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*Supplement of*

## **Climate variability in the subarctic area for the last 2 millennia**

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## Supplementary material

**Table S1.** Proxy records in the Arctic 2k database v1.1.1. arranged by the three regional regions used in the study.

PAGES ID	Country/Region	Site	Archive type	Proxy	Reference	Data URL
<b>Russian Arctic</b>						
Arc_02	Central Russia	Avam-Taimyr	Tree ring	Ring width	Briffa et al., 2008	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_03	Central Russia	Yamal	Tree ring	Ring width	Briffa et al., 2008	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_10	Central Russia	Polar Urals	Tree ring	Maximum density	Esper et al., 2002	<a href="https://www.ncdc.noaa.gov/paleo/study/19743">https://www.ncdc.noaa.gov/paleo/study/19743</a>
Arc_16	Eastern Russia	Indigurka	Tree ring	Ring width, STD	Hughes et al., 1999	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_24	Eastern Russia	Lower Lena River	Tree ring	Ring width, ARS	MacDonald et al., 1998	<a href="https://www.ncdc.noaa.gov/paleo/study/3902">https://www.ncdc.noaa.gov/paleo/study/3902</a>
<b>North Atlantic</b>						
Arc_04	Canada	Lower Lake Murray	Lake sediment	Mass acc. rate	Cook et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/6195">https://www.ncdc.noaa.gov/paleo/study/6195</a>
Arc_05	Greenland	Camp Century	Ice core	d18O	Dansgaard et al., 1969	<a href="https://www.ncdc.noaa.gov/paleo/study/2429">https://www.ncdc.noaa.gov/paleo/study/2429</a>
Arc_09	Canada	Coppermine River	Tree ring	Ring width	D'Arrigo et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_11	Greenland	GISP2	Ice core	d18O	Grootes and Stuiver, 1997	<a href="https://www.ncdc.noaa.gov/paleo/study/17796">https://www.ncdc.noaa.gov/paleo/study/17796</a> <a href="https://crudata.uea.ac.uk/cru/papers/melvin2012h/olocene/">https://crudata.uea.ac.uk/cru/papers/melvin2012h/olocene/</a>
Arc_12	Scandinavia	Torneträsk	Tree ring	Ring width	Melvin et al., 2013	
Arc_13	Scandinavia	Jämtland	Tree ring	Maximum density	Gunnarson et al., 2010	<a href="https://www.ncdc.noaa.gov/paleo/study/19743">https://www.ncdc.noaa.gov/paleo/study/19743</a>
Arc_14	Scandinavia	Lake Lehmilampi	Lake sediment	Varve thickness	Haltia-Jovi et al., 2007	<a href="http://www.ncdc.noaa.gov/paleo/study/8661">http://www.ncdc.noaa.gov/paleo/study/8661</a>
Arc_15	Scandinavia	Lapland	Tree ring	Ring width	Helama et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_17	North Atlantic	Lomonosovfonna	Ice core	d18O	Divine et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_18	North Atlantic	Austfonna	Ice core	d18O	Isaksson et al., 2005	<a href="https://www.ncdc.noaa.gov/paleo/study/11173">https://www.ncdc.noaa.gov/paleo/study/11173</a>
Arc_19	Scandinavia	Forfjorddalen 2	Tree ring	Ring width	Kirchhefer et al., 2001	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_20	Arctic Canada	Lake C2	Lake sediment	Varve thickness	Lamoureux et al., 1996	<a href="https://www.ncdc.noaa.gov/paleo/study/8662">https://www.ncdc.noaa.gov/paleo/study/8662</a>
Arc_22	North Atlantic	Hvitarvatn	Lake sediment	Varve thickness	Larsen et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/14730">https://www.ncdc.noaa.gov/paleo/study/14730</a>
Arc_25	Arctic Canada	Donard Lake	Lake sediment	Thickness	Moore et al., 2001	<a href="https://www.ncdc.noaa.gov/paleo/study/6234">https://www.ncdc.noaa.gov/paleo/study/6234</a>
