

Supporting Information

Atmospheric deposition of current use pesticides in the Arctic: Snow core records from the Devon Island Ice Cap, Nunavut, Canada

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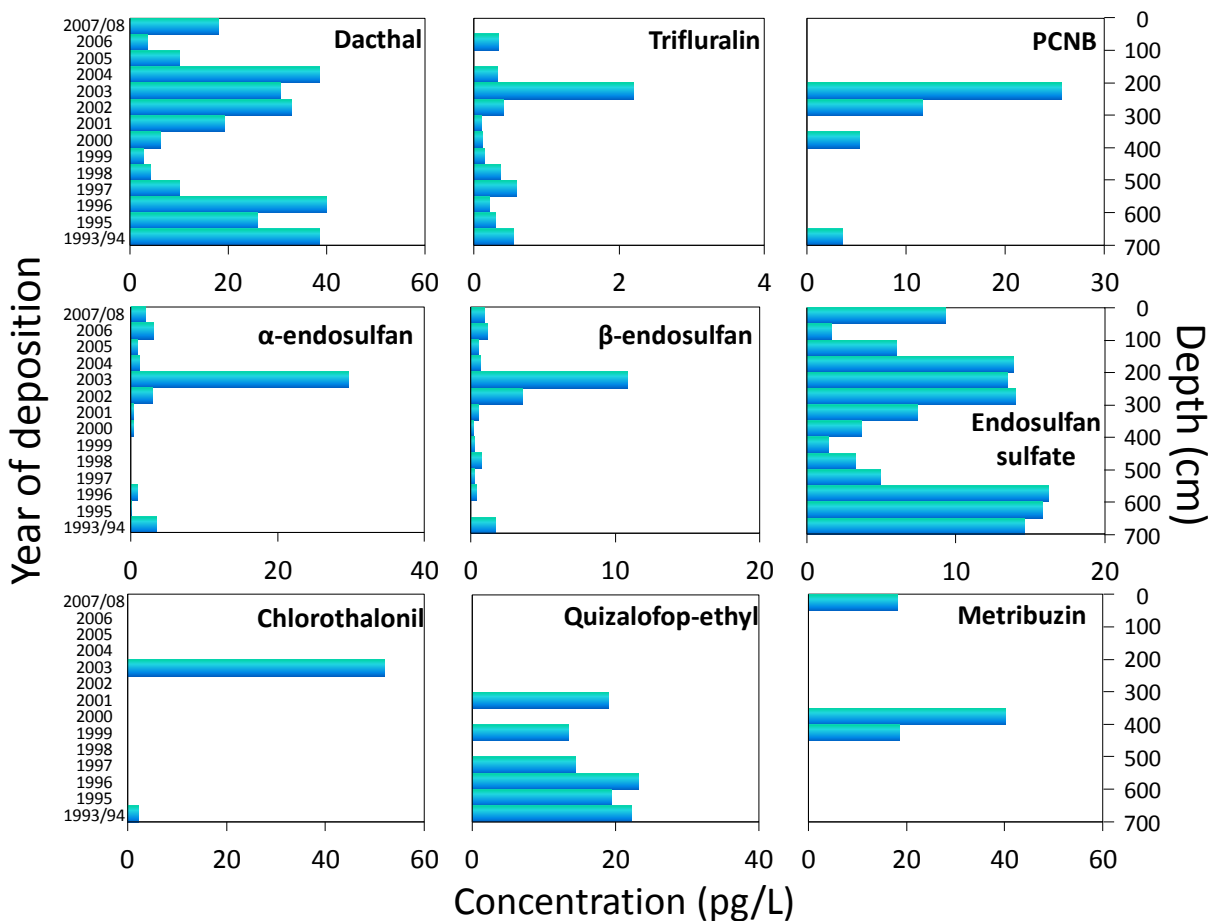
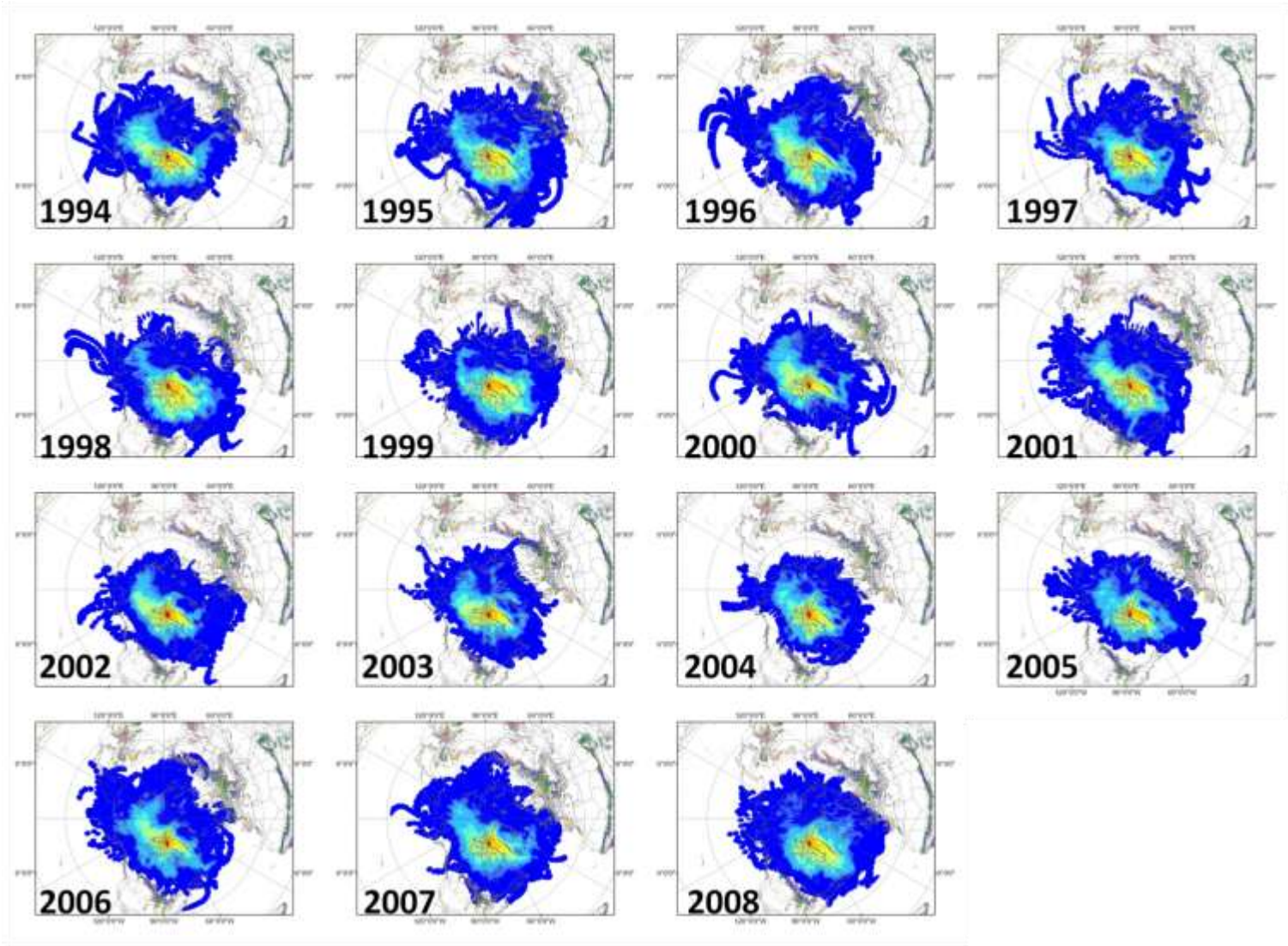


