

**Table S1.** Records considered but that did not meet the criteria for inclusion in this database.

**Notes:**

See Table 1 for explanation of punctuation and abbreviations for proxy types

Reason for rejection includes only one criterion; most records were rejected based on more than one reason

Site	Lat (°)	Lon (°)	Source	Proxy	Citation	Reason for rejection
<b>Alaska and Yukon</b>						
2004-804-803	70.63	-135.92	marine	dinocysts	Bringué & Rochon 2012	does not cover 6-2 ka
Angal	67.13	-153.90	lake	pollen	Brubaker et al. 1983	>3000 yr between ages
Arolik	59.47	-161.12	lake	BSi	Hu et al. 2003	>3000 yr between ages
Banks Island 74MS11	71.75	-124.27	lake	pollen	Gajewski et al. 2000	no clear climate interpretation
Banks Island 74MS12	72.37	-119.83	lake	pollen	Gajewski et al. 2000	no clear climate interpretation
Banks Island 74MS15	73.53	-120.22	lake	pollen	Gajewski et al. 2000	no clear climate interpretation
Beach	65.22	-127.05	lake	pollen	Rowe et al. 1975	extends to only 3.2 ka
Beaver	60.62	-154.32	lake	pollen	Kaltenrieder et al. 2011	>3000 yr between ages
Burial	68.44	-158.83	lake	chironomids, sediment.properties	Abbott et al. 2010; Kurek et al. 2009a	resolution >400 yr
Crownsnest	68.33	-146.48	lake	pollen	Anderson & Brubaker 1994	>3000 yr between ages
Etivlik	68.13	-156.03	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleo/atlas/data/etivlik.txt	resolution >400 yr
Girdwood bogs	60.97	-149.08	peat	pollen	Ager et al. 2010	no clear climate interpretation
Glacial	64.87	-166.27	lake	pollen	Lozhkin et al. 1996	>3000 yr between ages
Goat	60.26	-149.91	lake	BSi	Daigle & Kaufman 2009	no clear climate interpretation
Grizzly	62.71	-144.20	lake	pollen, charcoal	Tinner et al. 2006	no clear climate interpretation
Hanging	62.35	-138.35	lake	chironomids	Kurek et al. 2009b	>3000 yr between ages
Harding	64.44	-146.91	lake	pollen	Ager 1983	resolution >400 yr
Headwaters	67.93	-155.05	lake	pollen	Brubaker et al. 1983	>3000 yr between ages
Healy	64.00	-144.75	lake	pollen	Anderson JH 1975	>3000 yr between ages
Hidden	63.94	-144.66	lake	pollen	Rymer & Sims 1982	resolution >400 yr
Iceberg (5 cores)	60.78	-142.95	lake	varve.thickness	Diedrich & Loso 2012	extends to only 1.0 ka
Jan	63.60	-143.95	lake	pollen	Carlson & Finney 2004	no clear climate interpretation
Joe	66.77	-157.22	lake	pollen	Anderson PM 1988	resolution >400 yr
John Klondike Bog	60.36	-123.65	lake	pollen	Matthews 1980	no clear climate interpretation
Johnson River Bog	63.71	-144.65	lake	pollen	Ager 1975	>3000 yr between ages
JPC5	72.69	-157.52	marine	rock.magnetic.properties	Brachfield et al. 2009	no clear climate interpretation
Kaiyak	68.15	-161.42	lake	pollen	Anderson 1985	resolution >400 yr
Keche	68.02	-146.92	lake	d18O.calcite, carbonate, XRD, MS, OM	Chipman et al. 2012	extends to only 3.4 ka
Keele	64.17	-127.62	lake	pollen	Szeicz et al. 1995	>3000 yr between ages
Kepler	61.55	-149.20	lake	d18O.calcite	Gonyo et al. 2012	extends to only 0.8 ka
Kollioksak	66.97	-156.45	lake	pollen	http://www1.ncdc.noaa.gov/pub/data/paleo/paleo/atlasdata/kollioks.txt	>3000 yr between ages
Lateral	65.94	-135.51	lake	pollen	Ritchie 1982	>3000 yr between ages
Little Swift	60.21	-159.77	lake	pollen, OM	Axford & Kaufman 2004	resolution >400 yr
Maria	68.27	-133.47	lake	pollen	Ritchie 1977	>3000 yr between ages
Meli	68.68	-149.08	lake	d18O.cell	Anderson et al. 2001	not continuous from 6-2 ka
Minakokosa	66.92	-155.03	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleo/meta/data/minakoko.txt	>3000 yr between ages
Munday Creek	60.03	-141.97	lake	pollen	Peteet 1986	>3000 yr between ages
Muskox	71.78	-122.67	lake	pollen	Gajewski et al. 2000	no clear climate interpretation
Natla Bog	63.02	-128.80	lake	pollen	MacDonald 1983	resolution >400 yr
Niliq	67.87	-160.43	lake	pollen	Anderson PM 1988	resolution >400 yr
Okplak	69.41	-144.05	lake	LOI, MS, pollen	Oswald et al. 2012	no clear climate interpretation
P1-92-AR-B4	74.00	-161.40	marine	dinocysts	de Vernal et al. 2013	resolution >400 yr
Paradox	60.57	-151.25	lake	pollen	Anderson et al. 2006	no clear climate interpretation
Ped	67.20	-142.07	lake	pollen	Edwards & Brubaker 1986	>3000 yr between ages
PI-92-AR-BC15	75.73	-160.86	marine	dinocysts	de Vernal et al. 2005b	does not cover 6-2 ka
Point Woronzof Peat Section	61.12	-149.48	lake	pollen	Miller & Dobrovolsky 1959	resolution >400 yr
Puyuk	63.50	-162.20	lake	pollen	Ager & Bradbury 1982	resolution >400 yr
Qaluaq	70.38	-157.35	lake	d13C.calcite, C/N, d18O.chironomids, macros, MS	Wooller et al. 2012	>3000 yr between ages
Ra	65.23	-126.42	lake	pollen	MacDonald 1987	resolution >400 yr
Rantin - A-06	60.03	-129.03	lake	OM, carbonate, MS, macrofossils	Pompeani et al. 2012	>3000 yr between ages
Rebel	67.42	-149.80	lake	pollen	Ager & Brubaker 1985	no clear climate interpretation
Redondo	67.68	-155.03	lake	pollen	Brubaker et al. 1983	no clear climate interpretation
Redstone	67.25	-152.60	lake	pollen	Edwards et al. 1985	resolution >400 yr
Reindeer	69.12	-132.17	lake	pollen	Spear 1993	resolution >400 yr
Ruppert	67.07	-154.23	lake	pollen	Brubaker et al. 1983	no clear climate interpretation
Sakana	67.43	-147.85	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleo/atlas/data/sakana.txt	resolution >400 yr
Screaming Yellowlegs	67.58	-151.42	lake	pollen	Edwards et al. 1985	resolution >400 yr
Sleet	69.28	-133.58	lake	pollen	Spear 1993	>3000 yr between ages
Sulphur	60.95	-137.96	lake	pollen	Lacourse & Gajewski 2000	>3000 yr between ages
Swanson Fen	60.79	-150.83	peat	pollen, d13C.organics	Jones et al. 2009, 2011	no clear climate interpretation
Sweet Little	67.65	-132.02	lake	pollen	Ritchie 1984	no clear climate interpretation
Tangle s	63.03	-146.06	lake	pollen	Schwege 1981	extends to only 5.4 ka
Tangled Up	67.67	-149.08	lake	d18O.calcite	Anderson et al. 2001	not continuous from 6-2 ka
Ten Mile	63.07	-145.70	lake	pollen	Anderson et al. 1994	resolution >400 yr
Tiinkdhu	66.58	-143.15	lake	pollen	Anderson et al. 1988	>3000 yr between ages
Tuktuyaktuk 5	69.05	-133.45	lake	pollen	Ritchie & Hare 1971	>3000 yr between ages
Tukuto	68.50	-157.05	lake	pollen	Oswald et al. 1999	no clear climate interpretation
Tyrrell	66.05	-135.66	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/ascifiles/fossil/ascfiles/gpd/tyrrell.txt	resolution >400 yr
Wien	64.33	-151.27	lake	pollen	Hu et al. 1993	resolution >400 yr

