



Supplement of

Variability in sea ice carbonate chemistry: a case study comparing the importance of ikaite precipitation, bottom-ice algae, and currents across an invisible polynya

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SUPPLEMENTAL

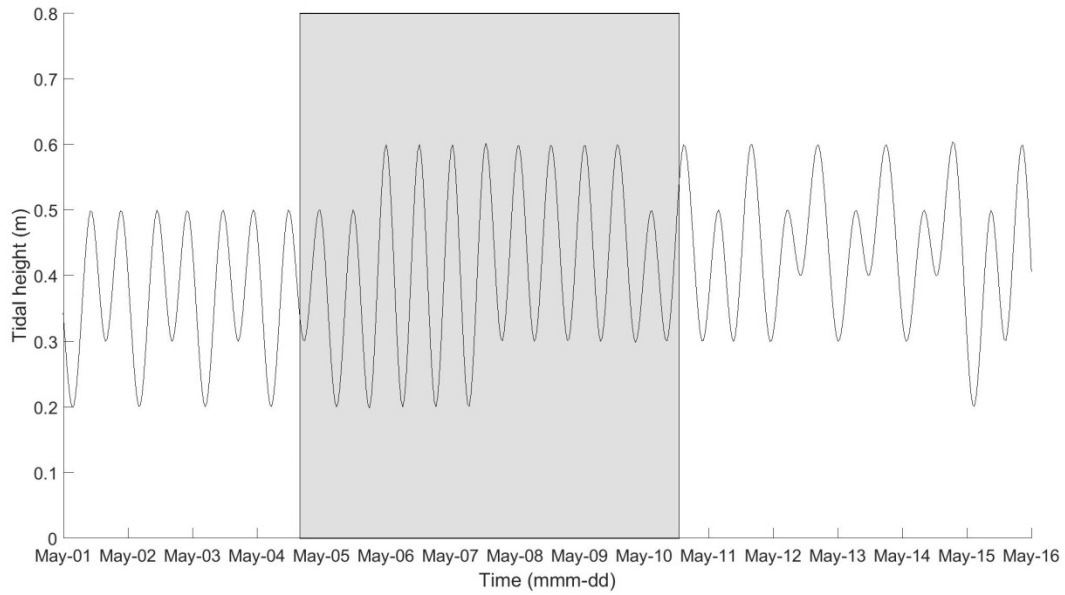


Figure S1: Tidal stage predictions for Cambridge Bay, obtained from Fisheries and Oceans Canada. The sampling period is highlighted by the grey-shaded box.

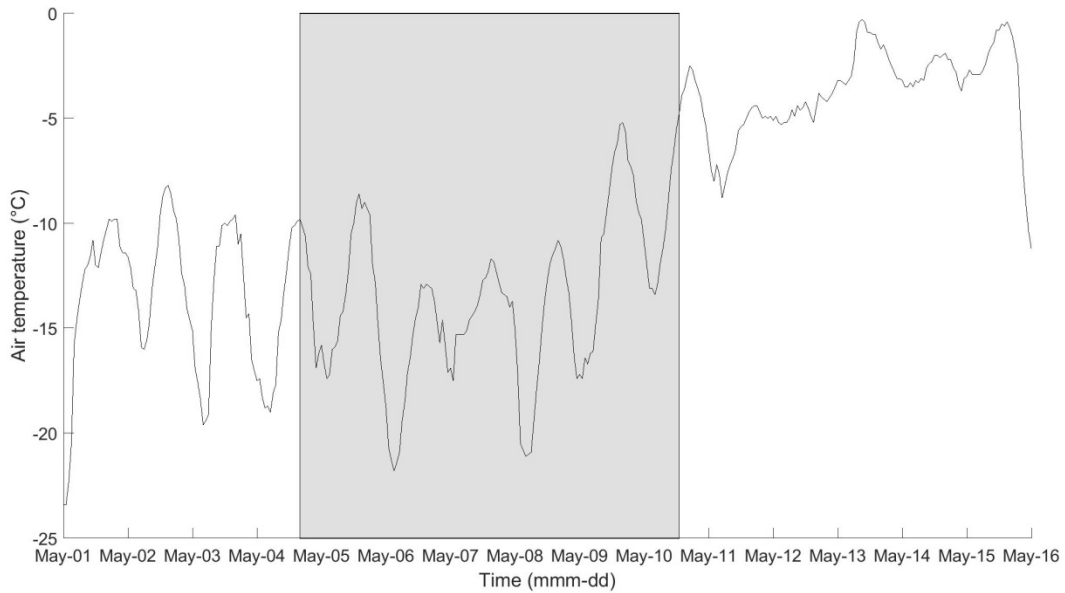


Figure S2: Air temperatures at Cambridge Bay before, during, and after the sampling period. Data obtained from Environment Canada. The sampling period is highlighted by the grey-shaded box.

