

Supporting Information for:

Acid Rain Effects on Aluminum Mobilization Clarified by Inclusion of Strong Organic Acids

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Table S1. Number of samples collected and median values for water chemistry measurements in the North and South Tributaries of Buck Creek from 1999-2004, October 2003 and March 2004 western Adirondack Stream Surveys (WASS) and the Winnisook Reach of the West Branch of the Neversink River from 2001-2004. All measurements in $\mu\text{mol L}^{-1}$ except pH ($-\log_{10} \text{H}^+$ in mol L^{-1}) and ANC ($\mu\text{eq L}^{-1}$). The analytical reporting limit for Al_i and Al_o is $1.5 \mu\text{mol L}^{-1}$. The analytical reporting limit for NO_3^- is $2.0 \mu\text{mol L}^{-1}$. Values below the reporting limits are considered approximate.

	Buck Creek		WASS Stream Surveys		Winnisook
	North Trib.	South Trib.	October 03	March 04	
Samples collected	286	259	197	192	283
pH	4.3	5.0	5.6	5.6	7.7
¹ ANC	-48	1	20	16	-17
² Al_i	6	4	2	1	6
³ Al_o	9	2	4	3	1
⁴ DOC	1242	321	754	413	211
SO_4^{2-}	46	49	50	44	46
NO_3^-	12	30	3	33	20
Cl^-	11	9	14	8	11
Ca^{2+}	29	38	50	45	20
Mg^{2+}	10	10	16	15	15
Na^+	25	27	27	25	11
K^+	7	7	11	8	4

¹Acid neutralizing capacity

²Inorganic monomeric Al

³Organic monomeric Al

⁴Dissolved organic carbon

Table S2. Minimum and maximum values for water chemistry measurements in the North and South Tributaries of Buck Creek from 1999-2004, October 2003 and March 2004 western Adirondack Stream Surveys (WASS) and the Winnisook Reach of the West Branch of the Neversink River from 2001-2004. All measurements in $\mu\text{mol L}^{-1}$ except pH ($-\log_{10} \text{H}^+$ in mol L^{-1}) and ANC ($\mu\text{eq L}^{-1}$). The analytical reporting limit for Al_i and Al_o is $1.5 \mu\text{mol L}^{-1}$. The analytical reporting limit for NO_3^- is $2.0 \mu\text{mol L}^{-1}$. Values below the reporting limits are considered approximate.

	Buck Creek		WASS Stream Surveys		Winnisook
	North Trib.	South Trib.	October 03	March 04	
pH	4.0–6.6	4.5–6.9	4.2–8.2	4.3–8.2	4.3–5.4
¹ ANC	-102–241	-30–338	-67–1918	-53–1200	-48–3.9
² Al_i	0–22	0–16	0–15	0–23	0–15
³ Al_o	0–15	0–6	1–12	1–8	0–8
⁴ DOC	420–2310	59–875	96–2350	106–1047	84–843
SO_4^{2-}	25–149	34–68	14–169	23–88	2–63
NO_3^-	0–220	2–95	0–79	1–123	0–72
Cl^-	3–34	4–24	5–211	4–219	4–26
Ca^{2+}	9–149	27–123	12–969	11–586	9–40
Mg^{2+}	3–35	1–35	5–160	5–147	7–24
Na^+	4–70	13–93	12–294	11–283	6–20
K^+	1–75	1–25	2–27	1–16	2–18

¹Acid neutralizing capacity

²Inorganic monomeric Al

³Organic monomeric Al

⁴Dissolved organic carbon

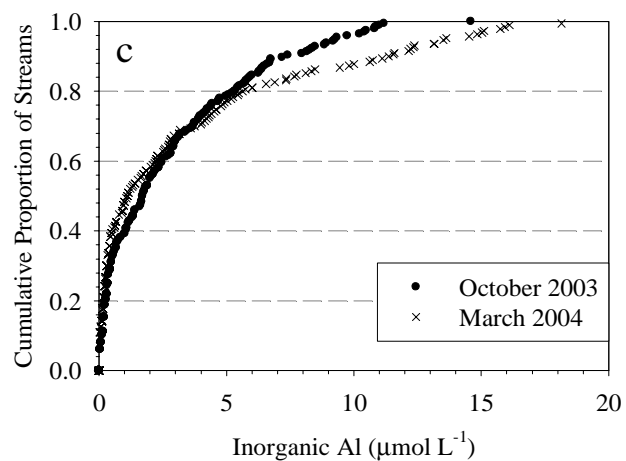
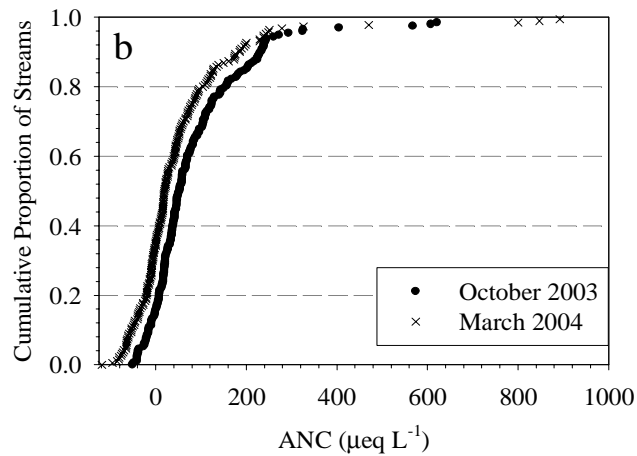
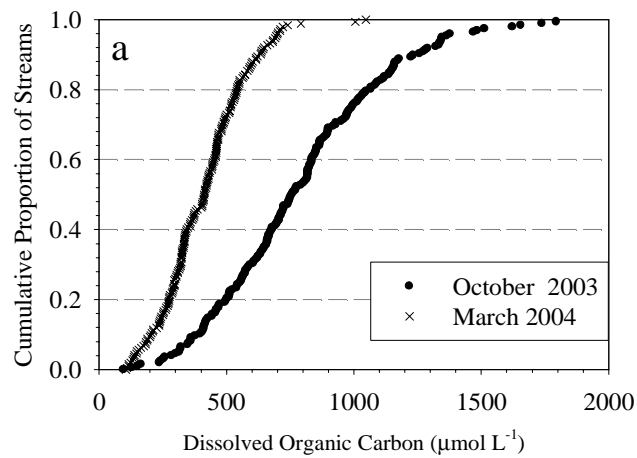


Figure S1. The cumulative proportion of DOC concentrations (a), ANC (b), and inorganic Al concentrations (c), in stream surveys conducted in October 2003 and March 2004.