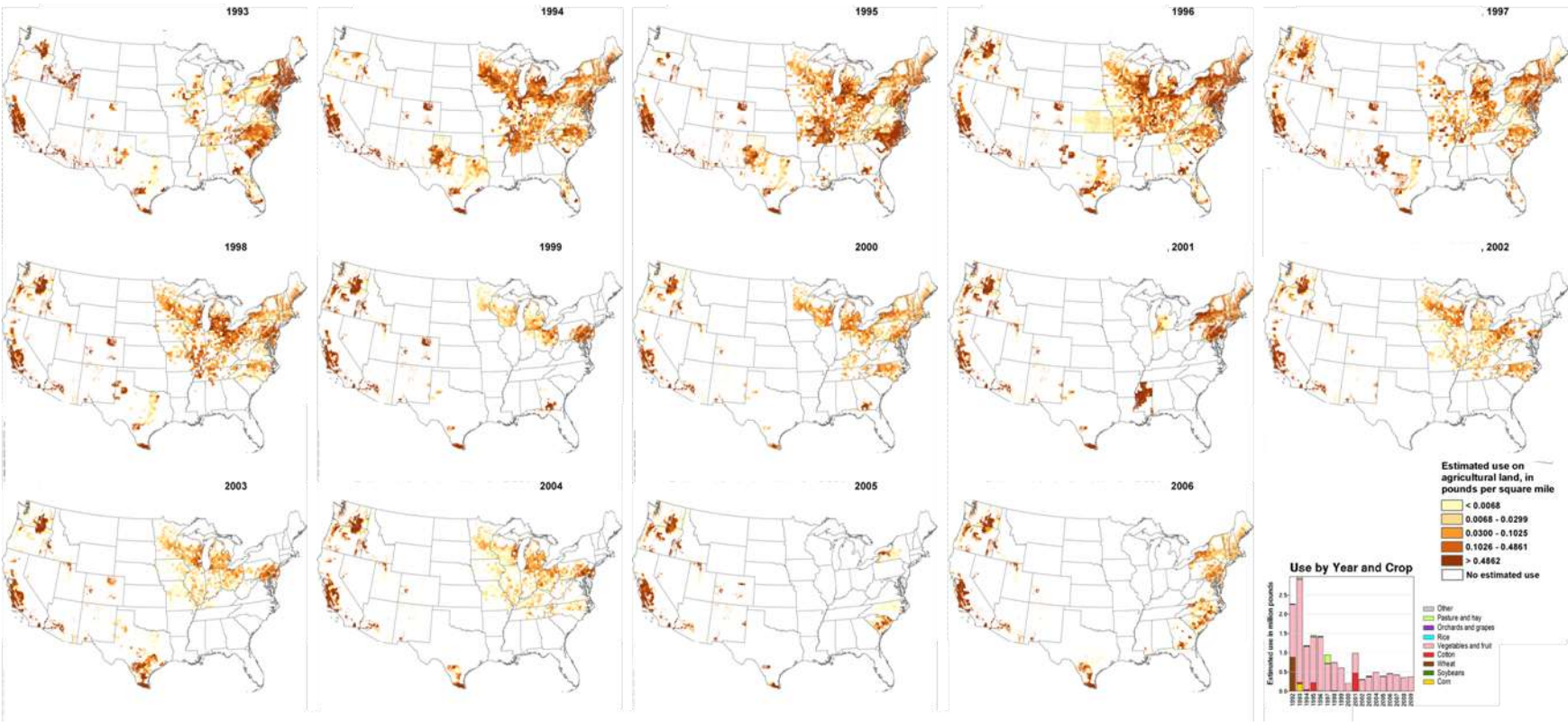
Figure S1. Concentrations (snow water equivalent) of selected current use pesticides in snow segments from a snow pit dug on the Devon Island Ice Cap in 2008.