Windmill	63.65	-148.80	lake	pollen	Bigelow & Edwards 2001	no clear climate interpretation
Wonder	63.48	-151.08	lake	pollen	Anderson et al. 1994	resolution >400 yr
Zagoskin	63.44	-161.90	lake	chironomids	Kurek et al. 2009a	resolution >400 yr
<b>Canadian islands and Greenland</b>						
2005-804-004	74.27	-91.09	marine	dinocysts	Ledu et al. 2010	>200 st deviation in resolution
74MS11	71.75	-124.27	lake	pollen	Gajewski et al. 2000	>3000 yr between ages
74MS12	72.37	-119.83	lake	pollen	Richard 1981	>3000 yr between ages
74MS15	73.53	-120.27	lake	pollen	Gajewski et al. 2000	>3000 yr between ages
Amarok	66.27	-65.75	lake	pollen	Fréchette et al. 2006	>3000 yr between ages
AT1	66.97	-53.40	lake	OM, MAR, XRF	Anderson et al. 2012	coastal site not climate sensitive
AT4	66.97	-53.50	lake	OM, MAR, XRF varve.thickness; dD.leafwax	Anderson et al. 2012	coastal site not climate sensitive
Ayr	70.46	-70.09	lake	pollen	Thomas et al. 2012	extends to only 0.5 ka
Baird Inlet [Rock Basin ]	78.49	-76.78	lake	pollen	Lamb 1984	resolution >400 yr
Bliss	83.52	-28.35	lake	d13C, TOC	Olsen et al. 2012b	>3000 yr between ages
Brother of Fog	67.18	-62.75	lake	pollen	Fréchette et al. 2006	>3000 yr between ages
CF3	70.53	-68.37	lake	chironomids	Briner et al. 2006	resolution >400 yr
CF8	70.56	-68.95	lake	chironomids	Axford et al. 2009	resolution >400 yr
core 004	74.27	-91.09	marine	dinocysts	Ledu et al. 2010	resolution >400 yr
DA06-139G	70.09	-52.89	marine	forams, dinoflagellates	Andresen et al. 2011 ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asc iifiles/fossil/ascfiles/gpd/devon4.txt	extends to only 5.2 ka
Devon Island Glacier	75.35	-82.50	glacier	pollen		resolution >400 yr
Duck	76.42	-18.75	lake	chironomids	Klug et al. 2009; Schmidt 2011	resolution >400 yr
Dyer Lower	66.62	-61.65	lake	pollen	Kerwin et al. 2004	>3000 yr between ages
E	67.00	-50.70	lake	alkenones	D'Andrea & Huang 2005	extends to only 5.6 ka
East	74.92	-109.55	lake	varves, PSA	Lapointe et al. 2012	extends to only 2.8 ka
Fish (CA:Nunavut)	73.03	-85.22	lake	pollen	Richard 1981	resolution >400 yr
Fishtote	69.23	-50.93	lake	OM, MS	Axford et al. 2013	no clear climate interpretation
Fog	67.18	-63.25	lake	diatoms	Joynt & Wolfe 2001	extends to only 4.8 ka
HU-93-034-015	61.30	-71.06	marine	dinocysts	de Vernal et al. 2013	does not cover 6-2 ka
HU021	58.37	-57.51	marine	dinocysts	Fréchette et al. 2009	>3000 yr between ages
HU91-039-012	76.85	-71.85	marine	dinocysts	Levac et al. 2001	does not cover 6-2 ka
Iceboom	69.24	-50.02	lake	OM, MS	Axford et al., 2013	no clear climate interpretation
Iglo Door	69.85	-68.68	lake	MS	Thomas et al. 2010	>3000 yr between ages
Long (CA:Nunavut)	62.63	-101.23	lake	pollen	Kay 1979	>3000 yr between ages
Lower Murray	81.35	-69.53	lake	varve.thickness	Cook et al. 2009	extends to only 5.3 ka
Lower Nordboø	61.15	-45.43	lake	OM, MS, K, Ti, Si	Larsen et al. 2011	no clear climate interpretation
Muskox	71.78	-122.67	lake	pollen	Gajewski et al. 2000	resolution >400 yr
Naujg1	66.67	-51.97	lake	minerogenic.matter	Willemse & Tornqvist 1999	>3000 yr between ages
Peep	69.85	-68.67	lake	MS	Thomas et al. 2010	>3000 yr between ages
Pluto	69.11	-51.03	lake	OM, MS	Axford et al. 2013	no clear climate interpretation
Prince of Wales Ice field	78.39	-80.40	ice	density	Kinnard et al. 2008	extends to only 1 ka
PW02	74.07	-97.77	lake	diatoms	Finkelstein & Gajewski 2008	>3000 yr between ages