Arc_26	Scandinavia	Lake Nautajärvi	Lake sediment	Organic matter	Ojala et al., 2005	<a href="https://www.ncdc.noaa.gov/paleo/study/8660">https://www.ncdc.noaa.gov/paleo/study/8660</a>
Arc_27	Greenland	B16	Ice core	d18O	Schwager, 2000	<a href="https://doi.pangaea.de/10.1594/PANGAEA.218274">https://doi.pangaea.de/10.1594/PANGAEA.218274</a>
Arc_28	Greenland	B18	Ice core	d18O	Schwager, 2000	<a href="https://doi.pangaea.de/10.1594/PANGAEA.57158">https://doi.pangaea.de/10.1594/PANGAEA.57158</a>
Arc_29	Greenland	B21	Ice core	d18O	Schwager, 2000	<a href="https://doi.pangaea.de/10.1594/PANGAEA.57291">https://doi.pangaea.de/10.1594/PANGAEA.57291</a>
Arc_30	Arctic Canada	Big Round Lake	Lake sediment	Varve thickness	Thomas et al., 2008	<a href="https://www.ncdc.noaa.gov/paleo/study/6203">https://www.ncdc.noaa.gov/paleo/study/6203</a>
Arc_31	Scandinavia	Lake Kottajärvi	Lake sediment	X-ray density	Tiljander et al., 2003	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_32	Greenland	NGRIP1	Ice core	d18O	Vinther et al., 2006	<a href="https://www.ncdc.noaa.gov/paleo/study/2494">https://www.ncdc.noaa.gov/paleo/study/2494</a>
Arc_33	Arctic Canada	Agassiz Ice Cap	Ice core	d18O	Vinther et al., 2008	<a href="https://www.ncdc.noaa.gov/paleo/study/11131">https://www.ncdc.noaa.gov/paleo/study/11131</a>
Arc_34	Greenland	Crête	Ice core	d18O	Vinther et al., 2010	<a href="https://doi.pangaea.de/10.1594/PANGAEA.786356">https://doi.pangaea.de/10.1594/PANGAEA.786356</a>
Arc_35	Greenland	Dye-3	Ice core	d18O	Vinther et al., 2010	<a href="https://doi.pangaea.de/10.1594/PANGAEA.786302">https://doi.pangaea.de/10.1594/PANGAEA.786302</a>
Arc_36	Greenland	GRIP	Ice core	d18O	Vinther et al., 2010	<a href="https://doi.pangaea.de/10.1594/PANGAEA.786354">https://doi.pangaea.de/10.1594/PANGAEA.786354</a>
Arc_37	North Atlantic	Iceland	Historic	Ice Cover	Bergthorsson, 1969	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_38	North Atlantic	MD95-2011	Marine sediment	Diatoms	Berner et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_39	North Atlantic	MD95-2011	Marine sediment	Alkenones	Calvo et al., 2002	<a href="https://doi.pangaea.de/10.1594/PANGAEA.438810">https://doi.pangaea.de/10.1594/PANGAEA.438810</a>
Arc_43	Greenland	Lake Braya So	Lake sediment	Uk37	D'Andrea et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/11176">https://www.ncdc.noaa.gov/paleo/study/11176</a>
Arc_44	Arctic Canada	Devon Ice Cap	Ice core	proxy	Fisher et al., 1983	<a href="https://www.ncdc.noaa.gov/paleo/study/2437">https://www.ncdc.noaa.gov/paleo/study/2437</a>
Arc_45	Arctic Canada	Penny Ice Cap	Ice core	d18O	Fisher et al., 1998	<a href="https://www.ncdc.noaa.gov/paleo/study/2474">https://www.ncdc.noaa.gov/paleo/study/2474</a>
Arc_47	North Atlantic	MD99-2275	Marine sediment	Diatoms	Jiang et al., 2005	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_49	Scandinavia	Okshola Cave	Speleothem	d18O	Linge et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_50	Scandinavia	Lake Hampträsk	Lake sediment	Chironomids	Luoto et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_51	Scandinavia	Lake Pieni-Kauro	Lake sediment	Chironomids	Luoto et al., 2010	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_52	North Atlantic	Lake Igaliku	Lake sediment	Pollen acc.	Massa et al., 2012	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_53	Arctic Canada	Penny Ice Cap	Ice core	Ice melt	Okuyama, 2003	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>