Table S1. Concentrations of CUPs (pg·L ⁻¹), method detection limits (MDLs) and instrument detection limits (IDLs) ^a																	
Depth interval (cm)	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700			
Volume (L)	10.24	11.91	9.35	10.38	9.13	10.92	11.18	8.53	10.83	11.1	11.26	10.49	10.91	10.42			
Mirex (% recovery)	98	87	91	82	87	100	75	63	90	115	94	91	95	93			
Analytes	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	pg·L ⁻¹	avg blank	MDL	IDL
Chlorpyrifos	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	0.37
Chlorthalonil	<MDL	<MDL	<MDL	<MDL	51.8	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	2.18	1.47	1.27	0.40
Dacthal	17.9	3.57	9.95	38.4	30.6	32.8	19.2	6.24	2.75	4.09	9.95	39.9	26.0	38.6	2.12	3.75	0.01
Dimethoate	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	5.83
α-Endosulfan (Endo I)	1.98	3.05	0.85	1.22	29.6	2.92	0.40	0.36	<MDL	<MDL	<MDL	1.01	0.16	3.42	0.97	3.11	0.10
β-Endosulfan (Endo II)	0.87	1.12	0.52	0.63	10.8	3.51	0.55	0.17	0.28	0.74	0.23	0.39	0.00	1.69	0.33	1.01	0.10
Endosulfan Suphate	9.27	1.64	5.98	13.9	13.4	14.0	7.41	3.63	1.43	3.24	4.90	16.3	15.8	14.6	0.37	2.14	0.05
Ethafluralin	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	0.09
Malathion	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	2.53
Metribuzin	18.1	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	40.2	18.6	<MDL	<MDL	<MDL	<MDL	<MDL	<IDL	-	0.19
Myclobutanil	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	0.40
PCNB	<MDL	<MDL	<MDL	<MDL	25.6	11.7	<MDL	5.26	<MDL	<MDL	<MDL	<MDL	<MDL	3.53	0.80	2.06	0.22
Pendameethalin	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	1.47	-	0.14
Phosalone	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	1.94
Phosmet	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	3.76
Propiconazole	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	<IDL	-	0.79
Quizalfop Ethyl	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	19.0	<IDL	13.5	<IDL	14.4	23.1	19.4	22.3	<IDL	-	1.03
Tefluthrin	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.06	0.47	0.03
Trifluralin	<MDL	0.33	<MDL	0.33	2.19	0.40	0.10	0.11	0.13	0.35	0.58	0.20	0.29	0.54	0.19	0.78	0.06