PWWL	73.59	-98.54	lake	pollen	Richard 1977	resolution >400 yr
Raffles Sø	70.60	-21.53	lake	diatoms	Cremer et al. 2001	no clear climate interpretation
RS29	73.13	-95.28	lake	pollen	Richard 1981	resolution >400 yr
RS36	72.58	-95.07	lake	pollen	Richard 1981	resolution >400 yr
SP04	68.55	-83.29	lake	diatoms	Adams & Finkelstein 2010	does not cover 6-2 ka
SS1220	67.05	-51.22	lake	Fe, Mn, Ca, Ti	Olsen et al. 2012a	extends to only 5.2 ka
SS32	66.97	-49.80	lake	OM, diatoms	Perren et al. 2012	extends to only 5.6 ka
SS85	66.97	-51.05	lake	OM, MS, Ti Ca, Ti, S	Olsen et al. 2013	no clear climate interpretation
WB02	72.29	-109.87	lake	chironomids	Fortin & Gajewski 2010	>3000 yr between ages
<b>Fennoscandia</b>						
Aholami	61.88	25.22	lake	pollen	Koivula 1987	no clear climate interpretation
Akuvaara	69.13	27.68	lake	pollen	Hyvärinen 1975	no clear climate interpretation
Alanen Laanjärvi	67.97	20.48	lake	pollen	Heinrichs et al. 2005; Seppä et al. 2009	>3000 yr between ages
Antu Sinijärvi	59.13	26.33	lake	pollen	Saarse & Liiva 1995	no clear climate interpretation
Aspvatnet	69.73	19.98	lake	pollen, ELA	Bakke et al. 2005	>3000 yr between ages
Barheivatn	69.70	19.85	lake	pollen	Bjune et al. 2004	>3000 yr between ages
Bezdonnoe	62.03	32.77	lake	pollen	Elina 1981; Elina & Filimonova 1996	no clear climate interpretation
Blavasstjonn	64.92	11.67	lake	pollen	Ramfjord 1979a; Ramfjord 1979b	no clear climate interpretation
Bruvatnet	70.18	28.42	lake	pollen	Hyvärinen 1975	no clear climate interpretation
Dannitjörn	61.58	9.65	lake	OM	Nesje et al. 2004	youngest age is 2.9 ka
Domsvatnet	70.32	31.03	lake	pollen	Hyvärinen 1976	no clear climate interpretation
Fågelmossen 1&2	59.53	12.18	peat	HI	Borgmark & Wastegård 2008	does not cover 6-2 ka
Finse stationsdamm	60.60	7.50	lake	chironomids	Velle et al. 2005	>3000 yr between ages
Frengstadsetra	62.57	10.13	lake	pollen	Paus & Jevne 1987	no clear climate interpretation
Glubokoe	61.07	36.05	lake	pollen	Elina 1981	no clear climate interpretation
Gotnavolok	62.20	33.80	lake	pollen	Elina 1981; Elina & Filimonova 1987, 1996	no clear climate interpretation
Grasvatn	63.70	8.70	lake	pollen	Paus 1982	no clear climate interpretation
Hirvilampi	60.63	24.25	lake	pollen	Rankama & Vuorela 1988	no clear climate interpretation
Hopseidet	70.83	27.72	lake	pollen	Seppä et al. 2009	>3000 yr between ages
Ilmen	58.30	31.23	lake	pollen	Parra-Vergara 1988; Tarasov et al. 1994; Davydova et al. 1992; Khomutova 1989 ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asc iifiles/fossil/ascfiles/epd/imatu.txt	no clear climate interpretation
Imatu Mire	59.13	27.43	lake	pollen		no clear climate interpretation
Jeknajaure	67.22	17.80	lake	diatoms	Rosén et al. 2003	resolution >400 yr
Jirvijärvi	60.85	25.38	lake	chironomids	Luoto 2010	extends to only 0.5 ka
Kaarkotinlampi	61.42	25.87	lake	pollen	Vuorela 1981 ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asc iifiles/fossil/ascfiles/epd/koppalo.txt	no clear climate interpretation
Kalsa Mire	58.17	27.45	lake	pollen		no clear climate interpretation
Kanjerjoki [kuusamo]	66.12	29.00	lake	pollen	Hicks 1975	no clear climate interpretation
Kepskoe	65.08	32.17	lake	pollen	Elina 1981	no clear climate interpretation
Kirkkosaari	60.87	24.50	lake	pollen	Rankama & Vuorela 1988	no clear climate interpretation
Koppalosuo	62.28	33.65	lake	pollen	unpublished	no clear climate interpretation

