Surface networks in the Arctic may miss a future "methane bomb"

Sophie Wittig[1,*], Antoine Berchet[1], Isabelle Pison[1], Marielle Saunois[1], and Jean-Daniel Paris[1]

[1]Laboratoire des Sciences du Climat et de l'Environnement, CEA-CNRS-UVSQ, Gif-sur-Yvette, France
[*]Now at the Department of Meteorology and Geophysics, University of Vienna, Vienna, Austria

Correspondence: antoine.berchet@lsce.ipsl.fr

Table S1: *Selected atmospheric observation sites for this study, by decreasing latitudes.*

ID	Site, country	Latitude	Longitude	Elevation (masl)	Operator
ALT	Alert, CAN	82.5 °N	62.5 °W	185	ECCC
ZEP	Zeppelin, NOR	78.9 °N	11.9 °E	474	NOAA-ESRL
SUM	Summit, GRL	72.6 °N	38.4 °E	3210	NOAA-ESRL
TIK	Tiksi, RUS	71.9 °N	128.9 °E	19	FMI/NOAA
BRW	Barrow, USA	71.3 °N	156.6 °W	11	NOAA-ESRL
CBY	Cambridge Bay, CAN	69.1 °N	105.1 °W	35	ECCC
INK	Inuvik, CAN	68.3 °N	133.5 °W	113	ECCC
PAL	Pallas, FIN	68.0 °N	24.1 °E	565	FMI/NOAA
CRV	CARVE, USA	65.0 °N	147.6 °W	611	NOAA-ESRL
BLK	Baker Lake, CAN	64.3 °N	96.0 °W	95	ECCC
NOY	Noyabrsk, RUS	63.4 °N	75.8 °E	100	JR-stations NIES
ICE	Storhovdi Island, ISL	63.4 °N	20.2 °E	118	NOAA-ESR
IGR	Igrim, RUS	63.2 °N	64.4 °E	25	JR-stations NIES
BCK	Behchoko, CAN	62.8 °N	115.9 °W	160	ECCC
YAK	Yakutsk, RUS	62.1 °N	129.4 °E	130	JR-stations NIES
DEM	Demyanskoe, RUS	59.8 °N	70.9 °E	75	JR-stations NIES
FNE	Fort Nelson, CAN	58.8 °N	122.6 °W	361	ECCC
CHU	Churchill, CAN	58.7 °N	93.8 °W	29	ECCC
KRS	Karasevoe, RUS	58.3 °N	82.4 °E	50	JR-stations NIES
BRZ	Berezorechka, RUS	56.1 °N	112.5 °E	150	JR-stations NIES
CBA	Cold Bay, USA	55.2 °N	162.7 ° E	21	NOAA-ESRL
LLB	Lac La Biche, CAN	55.0 °N	112.5 °W	540	ECCC
AZV	Azovo, RUS	54.7 °N	73.0 °E	100	JR-stations NIES
VGN	Vaganovo, RUS	54.5 °N	62.3 °E	200	JR-stations NIES
ETL	East Trout Lake, CAN	54.3 °N	105.0 °W	500	ECCC
MHD	Mace Head, IRL	53.3 °N	9.9 °W	5	NOAA-ESRL
SHM	Shemya Island, USA	52.7 °N	174.1 °W	23	NOAA-ESRL
EST	Esther, CAN	51.7 °N	110.2 °W	707	ECCC
SVV	Savvushka, RUS	51.3 °N	82.1 °E	400	JR-stations NIES
BRA	Bratt's Lake, CAN	50.2 °N	104.7 °W	595	ECCC
FRD	Fraserdale, CAN	49.9 °N	81.6 °W	210	ECCC

CPS	Chapais, CAN	49.8 °N	75.0 °W	391	ECCC
CHB	Chibougamau, CAN	49.7 °N	74.3 °W	393	ECCC
ESP	Estevan Point, CAN	49.4 °N	126.5 °W	7	ECCC
ABT	Abbotsford, CAN	49.0 °N	122.3 °W	40	ECCC
EGB	Egbert, CAN	44.2 °N	79.8 °W	251	ECCC
WSA	Sable Island, CAN	43.9 °N	60.0 °W	5	ECCC
DWN	Downsview, CAN	43.8 °N	79.5 °W	198	ECCC
HNP	Hanlan's Point, CAN	43.6 °N	79.4 °W	87	ECCC
TKP	Turkey Point, CAN	42.6 °N	80.6 °W	231	ECCC