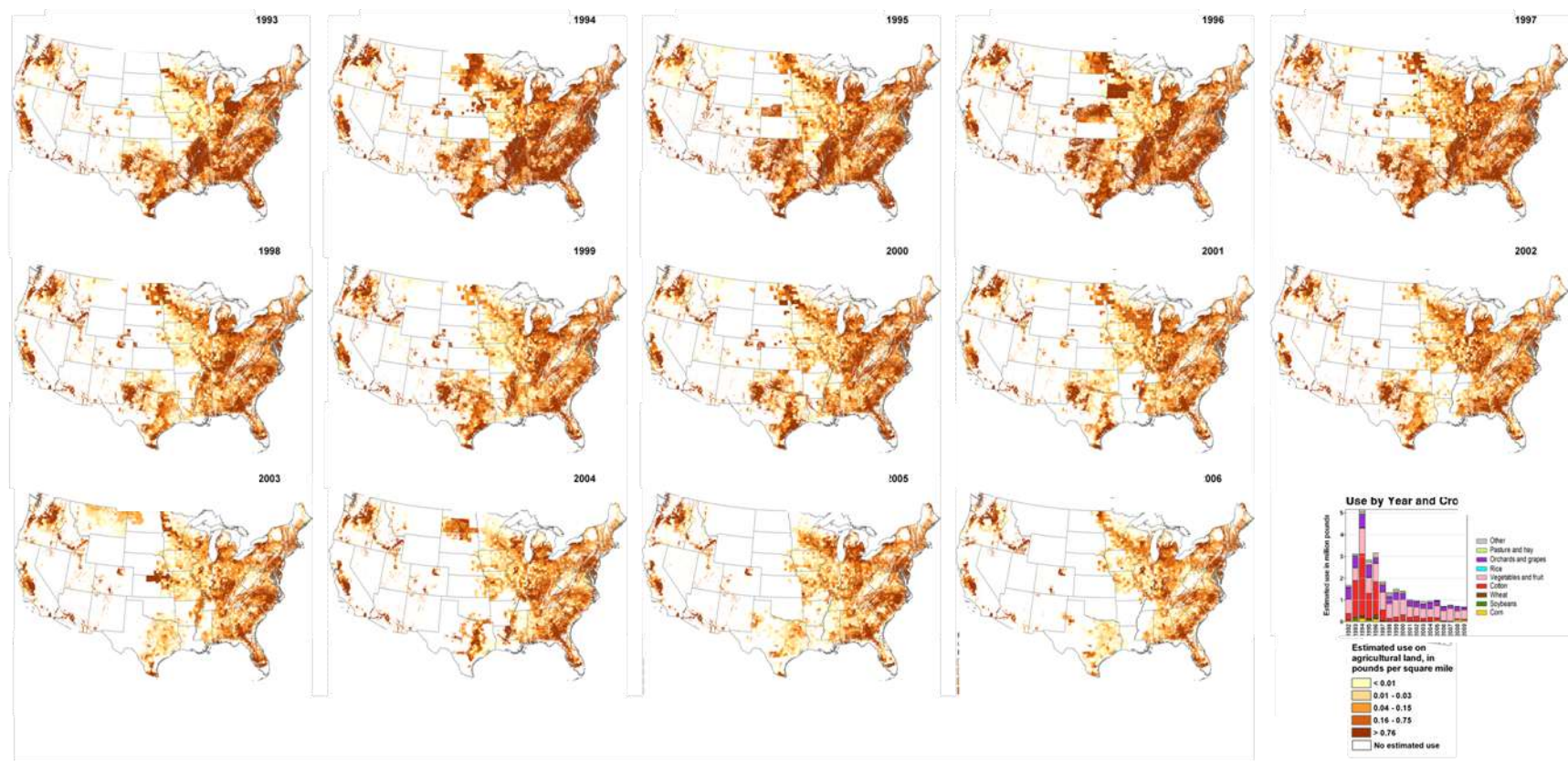
^a IDLs based instrument S/N of ~3 and a 10L sample; MDLs = 3* SD of blanks