Kubenskoe	59.70	39.50	lake	pollen	Tarasov et al. 1994; Khomutova 1989; Arslanov et al. 1970; Davydova 1986	no clear climate interpretation
Kuivajärvi	60.80	23.80	lake	pollen	Seppä et al. 2009	>3000 yr between ages
Kupalnoe	67.66	33.63	lake	chironomids	Ilyashuk et al. 2013	>3000 yr between ages
Ladoga	61.56	31.34	lake	pollen	Arslanov et al. 1996	no clear climate interpretation
Karujärvi	58.38	22.20	lake	pollen	Saarse et al. 1992	no clear climate interpretation
Maardu	59.43	25.00	lake	pollen	Saarse et al. 1992	no clear climate interpretation
Landruchie Mire	61.00	39.00	lake	pollen	Khomutova 1989	no clear climate interpretation
Landshaftnoe	64.57	30.53	lake	pollen	Elina 1981	no clear climate interpretation
Lilla Backsjömyren	62.68	14.53	peat	HI	Andersson & Schonning 2010	extends to only 4 ka
Lille Kjelavatn	59.80	7.25	lake	pollen	Eide et al. 2006; Seppä et al. 2009	>3000 yr between ages
Maanselansuo	65.62	29.60	lake	pollen	Vasari 1965	no clear climate interpretation
Masehjärvi	69.05	20.98	lake	pollen	Hyvärinen 1992	no clear climate interpretation
Mayralampi	62.33	26.23	lake	pollen	Koivula 1987	no clear climate interpretation
Mezhgornoe	66.37	30.70	lake	pollen	Elina 1981	no clear climate interpretation
Mukkavaara	68.92	21.00	lake	pollen	Eronen & Hyvärinen 1982; Hyvärinen 1992	no clear climate interpretation
Mustusuo	61.81	33.50	lake	pollen	Elina 1981	no clear climate interpretation
Nemino	62.75	34.58	lake	pollen	Elina 1981	no clear climate interpretation
Nenazvanoe	61.81	33.48	lake	pollen	Elina 1981	no clear climate interpretation
Niak	67.50	18.07	lake	diatoms	Rosén et al. 2003	>3000 yr between ages
Nosuo	64.57	30.83	lake	pollen	Elina 1981	no clear climate interpretation
Onego	61.72	34.92	lake	pollen	Khomutova 1976, 1989; Khomutova & Elina 1990	no clear climate interpretation
Poteryanny Zub	68.82	35.32	lake	d18O.cell	Wolfe et al. 2003	resolution >400 yr
Ptichje	66.35	30.57	lake	pollen	Elina 1981	no clear climate interpretation
Punozërka	62.82	33.58	lake	pollen	Elina & Filimonova 1987	no clear climate interpretation
Rugozero	64.08	32.63	lake	pollen	Elina 1981	no clear climate interpretation
Ryonansuo	60.43	24.17	lake	pollen	Rankama & Vuorela 1988	no clear climate interpretation
Seukokjaure	67.77	17.52	lake	chironomids, diatoms, pollen	Rosén et al. 2003	>3000 yr between ages
Shombashuo	65.12	32.63	lake	pollen	Elina 1981	no clear climate interpretation
Suovalampi	69.58	28.83	lake	pollen	Hyvärinen 1975	no clear climate interpretation
Syrjalansuo	61.22	28.12	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/site_maps/pollen.kmz	no clear climate interpretation
Tibetanus	68.30	18.70	lake	d18O.calcite	Rosqvist et al. 2007	extends to only 3 ka
Tondi	59.47	24.92	lake	pollen	Kimmel et al. 1995	no clear climate interpretation
Vasikkasuo	64.67	27.87	lake	pollen	Vuorela 1990, 1991	no clear climate interpretation
Viitna	59.45	26.08	lake	pollen	Seppä & Poska 2004	resolution >400 yr
Vishnevskoe	60.50	29.52	lake	pollen	Tarasov et al. 1994; Khomutova 1989; Arslanov 1992; Davydova et al. 1991	no clear climate interpretation
Vohma Mire	59.05	27.33	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asc/iffiles/fossil/ascfiles/epd/vohma.txt	no clear climate interpretation
Voulep Alakasjaure	68.18	18.17	lake	d18O.diatoms	Rosqvist et al. 2004	extends to only 5.2 ka
Yarnishnoe	69.07	36.07	lake	d18O.cell	Wolfe et al. 2003	resolution >400 yr
Ylimysneva	62.13	22.87	lake	pollen	Huttunen 1990	no clear climate interpretation
Zapovednoe	65.12	32.63	lake	pollen	Elina 1981	no clear climate interpretation
Zaruckoe	63.90	36.25	lake	pollen	Elina 1981	no clear climate interpretation
<b>Mainland Canada</b>						
Athabaska	59.45	-109.75	lake	C/N	Wolfe et al. 2011	extends to only 5.2 ka
Baie du Diana	60.78	-69.83	lake	pollen	Moser & MacDonald 1990	>3000 yr between ages
Barchampe	60.62	-83.25	lake	pollen	ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asc/iffiles/fossil/p15files/gpd/barchamp_p15.txt	no clear climate interpretation
Big Round	69.87	-68.86	lake	pollen	Thomas & Briner 2009	extends to only 1 ka
Cabin Creek	69.25	-134.33	lake	thecamoebians	Dallimore et al. 2000	does not cover 6-2 ka
Coppermine Saddleback	67.83	-115.32	lake	pollen	Andrews & Nichols 1981	extends to only 3.7 ka
Diana 375	60.99	-69.96	lake	pollen	Kerwin et al. 2004; Richard 1981	resolution >400 yr
Donard	66.66	-61.78	lake	MS,OM	Kerwin et al. 2004; Miller et al. 2005	>3000 yr between ages
Ennadai	61.24	-100.95	lake	chironomids, diatoms	Elias 1982	superceeded by a more recent record
Fog	67.18	-63.25	lake	pollen, d18O.cell	Kerwin et al. 2004; Joynt & Wolfe 2001	resolution >400 yr
Hail	60.03	-129.02	lake	pollen	Cwynar & Spear 1995	no clear climate interpretation
Hebron	58.20	-63.03	lake	pollen	Kerwin et al. 2004	resolution >400 yr
Hikwa	63.30	-67.36	lake	pollen	Kerwin et al. 2004; Mode & Jacobs 1987	insufficient chronology
Iglutalik	66.14	-66.08	lake	pollen	Lichti-Federovich 1975	unpublished
Kate's Pond	68.37	-133.33	lake	pollen	Ritchie & Harrison 1993	>3000 yr between ages
Lac Ciel Blanc	59.52	-122.17	lake	pollen	Nichols 1975	resolution >400 yr
Lac de l'Aéroport	62.17	-75.65	lake	chironomids, BSi, OM	Saulnier-Talbot & Prientz 2010	no clear climate interpretation
Lac Demain	62.05	-118.70	lake	pollen	Nichols 1975	resolution >400 yr
Lac Faribault	58.87	-71.72	lake	pollen	Gajewski & Garralla 1992	only extends to 4.9 ka
Long	62.63	-101.23	lake	pollen	Kay et al. 1978	no clear climate interpretation
LR3	58.58	-75.25	lake	pollen	Gajewski & Garralla 1992	>3000 yr between ages
LT1	58.14	-75.15	lake	pollen	Gajewski & Garalla 1992	>3000 yr between ages
Maria	68.27	-133.47	lake	pollen	Ritchie 1977	>3000 yr between ages
McMaster	64.13	-110.58	lake	pollen	Short et al. 1994	resolution >400 yr
Nicol	61.58	-103.48	lake	pollen	Bender 1978	resolution >400 yr
Nipingingajulik	61.57	-71.77	lake	chironomids, BSi, OM	Saulnier-Talbot & Prientz 2010	no clear climate interpretation
Queen's	64.20	-110.97	lake	diatoms, pollen, isotopes	Pienitz et al. 1999	no clear climate interpretation
Rivière-aux-Feuilles 1	58.23	-72.07	lake	pollen	Richard 1981	>3000 yr between ages
Rivière-aux-Feuilles 2	58.22	-71.95	lake	pollen	Richard 1981	>3000 yr between ages
Robinson	63.40	-64.26	lake	pollen	Miller et al. 1999	resolution >400 yr
Sleet	69.28	-133.58	lake	pollen	Spear 1983; MacDonald 1995	>3000 yr between ages
Slipper	64.62	-110.83	lake	diatoms	Rühl & Smol 2005	does not cover 6-2 ka
Slipper	64.62	-110.83	lake	cladocera	Sweetman et al. 2008	does not cover 6-2 ka
Slipper	64.62	-110.83	lake	VNIRS-DOC	Rouillard et al. 2011	does not cover 6-2 ka
Slow River	63.03	-100.75	lake	pollen	Kay 1979	extends to only 4.2 ka
South	69.00	-121.00	lake	pollen	Rühl & et al. 2009	>3000 yr between ages
Square	58.63	-63.60	lake	pollen, diatoms	Clark et al. 1989	>3000 yr between ages