**Table S1.** Continued

PAGES ID	Country/Region	Site	Archive type	Proxy	Reference	Data URL
Arc_54	Canada	Lake 4	Lake sediment	Chironomids	Rolland et al., 2009	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_55	North Atlantic	P1003	Marine sediment	d18O	Serjup et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_57	North Atlantic	MD99-2275	Marine sediment	Alkenone	Sicre et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/12359">https://www.ncdc.noaa.gov/paleo/study/12359</a>
Arc_58	North Atlantic	MSM5/5-712	Marine sediment	Planktic foraminifers	Spielhagen et al., 2011	<a href="http://doi.pangaea.de/10.1594/PANGAEA.755092">http://doi.pangaea.de/10.1594/PANGAEA.755092</a>
Arc_59	Greenland	Renland	Ice core	d18O	Vinther et al., 2008	<a href="https://www.ncdc.noaa.gov/paleo/study/11131">https://www.ncdc.noaa.gov/paleo/study/11131</a>
<b>Alaska</b>						
Arc_01	Alaska	Blue Lake Seward Peninsula	Lake sediment	Varve thickness	Bird et al., 2009	<a href="http://www.ncdc.noaa.gov/paleo/study/6192">http://www.ncdc.noaa.gov/paleo/study/6192</a>
Arc_06	Alaska	Peninsula	Tree ring	Ring width	D'Arrigo et al., 2005	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_07	Alaska	Gulf of Alaska	Tree ring	Ring width	Wiles et al., 2014	<a href="https://www.ncdc.noaa.gov/paleo/study/19743">https://www.ncdc.noaa.gov/paleo/study/19743</a>
Arc_08	Canada	Yukon	Tree ring	Ring width	D'Arrigo et al., 2006	<a href="https://www.ncdc.noaa.gov/paleo/study/13758">https://www.ncdc.noaa.gov/paleo/study/13758</a>
Arc_23	Alaska	Iceberg Lake	Lake sediment	Varve thickness	Loso et al., 2006	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>
Arc_40	Alaska	Moose Lake	Lake sediment	Midge assemblages	Clegg et al., 2010	<a href="https://www.ncdc.noaa.gov/paleo/study/9953">https://www.ncdc.noaa.gov/paleo/study/9953</a>
Arc_41	Alaska	Hudson Lake	Lake sediment	Midge assemblages	Clegg et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/12443">https://www.ncdc.noaa.gov/paleo/study/12443</a>
Arc_42	Alaska	Screaming Lynx Lake	Lake sediment	Midge assemblages	Clegg et al., 2011	<a href="https://www.ncdc.noaa.gov/paleo/study/12443">https://www.ncdc.noaa.gov/paleo/study/12443</a>
Arc_48	Alaska	Lone Spruce Pond	Lake sediment	Bsi	Kaufman et al., 2012	<a href="https://www.ncdc.noaa.gov/paleo/study/14188">https://www.ncdc.noaa.gov/paleo/study/14188</a>

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**Table S2.** Mann-Kendall test results for each individual records from Arctic 2k database v1.1.1. arranged by the three regional regions used in the study.