Table S2: *Additional observation sites.*

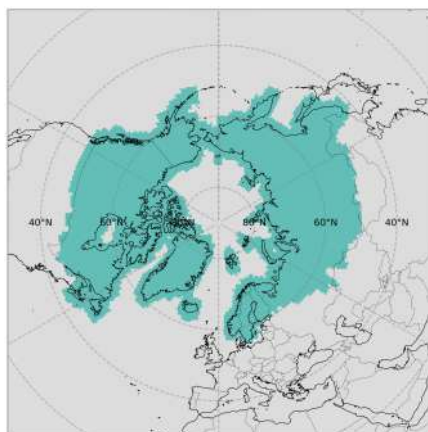
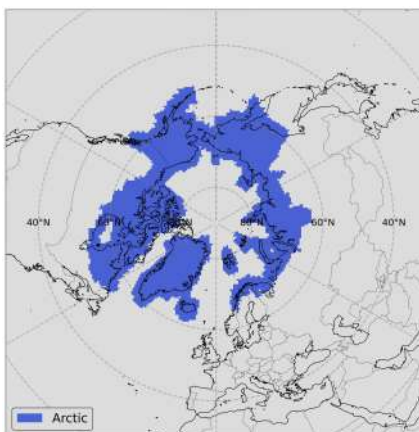
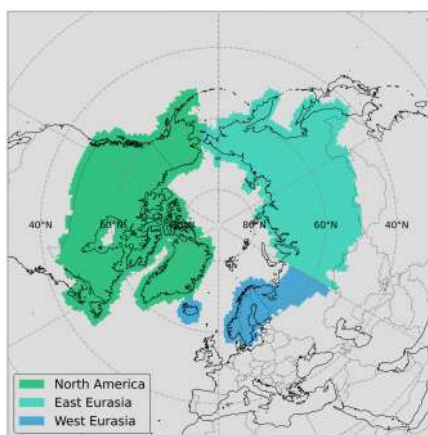
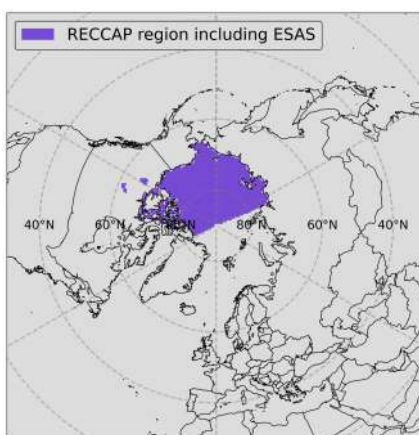
ID	Site, country	Latitude	Longitude	Elevation (masl)	Operator
SNO	Station Nord, GRL	81.6 °N	16.7 °W	8	ICOS
KJN	Kjolnes, NOR	70.9 °N	29.2 °E	30	Univ. Exeter/ICOS
AMB	Ambarchik, RUS	69.6 °N	162.3 °E	5	MPI-BGC
TER	Teriberka, RUS	69.2 °N	35.1 °E	83	MGO
CHS	Cherskii, RUS	68.6 °N	161.3 °E	23	IASOA
SOD	Sodankyla, FIN	67.4 °N	26.6 °E	227	ICOS
SVB	Svartberget, SWE	64.3 °N	19.8 °E	275	ICOS
SMR	Hyytiälä, FIN	61.9 °N	24.3 °E	181	ICOS
ZOT	Zotto, RUS	60.8 °N	89.4 °E	104	MPI-BGC
NOR	Norunda, SWE	60.1 °N	17.5 °E	46	ICOS
UTO	Utö, FIN	59.8 °N	21.4 °E	65	ICOS
BIR	Birkenes Observatory, NOR	58.4 °N	8.3 °E	219	ICOS
HTM	Hyltemossa, SWE	56.1 °N	13.4 °E	255	ICOS
VHL	Vavihill, SWE	56.0 °N	13.2 °E	175	PSI
PLA	Preila, LTU	55.4 °N	21.1 °E	5	FTMC
CDL	Candle Lake, CAN	55.4 °N	105.1 °E	600	ECCC

(a) Entire Region

(b) Arctic

(c) Sub-continental regions

(d) Region including ESAS

Figure S1. *Supra-regions (figures a to c) used for applying trends on wetland and anthropogenic CH₄ emissions and RECCAP region including the ESAS (figure d) used for applying trends on oceanic methane sources.*