Station 803	70.64	-135.92	marine	dinocysts	Bringué & Rochon 2012	extends to only 4.6 ka
Sweet Little	67.65	-132.02	lake	pollen	Ritchie 1982	>3000 yr between ages
Thompson Landing	63.07	-110.79	lake	pollen	Ritchie 1982	>3000 yr between ages
TK-2	66.33	-104.93	lake	diatoms, pollen	Paul et al. 2010	no clear climate interpretation
Tourbière de la Rivière-aux-Feuilles	58.23	-72.07	lake	pollen	Gajewski et al. 2000	extends to only 5.7 ka
Tuk-5	69.05	-133.45	lake	pollen	Ritchie & Hare 1971; MacDonald & Ritchie 1986	>3000 yr between ages
Twin Tamarack	68.30	-133.42	lake	pollen	Ritchie & Harrison 1993	>3000 yr between ages
UCLA/TK-20	64.15	-107.82	lake	pollen, LOI	Huang et al. 2004	no clear climate interpretation
Vhc1	60.78	-69.83	lake	pollen	Kerwin et al. 2004	>3000 yr between ages
Wild Spear	59.25	-114.15	lake	pollen	MacDonald & Cwynar 1985	resolution >400 yr

#### North Atlantic and Iceland

91-039	77.27	74.33	marine	dinocysts	Levac et al. 2001	no clear climate interpretation
B997-324	66.89	18.98	marine	forams	Smith et al. 2005	resolution >400 yr
B997-327	66.64	-20.87	marine	dinocysts	Solignac et al. 2006	does not cover 6-2 ka
B997-347	63.93	-24.48	marine	d18O.forams	Smith et al. 2005	>3000 yr between ages
Fox04G/05R	65.56	-37.44	marine	forams, XRF, grain size	Andresen et al. 2013	extends to only 5.8 ka
GIK23323-1	67.77	5.92	marine	dinocysts	de Vernal et al. 2013	>3000 yr between ages
HM102	62.17	5.97	marine	d18O.forams	Kjennbakken et al. 2011; Sejrup et al. 2001	does not cover 6-2 ka
HM03-133-25	60.11	-6.07	marine	dinocysts	Solignac et al. 2008	>3000 yr between ages
HM57-5	69.43	13.12	marine	diatoms	Koc et al. 1993	resolution >400 yr
HU91-045-052	59.49	-39.31	marine	dinocysts	de Vernal & Hillaire-Marcel 2006	resolution >400 yr
HU91-045-072	58.94	-28.74	marine	dinocysts	de Vernal & Hillaire-Marcel 2006	does not cover 6-2 ka
JM06-16A	78.90	0.28	marine	d18O.forams	Zamelczyk et al. 2012	>3000 yr between ages
JM06-WP-16	78.90	15.16	marine	dinocysts	de Vernal et al. 2013	resolution >400 yr
JM98-843-PC	78.34	15.30	marine	d18O.forams	Rasmussen et al. 2012	>3000 yr between ages
Knudsenheia	78.94	11.82	lake	OM, MS, diatoms	Jiang et al. 2011	extends to only 3.0 ka
Kongressvatnet	78.02	13.97	lake	alkenones	D'Andrea et al. 2012	extends to only 1.8 ka
Litla Vidarvatn	66.24	-15.81	lake	chironomids	Axford et al. 2007	resolution >400 yr
Lomonosovfonna	78.85	17.42	ice	d18O.forams	Divine et al. 2011	extends to only 1.2 ka
MD99-2269	66.64	-20.86	marine	dinocysts	Solignac et al. 2006	does not cover 6-2 ka
MD99-2304	77.62	-9.95	marine	forams	Hald et al. 2007	resolution >400 yr
MD99-2266	66.23	-23.27	marine	d18O.forams	Quillmann et al. 2010	no clear climate interpretation
MD99-2275	66.55	-17.70	marine	forams, diatom	Ran et al. 2008	no clear climate interpretation
MSM5/5-712	78.92	6.77	marine	forams	Spielhagen et al. 2011; Werner et al. 2011	extends to only 2 ka
NP05-21	79.05	11.09	marine	forams	Jernas et al. 2013	extends to only 0.4 ka
NP94-51	80.36	16.30	marine	forams	Jernas et al. 2013	extends to only 2.0 ka
Stora Vidarvatn	66.06	-20.38	lake	chironomids, BSI	Axford et al. 2007	resolution >400 yr
Torfdalsvatn	66.06	-20.38	lake	chironomids	Axford et al. 2007	resolution >400 yr