PAGES ID	Country/Region	Site	Archive type	Proxy	$\tau$	pvalue	Significance
<b>Russian Arctic (before 1820 AD)</b>							
Arc_02	Central Russia	Avam-Taimyr	Tree ring	Ring width	-0,0101	0,52	48%
Arc_03	Central Russia	Yamal	Tree ring	Ring width	-0,0343	0,03	97%
Arc_10	Central Russia	Polar Urals	Tree ring	Maximum density	-0,187	< 0,001	99%
Arc_16	Eastern Russia	Indigurka	Tree ring	Ring width, STD	-0,0976	< 0,001	99%
Arc_24	Eastern Russia	Lower Lena River	Tree ring	Ring width, ARS	0,0006	0,87	13%
<b>North Atlantic (before 1810 AD)</b>							
Arc_04	Canada	Lower Lake Murray	Lake sediment	Mass acc. rate	-0,0393	0,012	99%
Arc_05	Greenland	Camp Century	Ice core	d18O	-0,0014	0,0961	4%
Arc_09	Canada	Coppermine River	Tree ring	Ring width	0,0971	< 0,001	99%
Arc_11	Greenland	GISP2	Ice core	d18O	-0,0441	0,037	97%
Arc_12	Scandinavia	Tornetråsk	Tree ring	Ring width	-0,0515	0,001	99%
Arc_13	Scandinavia	Jämtland	Tree ring	Maximum density	-0,252	< 0,001	99%
Arc_14	Scandinavia	Lake Lehmilampi	Lake sediment	Varve thickness	-0,0234	0,144	86%
Arc_15	Scandinavia	Lapland	Tree ring	Ring width	-0,0039	0,013	99%
Arc_17	North Atlantic	Lomonosovfonna	Ice core	d18O	-0,603	< 0,001	99%
Arc_18	North Atlantic	Austfonna	Ice core	d18O	-0,161	< 0,001	99%
Arc_19	Scandinavia	Forfjordalen 2	Tree ring	Ring width	0,0281	0,321	68%
Arc_20	Arctic Canada	Lake C2	Lake sediment	Varve thickness	-0,0357	0,023	98%
Arc_22	North Atlantic	Hvitarvatn	Lake sediment	Varve thickness	0,336	< 0,001	99%
Arc_25	Arctic Canada	Donard Lake	Lake sediment	Thickness	-0,0616	0,003	99%
Arc_26	Scandinavia	Lake Nautajärvi	Lake sediment	Organic matter	-0,0898	< 0,001	99%
Arc_27	Greenland	B16	Ice core	d18O	0,0301	0,413	59%
Arc_28	Greenland	B18	Ice core	d18O	-0,0763	< 0,001	99%
Arc_29	Greenland	B21	Ice core	d18O	-0,0512	0,119	89%
Arc_30	Arctic Canada	Big Round Lake	Lake sediment	Varve thickness	0,0442	0,056	95%
Arc_31	Scandinavia	Lake Kottajärvi	Lake sediment	X-ray density	0,129	< 0,001	99%
Arc_32	Greenland	NGRIP1	Ice core	d18O	-0,0642	< 0,001	99%
Arc_33	Arctic Canada	Agassiz Ice Cap	Ice core	d18O	-0,202	< 0,001	99%
Arc_34	Greenland	Crête	Ice core	d18O	-0,025	0,232	77%
Arc_35	Greenland	Dye-3	Ice core	d18O	-0,103	< 0,001	99%
Arc_36	Greenland	GRIP	Ice core	d18O	-0,0793	< 0,001	99%
Arc_37	North Atlantic	Iceland	Historic	Ice Cover	-0,527	< 0,001	99%
Arc_38	North Atlantic	MD95-2011	Marine sediment	Diatoms	-0,219	< 0,001	99%
Arc_39	North Atlantic	MD95-2011	Marine sediment	Alkenone	0,0144	0,141	86%
Arc_43	Greenland	Lake Braya So	Lake sediment	Uk37	0,126	0,182	82%
Arc_44	Arctic Canada	Devon Ice Cap	Ice core	proxy	-0,292	< 0,001	99%
Arc_45	Arctic Canada	Penny Ice Cap	Ice core	d18O	-0,204	0,011	99%
Arc_47	North Atlantic	MD99-2275	Marine sediment	Diatoms	-0,352	< 0,001	99%
Arc_49	Scandinavia	Okshola Cave	Speleothem	d18O	0,141	0,117	89%
Arc_50	Scandinavia	Lake Hampträsk	Lake sediment	Chironomids	-0,0431	< 0,001	99%
Arc_51	Scandinavia	Lake Pieni-Kauro	Lake sediment	Chironomids	-0,367	0,003	99%
Arc_52	North Atlantic	Lake Igaliku	Lake sediment	Pollen accumulation	-0,166	0,196	81%
Arc_53	Arctic Canada	Penny Ice Cap	Ice core	Ice melt	-0,338	< 0,001	99%



