

# **Spatial variations in snowpack chemistry and isotopic composition of $\text{NO}_3^-$ along a nitrogen deposition gradient in West Greenland**

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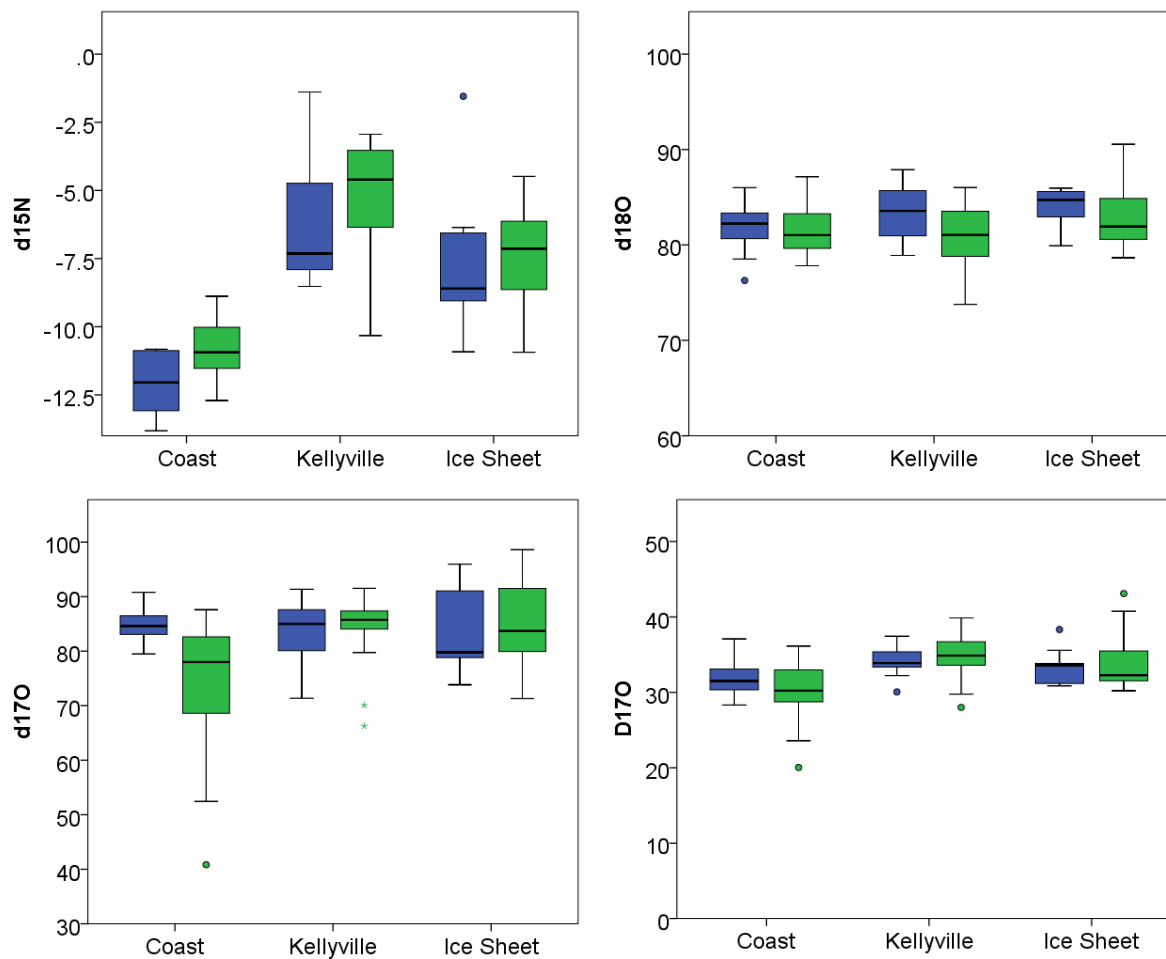
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## Supplementary Information



**Figure S.I. 1: Comparison of stable isotopes in catchment and lake ice snowpack by region (blue = lake ice snowpack, green = terrestrial snowpack)**