#### Russian Arctic

09-Tik-03	73.20	124.62	lake	diatoms	Biskaborn et al. 2013	extends to only 3 ka
Billyakh	65.28	126.78	lake	pollen	Müller 2009	>3000 yr between ages
Bo'shaya Kuropatoh'y'a River	70.67	156.75	lake	pollen	Anderson & Lozhkin 2002	no clear climate interpretation
Bugutakh Exposure	67.83	135.12	lake	pollen	Anderson & Lozhkin 2002	no clear climate interpretation
Bugristoye	58.25	85.30	peat bog	pollen	Blyakhachuk & Sulerzhitsky 1999	youngest age = 4.7 ka
Cape Sabler (SAO1)	74.55	100.53	lake	pollen	Andreev et al. 2003	no clear climate interpretation
Central Yakutia	64.00	120.00	lake?	pollen	Velichko et al. 1997	likely insufficient resolution
Chabada	61.98	129.37	lake	pollen	Tarasov et al. 1994; Andreev et al. 1989	no clear climate interpretation
Chesnok Peat	60.00	66.50	lake	pollen	Bakhareva 1985; Volkov et al. 1973; Volkova 1966; Anderson & Lozhkin 2002	no clear climate interpretation
Chistoye Exposure	59.55	151.83	lake	pollen	Anderson et al. 1997; Anderson & Lozhkin 2002	no clear climate interpretation
Dyanushka	65.04	125.04	peat bog	pollen, macrofossils	Werner et al. 2010	hiatus between 6.5 and 0.6 ka
Dervanoi	69.23	86.57	lake	d18O.cell	Wolfe et al. 2000	resolution >400 yr
El'gygytgyn	67.30	172.00	lake	d18O.diatom	Melles et al. 2007	>3000 yr between ages
Elgennya	62.08	149.00	lake	pollen	Anderson et al. 1997; Lozhkin et al. 1996; Anderson & Lozhkin 2002	no clear climate interpretation
Elikchan 4	60.75	151.88	lake	pollen	Anderson & Lozhkin 2001; Anderson et al. 1998;	no clear climate interpretation
Entarnoe	61.00	79.00	lake	pollen	Lozhkin & Anderson 1995; Lozhkin et al. 1995	>3000 yr between ages
Entarnoye Peat Exposure	59.00	78.33	lake	pollen	Velichko et al. 1997	no clear climate interpretation
Gek	63.38	147.65	lake	pollen	Arkipov et al. 1980; Neishtadt 1976; Anderson & Lozhkin 2002	no clear climate interpretation
Glukhoye	59.75	149.92	lake	pollen	Stetsenko 1998; Anderson & Lozhkin 2001	no clear climate interpretation
Goluboye	61.12	152.27	lake	pollen	Anderson et al. 196, 1997; Anderson & Lozhkin 1996; Lozhkin et al. 1990	no clear climate interpretation
Indigirka	70.00	149.00	lake	pollen	Lozhkin et al. 2000; Anderson & Lozhkin 2002	no clear climate interpretation
Jack London	62.17	149.50	lake	pollen	Velichko et al. 1997	likely insufficient resolution
Jack London (Wrangle Island)	70.83	-179.75	lake	pollen	Lozhkin et al. 1993	no clear climate interpretation
Karelia	63.00	34.00	lake	pollen	Lozhkin et al. 2001; Anderson & Lozhkin 2002	no clear climate interpretation
Kazaché	70.77	136.25	peat	pollen	Velichko et al. 1997	likely insufficient resolution
Khaipudurskaya	68.00	60.00	peat	pollen	Andreev et al. 2001	not continuous from 6-2 ka
Khomustakh	63.82	121.62	lake	pollen	Velichko et al. 1998; Andreev & Klimanov 2000	>3000 yr between ages
Kirgiriakh Stream	62.67	147.98	lake	pollen	Tarasov et al. 1994; Andreev et al. 1989; Alekseev 1978	no clear climate interpretation
Konus Exposure	67.75	135.58	lake	pollen	Anderson & Lozhkin 2001; Shilo et al. 1982	no clear climate interpretation
Boguda	63.67	123.25	lake	pollen	Anderson & Lozhkin 2002	no clear climate interpretation
Lama	69.53	90.20	lake	pollen, diatoms	Andreev & Klimanov 2000	no clear climate interpretation
Lammin-Suo Bog	60.20	29.70	peat bog	pollen	Andreev et al. 2004; Kumke et al. 2004	>3000 yr between ages
Lesnoye	59.58	151.87	lake	pollen	Arslanov et al. 1999	not continuous from 6-2 ka
Levison-Lessing	74.47	98.63	lake	pollen	Anderson et al. 1997; Anderson & Lozhkin 2002	no clear climate interpretation
Lietti	66.52	59.32	lake	pollen	Andreev et al. 2003	>3000 yr between ages
Mamontovy Khayata	72.33	129.50	peat/fluvial	testate.amoebae	Salonen 2012	>3000 yr between ages
Middendorf	70.37	87.55	lake	d18O.cell	Bobrov et al. 2004	resolution >400 yr
nikolay	73.33	124.20	lake	chironomids	Wolfe et al. 2000	extends to only 4.4 ka
Nikolsko-Lutinskoye Bog	58.27	31.3	peat bog	pollen	Andreev et al. 2004	resolution >400 yr
Nizhnevartovsk	76.67	62.00	lake	pollen	Arslanov et al. 1999	no digital data could be obtained
					Neustadt & Zelikson 1985	no clear climate interpretation