**Table S2.** Continued

PAGES ID	Country/Region	Site	Archive type	Proxy	$\tau$	pvalue	Significance
Arc_54	Canada	Lake 4	Lake sediment	Chironomids	0,0971	< 0,001	99%
Arc_55	North Atlantic	P1003	Marine sediment	d18O	0,353	< 0,001	99%
Arc_57	North Atlantic	MD99-2275	Marine sediment	Alkenone	-0,29	< 0,001	99%
Arc_58	North Atlantic	MSM5/5-712	Marine sediment	Planktic foraminifers	0,199	0,094	91%
Arc_59	Greenland	Renland	Ice core	d18O	-0,108	0,002	99%
<b>Alaska (before 1840 AD)</b>							
Arc_01	Alaska	Blue Lake	Lake sediment	Varve thickness	-0,0034	-0,86	14%
Arc_06	Alaska	seward Peninsula	Tree ring	Ring width	-0,0493	0,05	95%
Arc_07	Alaska	Gulf of Alaska	Tree ring	Ring width	-0,469	< 0,001	99%
Arc_08	Canada	Yukon	Tree ring	Ring width	0,0476	0,07	93%
Arc_23	Alaska	Iceberg Lake	Lake sediment	Varve thickness	0,126	< 0,001	99%
Arc_40	Alaska	Moose Lake	Lake sediment	Midge assemblages	-0,179	0,08	92%
Arc_41	Alaska	Hudson Lake	Lake sediment	Midge assemblages	-0,0872	0,5	50%
Arc_42	Alaska	Screaming Lynx Lake	Lake sediment	Midge assemblages	-0,111	0,26	74%
Arc_48	Alaska	Lone Spruce Pond	Lake sediment	Bsi	0,05	0,42	58%

**Table S3.** Expression of the LIA in the Arctic 2k proxy records arranged by the three regional regions used in the study. The timing is taken from the original publications (see references in Table S1).

PAGES ID	Country/Region	Site	Archive type	Proxy	Start (year AD)	End (year AD)
<b>Russian Arctic</b>						
Arc_02	Central Russia	Avam-Taimyr	Tree ring	Ring width	Not mentioned	
Arc_03	Central Russia	Yamal	Tree ring	Ring width	Not mentioned	
Arc_10	Central Russia	Polar Urals	Tree ring	Maximum density	1200	1850
Arc_16	Eastern Russia	Indigurka	Tree ring	Ring width, STD	1500	1800
Arc_24	Eastern Russia	Lower Lena River	Tree ring	Ring width, ARS	Not mentioned	
<b>North Atlantic</b>						
Arc_04	Canada	Lower Lake Murray	Lake sediment	Mass acc. rate	Not mentioned	
Arc_05	Greenland	Camp Century	Ice core	d18O	1600	1800
Arc_09	Canada	Coppermine River	Tree ring	Ring width	1350	1850
Arc_11	Greenland	GISP2	Ice core	d18O	Not mentioned	
Arc_12	Scandinavia	Tornetråsk	Tree ring	Ring width	1200	1900
Arc_13	Scandinavia	Jämtland	Tree ring	Maximum density	1300	1900
Arc_14	Scandinavia	Lake Lehmilampi	Lake sediment	Varve thickness	1340	1900
Arc_15	Scandinavia	Lapland	Tree ring	Ring width	1600	1700
Arc_17	North Atlantic	Lomonosovfonna	Ice core	d18O	1600	1800
Arc_18	North Atlantic	Austfonna	Ice core	d18O	1760	1900
Arc_19	Scandinavia	Forfjorddalen 2	Tree ring	Ring width	1600	1700
Arc_20	Arctic Canada	Lake C2	Lake sediment	Varve thickness	1600	1800
Arc_22	North Atlantic	Hvitarvatn	Lake sediment	Varve thickness	1250	1850
Arc_25	Arctic Canada	Donard Lake	Lake sediment	Thickness	1375	1820
Arc_26	Scandinavia	Lake Nautajärvi	Lake sediment	Organic matter	Not mentioned	
Arc_27	Greenland	B16	Ice core	d18O	Not mentioned	
Arc_28	Greenland	B18	Ice core	d18O	Not mentioned	
Arc_29	Greenland	B21	Ice core	d18O	Not mentioned	
Arc_30	Arctic Canada	Big Round Lake	Lake sediment	Varve thickness	1575	1760
Arc_31	Scandinavia	Lake Kottajärvi	Lake sediment	X-ray density	1530	1710
Arc_32	Greenland	NGRIP1	Ice core	d18O	Not mentioned	
Arc_33	Arctic Canada	Agassiz Ice Cap	Ice core	d18O	Not mentioned	
Arc_34	Greenland	Crête	Ice core	d18O	Not mentioned	
Arc_35	Greenland	Dye-3	Ice core	d18O	Not mentioned	
Arc_36	Greenland	GRIP	Ice core	d18O	Not mentioned	
Arc_37	North Atlantic	Iceland	Historic	Ice Cover	1500	1900
Arc_38	North Atlantic	MD95-2011	Marine sediment	Diatoms	1350	1650
Arc_39	North Atlantic	MD95-2011	Marine sediment	Alkenone	Not mentioned	
Arc_43	Greenland	Lake Braya So	Lake sediment	Uk37	Not mentioned	
Arc_44	Arctic Canada	Devon Ice Cap	Ice core	proxy	1650	1900
Arc_45	Arctic Canada	Penny Ice Cap	Ice core	d18O	1650	1900
Arc_47	North Atlantic	MD99-2275	Marine sediment	Diatoms	1350	
Arc_49	Scandinavia	Okshola Cave	Speleothem	d18O	1600	1930
Arc_50	Scandinavia	Lake Hampträsk	Lake sediment	Chironomids	1550	1850
Arc_51	Scandinavia	Lake Pieni-Kauro	Lake sediment	Chironomids	1300	1900
Arc_52	North Atlantic	Lake Igaliku	Lake sediment	Pollen accumulation	1500	1920
Arc_53	Arctic Canada	Penny Ice Cap	Ice core	Ice melt	Not mentioned	