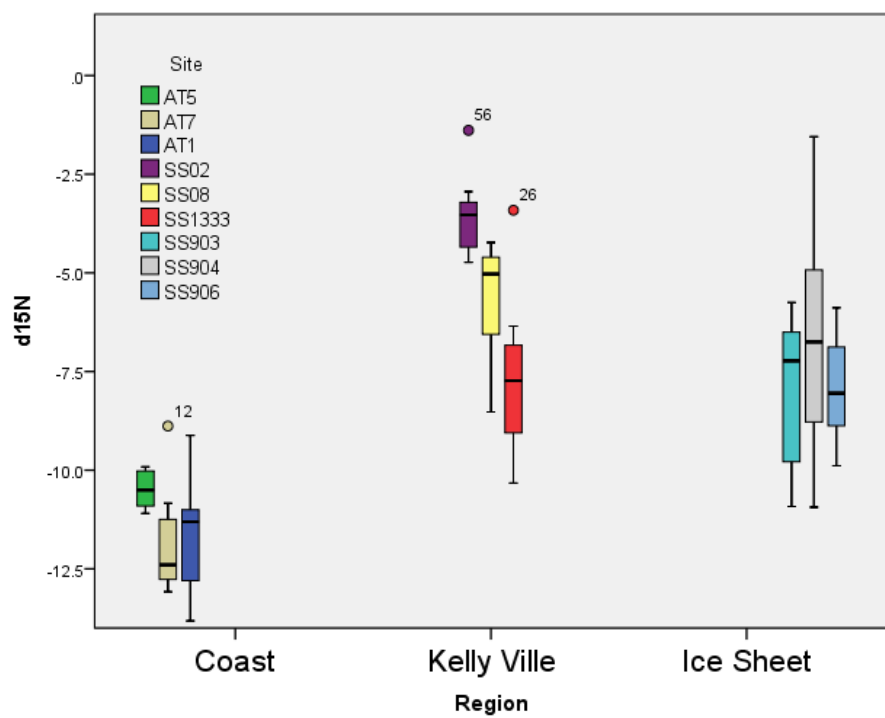


Figure S.I. 2:  $\delta^{15}\text{N}$  of snowpack for individual catchments sampled within each region

**Table S.I. 1: Summary statistics for catchment and lake ice snowpack chemistry and isotopes (concentrations in  $\mu\text{mol L}^{-1}$ , isotope  $\delta/\Delta$  notation in ‰, nm = non-marine component)**

<b>Region:</b>	<b>Coast</b>				<b>Ice Sheet</b>				<b>Kelly Ville</b>			
<b>Sample:</b>	Snow		Lake Snow		Snow		Lake Snow		Snow		Lake Snow	
<b>Analyte</b>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
$\text{NO}_3^-$	1.4	0.4	1.7	0.3	2.2	0.5	2.7	0.7	2.0	0.4	2.7	0.7
$\text{NO}_2^-$	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.0	0.0	0.0	0.0
$\text{NH}_4^+$	2.4	0.9	3.2	0.5	1.7	0.4	2.2	1.2	1.2	0.3	1.6	0.5
$\text{PO}_4^{3-}$	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0
$\text{Ca}^{2+}$	2.5	1.5	5.2	1.8	2.8	1.2	1.9	0.4	1.7	0.8	2.2	0.8
$\text{K}^+$	2.3	1.5	3.5	0.9	0.9	0.5	0.6	0.3	0.8	0.4	0.8	0.3
$\text{Mg}^{2+}$	11.2	7.9	18.1	4.1	2.8	1.2	2.2	0.8	2.5	1.3	2.7	1.1
$\text{Na}^+$	73.1	52.4	109.9	31.7	7.0	2.8	7.2	3.7	12.1	6.3	12.5	6.0
$\text{Cl}^-$	96.9	66.2	143.5	38.7	10.1	4.2	10.5	4.6	17.1	8.9	17.5	8.5
$\text{SO}_4^{2-}$	5.9	4.0	10.8	2.4	1.8	0.6	1.9	0.7	2.7	3.3	2.0	0.50
nm $\text{Ca}^{2+}$	0.7	0.3	2.5	1.9	2.6	1.2	1.8	0.4	1.4	0.7	1.9	0.8
nm $\text{K}^+$	0.6	0.4	0.9	0.3	0.7	0.5	0.4	0.3	0.5	0.3	0.5	0.2
nm $\text{Mg}^{2+}$	1.5	1.3	3.8	1.7	1.8	1.0	1.2	0.6	0.8	0.5	1.0	0.4
nm $\text{Na}^+$	-10.3	5.1	-13.5	2.1	-1.7	1.0	-1.9	1.3	-2.4	1.3	-2.6	1.4
nm $\text{SO}_4^{2-}$	0.8	0.7	3.4	2.1	1.2	0.5	1.3	0.6	1.0	0.5	1.1	0.2
$\delta^{15}\text{N}$	-10.9	1.2	-12.1	1.2	-7.4	1.8	-7.7	2.8	-5.4	2.4	-6.1	2.4
$\delta^{18}\text{O}$	81.5	2.7	81.8	3.0	82.9	3.2	84.0	2.3	81.0	3.5	83.4	3.2
$\delta^{17}\text{O}$	74.1	13.0	84.8	3.3	85.1	8.3	83.2	8.5	83.7	7.2	83.2	6.4
$\Delta^{17}\text{O}$	30.2	4.1	31.9	2.5	33.9	3.7	33.5	2.4	34.6	3.2	34.2	2.3