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14 Figure S2. Airsheds of the Devon Island Ice Cap sampling site during all summers between 1994 and 2008, obtained by plotting the
15 density of air mass backward trajectory endpoints (hot color represent high density; cold color represent low density).



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17 Figure S3. Estimated uses of dacthal on agriculture land of the United States of America from 1993-2006. Maps retrieved from the
18 Pesticide National Synthesis Project by the U.S. Geological Survey (<http://water.usgs.gov/nawqa/pnsp/usage/maps/>).



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20 Figure S4. Estimated uses of endosulfan on agriculture land of the United States of America from 1993-2006. Maps retrieved from the
21 Pesticide National Synthesis Project by the U.S. Geological Survey (<http://water.usgs.gov/nawqa/pnsp/usage/maps/>).

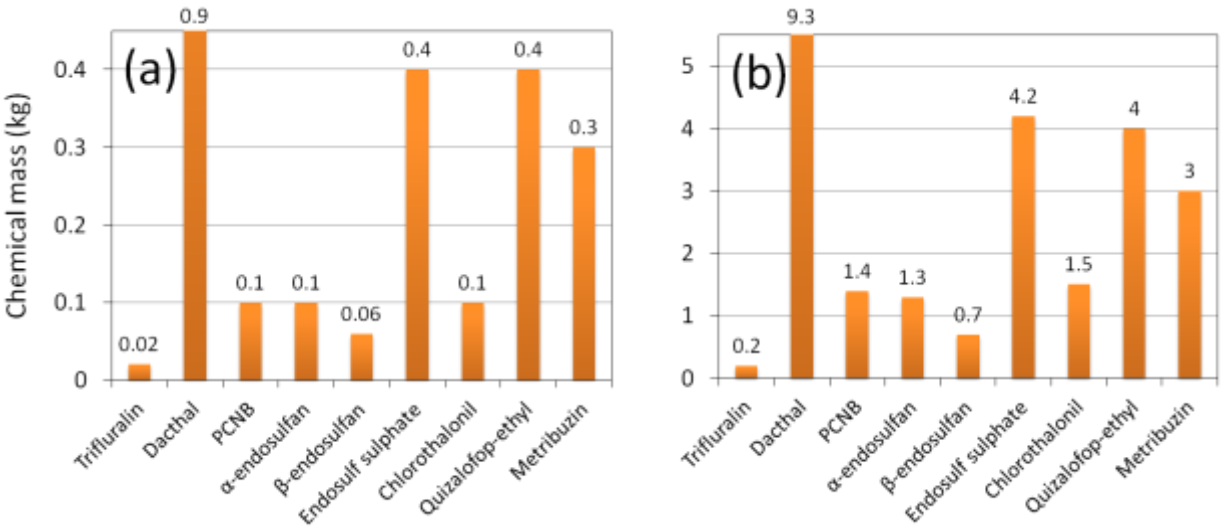


Figure S5 Estimated stock of current use pesticides deposited from 1994 to 2008 over the Devon Ice Cap (a) and over the ice caps of the whole Canadian Arctic Archipelago (b)