Nizhnevartovskoye Exposure	61.25	77.00	lake	pollen	Il'ina et al. 1985; Firsov et al. 1985; Neishtadt 1976; Anderson & Lozhkin 2002 ftp://ftp.ncdc.noaa.gov/pub/data/paleo/pollen/asciifiles/fossil/ascfiles/gpd/oldcamp.txt	no clear climate interpretation
Old Camp	62.17	149.50	lake	pollen	Velichko et al. 1997	no clear climate interpretation
Penzhina	63.00	165.00	lake	pollen	Voronina et al. 2001	likely insufficient resolution
PL-96-112	71.27	42.61	marine	dinocysts	Voronina et al. 2001	>200 SD resolution
PL-96-126	73.62	50.72	marine	dinocysts	Kind 1974; Anderson et al. 1998; Lozhkin et al. 2000; Anderson & Lozhkin 2001	does not cover 6-2 ka
Priyatnoye	61.03	151.72	lake	pollen	Andreev & Klimanov 2000	no clear climate interpretation
Pur-Taz 91-4	66.70	79.73	lake	pollen	Lozhkin et al. 1993	extends to only 4 ka
Rock Island	62.17	149.50	lake	pollen	Arslanov et al. 1999	no clear climate interpretation
Sakkala Bog	60.50	30.00	peat bog	pollen	Pitkanen et al. 2001	no digital data could be obtained
Salym-Yugan	60.167	72.833	peat bog	pollen	Velichko et al. 1997	unclear relation with climate
Seb-boloto	64.00	43.00	lake	pollen	Anderson & Lozhkin 2002	>3000 yr between ages
Selennyakhskaya-4 Exposure	69.11	138.06	lake	pollen	Arslanov et al. 1999	no clear climate interpretation
Shirinsky Mokh Bog	59.00	32.00	peat bog	pollen	Anderson et al. 1998; Anderson & Lozhkin 2002	no digital data could be obtained
Smorodinovoye	64.77	141.12	lake	pollen	Lozhkin et al. 1993	no clear climate interpretation
Sosednee	62.17	149.50	lake	pollen	Arslanov et al. 1999	no clear climate interpretation
Suo Bog	61.70	30.60	peat bog	pollen	Lozhkin et al. 2000; Anderson & Lozhkin 2001	no digital data could be obtained
Taloye	61.02	152.33	lake	pollen	Andreev & Klimanov 2000	no clear climate interpretation
Taymyr	70.77	99.13	peat	pollen	Naurzbaev et al. 2002	>3000 yr between ages
Taymyr	73	102	tree	width	Nazarova et al. 2013	not continuous from 6-2 ka
Temje	62.05	129.48	lake	chironomids	Salonen et al. 2011	>3000 yr between ages
Tumbulovaty	67.37	59.57	lake	pollen	Arslanov et al. 1999	resolution >400 yr
Vishnevskoye	60.50	29.50	peat bog	pollen	Khantemirov 2009	not continuous from 6-2 ka
Yamal	67.00-67.84	68.50-72.00	tree	width		does not cover 6-2 ka

## References cited in Table S1

- 2     Abbott, M. B., Edwards, M. E., and Finney, B. P.: A 40,000-yr record of environmental change  
from Burial Lake in Northwest Alaska. *Quaternary Res* 74, 156-165, 2010.
- 4     Adams, J. K., and Finkelstein, S. A.: Watershed-scale reconstruction of middle and late  
Holocene paleoenvironmental changes on Melville Peninsula, Nunavut, Canada. *Quaternary*  
6     *Sci Rev* 29, 2302-2314, 2010.
- 8     Ager, T. A.: Late Quaternary environmental history of the Tanana Valley, Alaska, Institute of  
Polar Studies Report 54, Ohio State University, Columbus, Ohio, 1975.
- 10    Ager, T. A.: Holocene vegetational history of Alaska, in: Late-Quaternary environments of the  
United States, edited by: Wright, H. E. J., University of Minnesota Press, Minneapolis, MN,  
128-140, 1983.
- 12    Ager, T. A., and Bradbury, J. P.: Quaternary history of vegetation and climate of the Yukon  
Delta-Norton Sound Area, in: The United States Geological Survey in Alaska:  
14    Accomplishments during 1980, edited by: Conrad, W. L., U.S. Geological Survey Circular  
844, 78-80, 1982.
- 16    Ager, T. A., and Brubaker, L. B.: Quaternary palynology and vegetational history of Alaska,  
in: Pollen records of Late-Quaternary North American sediments, edited by: Bryant, V. M.,  
18    and Holloway, R. G., American Association of Stratigraphic Palynologists Foundation,  
Dallas, TX, 353-384, 1985.
- 20    Ager, T. A., Carrara, P. E., and McGeehin, J. P.: Ecosystem development in the Girdwood  
area, south-central Alaska, following late Wisconsin glaciation, *Can J Earth Sci* 47, 971-  
22    985, 2010.
- 24    Alekseev, M. N.: *Antropogen Vostochnoi Azii* [Anthropogen of eastern Asia], 1978.
- 26    Anderson, J. H.: A palynological study of late Holocene vegetation and climate in the Healy  
Lake Area of Alaska. *Arctic* 62-69, 1975.
- 28    Anderson, L., Abbott, M. B., and Finney, B. P.: Holocene Climate Inferred from Oxygen  
Isotope Ratios in Lake Sediments, Central Brooks Range, Alaska. *Quaternary Res* 55, 313-  
321, 2001.
- 30    Anderson, N. J., Liversidge, A. C., McGowan, S., and Jones, M. D.: Lake and catchment  
response to Holocene environmental change: spatial variability along a climate gradient in  
southwest Greenland. *J Paleolimnol* 48, 209-222, 2012.
- 32    Anderson, P. M.: Late Quaternary vegetational change in the Kotzebue Sound area,  
northwestern Alaska. *Quaternary Res* 24, 307-321, 1985.

Anderson, P. M.: Late Quaternary pollen records from the Kobuk and Noatak River drainages,  
northwestern Alaska. *Quaternary Res* 29, 263-276, 1988.

Anderson, P. M., Belaya, B. V., Glushkova, O. Y., and Lozhkin, A. V.: New data about the  
vegetation history of northern Priokhot'ye during the Late Pleistocene and Holocene In  
Russian, *Late Pleistocene and Holocene of Beringia*, 33-54, 1997.

Anderson, P. M., and Brubake, L. B.: Vegetation history of northcentral Alaska: A mapped  
summary of late-Quaternary pollen data. *Quaternary Sci Rev* 13, 71-92, 1994.

Anderson, P. M., and Lozhkin, A. V.: The change of vegetation and climate of northern  
Priokhot'ye during the late Pleistocene-Holocene transition. In Russian, *Doklady Akademii  
Nauk*, 348 (3), 403-406, 1996.