**Table S3.** Continued

<b>PAGES ID</b>	<b>Country/Region</b>	<b>Site</b>	<b>Archive type</b>	<b>Proxy</b>	<b>Start</b>	<b>End</b>
Arc_54	Canada	Lake 4	Lake sediment	Chironomids	1364	1695
Arc_55	North Atlantic	P1003	Marine sediment	d18O	1300	1800
Arc_57	North Atlantic	MD99-2275	Marine sediment	Alkenone	Not mentioned	
Arc_58	North Atlantic	MSM5/5-712	Marine sediment	Planktic foraminifers	1400	1850
Arc_59	Greenland	Renland	Ice core	d18O	Not mentioned	
<b>Alaska</b>						
Arc_01	Alaska	Blue Lake	Lake sediment	Varve thickness	1620	1850
Arc_06	Alaska	seward Peninsula	Tree ring	Ring width	1770	1790
Arc_07	Alaska	Gulf of Alaska	Tree ring	Ring width	1400	1530
Arc_08	Canada	Yukon	Tree ring	Ring width	1100	1400
Arc_23	Alaska	Iceberg Lake	Lake sediment	Varve thickness	1500	1850
Arc_40	Alaska	Moose Lake	Lake sediment	Midge assemblages	1550	1750
Arc_41	Alaska	Hudson Lake	Lake sediment	Midge assemblages	1700	
Arc_42	Alaska	Screaming Lynx Lake	Lake sediment	Midge assemblages	1700	
Arc_48	Alaska	Lone Spruce Pond	Lake sediment	Bsi	Not mentioned	

**Table S4.** Expression of the MCA in the Arctic 2k proxy records arranged by the three regional regions used in the study. The timing is taken from the original publications (see references in Table S1).