Table S1: Ice core chemistry data, arranged by date of sampling and sampling horizon. Mean (\bar{x}), standard deviation (σ) and minimum/maximum values for each horizon on each date are presented. Snow depth/ice thickness are only averaged by day; the separation by horizon does not apply to that data.

		TFYI									POLY								
		Top			Mid			Bot			Top			Mid			Bot		
		04-May	07-May	10-May	04-May	07-May	10-May	04-May	07-May	10-May	04-May	07-May	10-May	04-May	07-May	10-May	04-May	07-May	10-May
Snow Depth (cm)	\bar{x}				13.5	14.8	16.6							22.1	27.2	28.8			
	σ				4.6	3.6	6.4							8.3	4.4	9.8			
	min				8.0	12.0	8.0							9.5	23.0	14.0			
	max				20.0	20.0	25.0							32.0	33.0	37.0			
Ice Thickness (cm)	\bar{x}				178.0	177.6	185.8							143.3	144.0	152.4			
	σ				10.4	9.2	5.4							12.4	20.7	15.6			
	min				161.0	166.0	180.0							131.0	124.0	135.0			
	max				188.0	189.0	191.0							159.0	172.0	174.0			
Salinity (PSU)	\bar{x}	5.8	5.4	5.2	4.9	4.6	4.5	7.8	8.1	7.7	6.3	6.9	7.1	5.4	4.6	4.7	6.8	6.9	6.5
	σ	0.4	0.3	0.3	0.4	0.6	0.3	0.4	0.5	0.2	1.4	1.0	1.3	1.3	0.5	0.7	0.5	0.7	1.0
	min	5.5	5.1	4.8	4.3	4.0	4.0	7.3	7.6	7.5	4.0	5.6	5.4	4.2	3.9	3.8	6.3	6.1	5.8
	max	6.4	5.9	5.7	5.5	5.5	4.8	8.4	8.5	7.9	7.5	7.8	8.3	7.5	5.2	5.6	7.4	7.8	8.1
TIC ($\mu\text{mol}/\text{kg}$)	\bar{x}	294.8	269.7	280.4	338.3	329.9	326.4	525.7	552.6	536.7	328.7	369.0	332.2	346.7	332.6	346.3	435.8	476.8	440.2
	σ	18.3	13.0	28.2	30.6	43.0	15.0	12.4	28.3	8.1	40.5	84.5	58.0	34.5	32.8	42.0	32.0	44.4	73.2
	min	266.2	249.2	254.7	316.7	294.1	310.4	514.0	522.2	528.3	283.3	256.7	278.0	296.9	291.8	302.3	397.2	426.1	376.9
	max	312.6	282.2	325.6	391.6	399.0	347.6	546.8	595.4	546.3	376.2	475.1	396.5	381.1	373.7	409.2	474.0	538.2	563.2
TA ($\mu\text{mol}/\text{kg}$)	\bar{x}	355.6	314.1	330.0	355.8	342.5	339.4	538.1	570.3	546.4	378.6	447.3	384.8	373.5	346.2	369.9	467.7	502.9	465.5
	σ	28.0	11.9	34.0	26.0	44.1	19.8	21.9	29.7	17.8	53.2	104.3	63.6	47.5	35.0	42.6	32.1	51.3	67.6
	min	324.0	303.5	303.4	322.8	305.1	310.0	507.4	547.2	517.0	306.0	307.6	310.7	329.4	304.1	331.0	433.4	441.8	418.4
	max	400.5	328.9	387.9	389.4	416.1	361.6	569.4	621.2	565.2	448.3	566.3	455.4	448.8	390.0	437.8	504.7	566.1	579.3