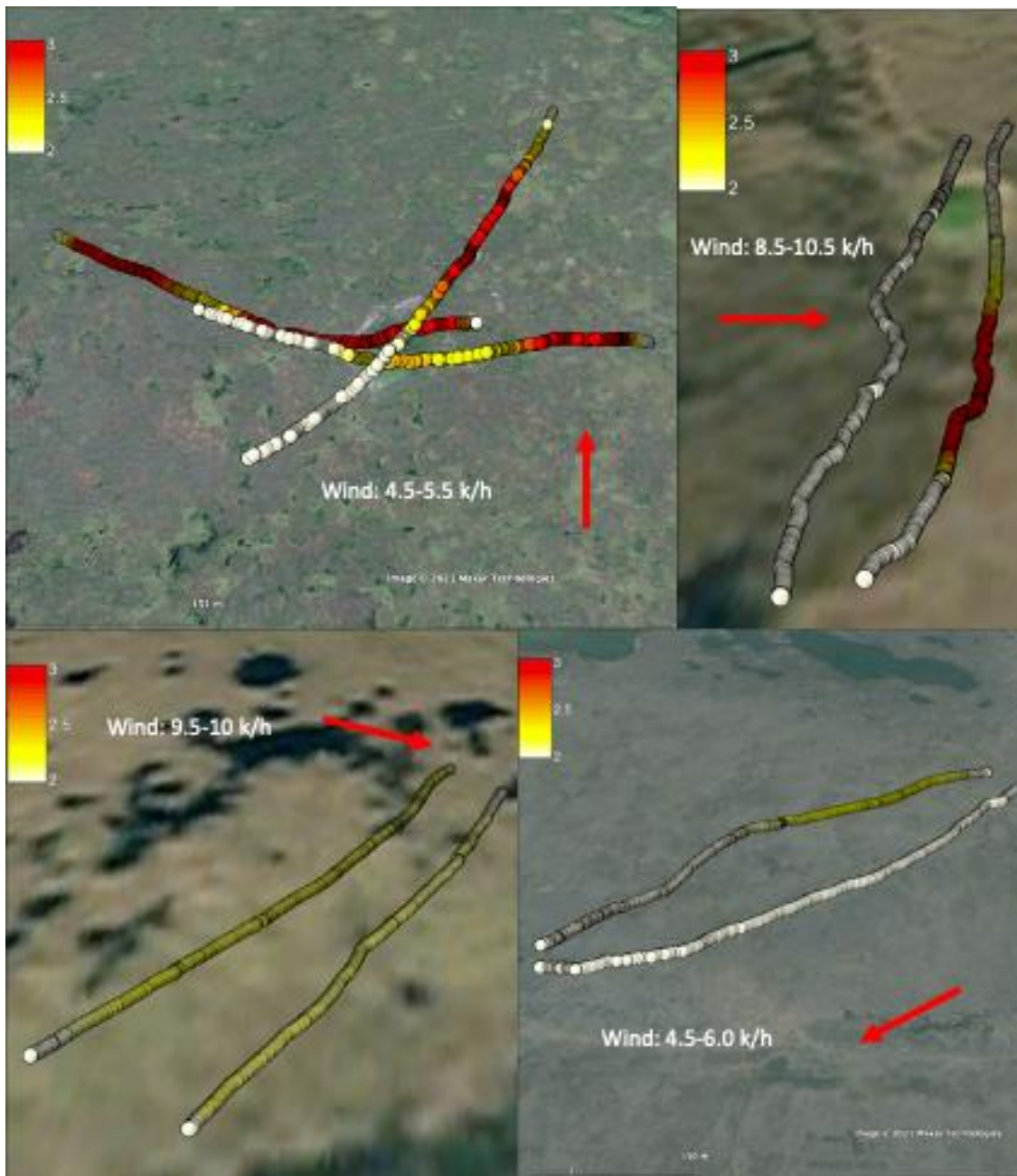
Figure S2: Walking transects of CH₄ concentrations at sample sites, scale is in ppm. Sites are (clockwise from top left): Pingo 1, Pingo 2, Wetland 2, Wetland 3 (© Google Earth).