PAGES ID	Country/Region	Site	Archive type	Proxy	Start (year AD)	End (year AD)
<b>Russian Arctic</b>						
Arc_02	Central Russia	Avam-Taimyr	Tree ring	Ring width	950	1100
Arc_03	Central Russia	Yamal	Tree ring	Ring width	950	1100
Arc_10	Central Russia	Polar Urals	Tree ring	Maximum density	900	1045
Arc_16	Eastern Russia	Indigurka	Tree ring	Ring width, STD	Serie too short	
Arc_24	Eastern Russia	Lower Lena River	Tree ring	Ring width, ARS	Serie too short	
<b>North Atlantic</b>						
Arc_04	Canada	Lower Lake Murray	Lake sediment	Mass acc. rate	Not mentioned	
Arc_05	Greenland	Camp Century	Ice core	d18O	Not mentioned	
Arc_09	Canada	Coppermine River	Tree ring	Ring width	1050	1300
Arc_11	Greenland	GISP2	Ice core	d18O	Not mentioned	
Arc_12	Scandinavia	Tornetråsk	Tree ring	Ring width	900	1100
Arc_13	Scandinavia	Jämtland	Tree ring	Maximum density	1150	1250
Arc_14	Scandinavia	Lake Lehmilampi	Lake sediment	Varve thickness	1060	1280
Arc_15	Scandinavia	Lapland	Tree ring	Ring width	900	1300
Arc_17	North Atlantic	Lomonosovfonna	Ice core	d18O	Serie too short	
Arc_18	North Atlantic	Austfonna	Ice core	d18O	Serie too short	
Arc_19	Scandinavia	Forfjorddalen 2	Tree ring	Ring width	Serie too short	
Arc_20	Arctic Canada	Lake C2	Lake sediment	Varve thickness	Not mentioned	
Arc_22	North Atlantic	Hvitarvatn	Lake sediment	Varve thickness	950	1250
Arc_25	Arctic Canada	Donard Lake	Lake sediment	Thickness	1200	1375
Arc_26	Scandinavia	Lake Nautajärvi	Lake sediment	Organic matter	1000	1200
Arc_27	Greenland	B16	Ice core	d18O	Serie too short	
Arc_28	Greenland	B18	Ice core	d18O	Not mentioned	
Arc_29	Greenland	B21	Ice core	d18O	Serie too short	
Arc_30	Arctic Canada	Big Round Lake	Lake sediment	Varve thickness	970	1150
Arc_31	Scandinavia	Lake Kottajärvi	Lake sediment	X-ray density	980	1250
Arc_32	Greenland	NGRIP1	Ice core	d18O	Not mentioned	
Arc_33	Arctic Canada	Agassiz Ice Cap	Ice core	d18O	Not mentioned	
Arc_34	Greenland	Crête	Ice core	d18O	900	1300
Arc_35	Greenland	Dye-3	Ice core	d18O	900	1300
Arc_36	Greenland	GRIP	Ice core	d18O	900	1300
Arc_37	North Atlantic	Iceland	Historic	Ice Cover	Not mentioned	
Arc_38	North Atlantic	MD95-2011	Marine sediment	Diatoms	900	1400
Arc_39	North Atlantic	MD95-2011	Marine sediment	Alkenone	Not mentioned	
Arc_43	Greenland	Lake Braya So	Lake sediment	Uk37	850	1100
Arc_44	Arctic Canada	Devon Ice Cap	Ice core	proxy	Not mentioned	
Arc_45	Arctic Canada	Penny Ice Cap	Ice core	d18O	Not mentioned	
Arc_47	North Atlantic	MD99-2275	Marine sediment	Diatoms	Not mentioned	
Arc_49	Scandinavia	Okshola Cave	Speleothem	d18O	950	1550
Arc_50	Scandinavia	Lake Hampträsk	Lake sediment	Chironomids	Serie too short	
Arc_51	Scandinavia	Lake Pieni-Kauro	Lake sediment	Chironomids	800	1300
Arc_52	North Atlantic	Lake Igaliku	Lake sediment	Pollen accumulation	Not mentioned	
Arc_53	Arctic Canada	Penny Ice Cap	Ice core	Ice melt	Not mentioned	

**Table S4.** Continued

<b>PAGES ID</b>	<b>Country/Region</b>	<b>Site</b>	<b>Archive type</b>	<b>Proxy</b>	<b>Start</b>	<b>End</b>
Arc_54	Canada	Lake 4	Lake sediment	Chironomids	1160	1360
Arc_55	North Atlantic	P1003	Marine sediment	d18O	850	1300
Arc_57	North Atlantic	MD99-2275	Marine sediment	Alkenone		1300
Arc_58	North Atlantic	MSM5/5-712	Marine sediment	Planktic foraminifers	800	1100
Arc_59	Greenland	Renland	Ice core	d18O	Not mentioned	
<b>Alaska</b>						
Arc_01	Alaska	Blue Lake	Lake sediment	Varve thickness	1000	1300
Arc_06	Alaska	seward Peninsula	Tree ring	Ring width	1000	1300
Arc_07	Alaska	Gulf of Alaska	Tree ring	Ring width	910	1000
Arc_08	Canada	Yukon	Tree ring	Ring width	950	1100
Arc_23	Alaska	Iceberg Lake	Lake sediment	Varve thickness	1000	1300
Arc_40	Alaska	Moose Lake	Lake sediment	Midge assemblages	950	1050
Arc_41	Alaska	Hudson Lake	Lake sediment	Midge assemblages	Not mentioned	
Arc_42	Alaska	Screaming Lynx Lake	Lake sediment	Midge assemblages	Not mentioned	
Arc_48	Alaska	Lone Spruce Pond	Lake sediment	Bsi	Not mentioned	