Anderson, P. M., and Lozhkin, A. V.: The latest Pleistocene interstade (Karginskii/Boutellier  
interval) of Beringia: variations in paleoenvironments and implications for paleoclimatic  
interpretations. *Quaternary Sci Rev* 20, 93-125, 2001.

Anderson, P. M., and Lozhkin, A. V.: Late Quaternary Vegetation and Climate of Siberia and  
the Russian Far East (Palynological and Radiocarbon Database), 2002.

Anderson, P. M., Lozhkin, A. V., and Belaya, B. V.: Younger Dryas in western Beringia  
(northeastern Siberia). In Russian, *Environmental changes in Beringia during the  
Quaternary*, 28-44, 1998.

Anderson, P. M., Lozhkin, A. V., Belaya, B. V., Glushkova, O. Y., and Brubake, L. B.: A  
lacustrine pollen record from near the altitudinal forest limit, upper Kolyma region,  
northeastern Siberia. *Holocene* 7, 331-335, 1997.

Anderson, P. M., Lozhkin, A. V., Belaya, B. V., and Stetsenko, T. V.: New data about the  
stratigraphy of late Quaternary deposits of northern Priokhot'ye. In Russian, *Environmental  
changes in Beringia during the Quaternary*, 69-87, 1998.

Anderson, P. M., Lozhkin, A. V., and Brubaker, L. B.: A lacustrine pollen record from  
northern Priokhot'ye: new information about late Quaternary vegetational variations in  
western Beringia. *Arctic Alpine Res* 28, 93-98, 1996.

Anderson, P. M., Lozhkin, A. V., Eisner, W. R., Kozhevnikova, M. V., Hopkins, D. M.,  
Brubaker, L. B., and Colinvaux, P. A.: Two late Quaternary pollen records from south-  
central Alaska. *Geogr Phys Quatern* 48, 131-143, 1994.

Anderson, P. M., Reanier, R. E., and Brubaker, L. B.: Late Quaternary vegetational history of  
the Black River region in northeastern Alaska, *Canadian J Earth Sci* 25, 84-94, 1988.

- Anderson, R. S., Hallett, D. J., Berg, E., Jass, R. B., Toney, J. L., de Fontaine, C. S., and  
 2 DeVolder, A.: Holocene development of Boreal forests and fire regimes on the Kenai  
 Lowlands of Alaska. *Holocene* 16, 791-803, 2006.
- 4 Andersson, S., and Schoning, K.: Surface wetness and mire development during the late  
 Holocene in central Sweden. *Boreas* 39, 749-760, 2010.
- 6 Andreev, A., Klimanov, V. A., and Sulerzhitsky, L. D.: Vegetation and climate history of the  
 Yana River lowland, Russia, during the last 6400yr, *Quaternary Sci Rev* 20, 259-266, 2001.
- 8 Andreev, A. A., and Klimanov, V. A.: Vegetation and Climate History of Central Yakutia  
 during the Holocene; and Late Pleistocene. (in Russian), *Formation of Deposits and Placers*  
 10 on North-East of the USSR, 26-51, 1989.
- Andreev, A. A., and Klimanov, V. A.: Quantitative Holocene climatic reconstruction from  
 12 Arctic Russia. *J Paleolimnol* 24, 81-91, 2000.
- Andreev, A. A., Klimanov, V. A., Sulerzhitskii, L. D., and Khotinskii, N. A.: Chronology of  
 14 environmental changes in central Yakutia during the Holocene, *Paleoklimaty golotsena i*  
*pozднеlednikov'ya* [Paleoclimates of Holocene and late glacial], 115-121, 1989.
- 16 Andreev, A. A., Tarasov, P. E., Klimanov, V. A., Melles, M., Lisitsyna, O. M., and Hubberten,  
 H. W.: Vegetation and climate changes around the Lama Lake, Taymyr Peninsula, Russia  
 18 during the late Pleistocene and Holocene. *Quaternary Int* 122, 69-84, 2004.
- Andreev, A. A., Tarasov, P. E., Siegert, C., Ebel, T., Klimanov, V. A., Melles, M., Bobrov, A.  
 20 A., Dereviagin, A. Y., Lubinski, D. J., and Hubberten, H. W.: Late Pleistocene and  
 Holocene vegetation and climate on the northern Taymyr Peninsula, arctic Russia. *Boreas*  
 22 32, 484-505, 2003.
- Andresen, C. S., Hansen, M. J., Seidenkrantz, M. S., Jennings, A. E., Knudsen, M. F.,  
 24 Nørgaard-Pedersen, N., Larsen, N. K., Kuijpers, A., and Pearce, C.: Mid- to late-Holocene  
 oceanographic variability on the Southeast Greenland shelf. *Holocene* 23, 167-178, 2013.
- 26 Andresen, C. S., McCarthy, D. J., Valdemar Dylmer, C., Seidenkrantz, M.-S., Kuijpers, A., and  
 Lloyd, J. M.: Interaction between subsurface ocean waters and calving of the Jakobshavn  
 28 Isbræ during the late Holocene. *Holocene* 21, 211-224, 2011.
- Andrews, J. T., and Nichols, H.: Modern Pollen Deposition and Holocene Paleotemperature  
 30 Reconstructions, Central Northern Canada. *Arctic Alpine Res* 13, 387-408, 1981.
- Arslanov, H., Auslender, V., Gromova, L., Zubkov, A., and Khomutova, V.: Palaeogeography  
 32 peculiarities and absolute age of the maximum stage of Valday glaciation in the region of  
 lake Kubenskoe. (in Russian), *The reports of Academy of Sciences of USSR "Doklady*  
 34 *Akademii Nauk SSSR"*, 195 (6), 1395-1399, 1970.



- Arkhipov, S. A., Levina, T. P., and Panychev, V. A.: Palynological characteristics of two  
2 Holocene peats from the middle and lower Ob River valley. In Russian, Paleopalynology of  
Siberia, 123-127, 1980.
- 4 Arslanov, K., Davydova, N., Subetto, D., and Khomutova, V.: Karelian Isthmus. (in Russian),  
The lake history of East-European Plain "Istoria ozer Vostochno-Evropeiskoi ravniny", 64-  
6 77, 1992.
- Arslanov, K., Gey, N., Davydova, N., Dzhinoridze, R., Koshechkin, B., Pushenko, M.,  
8 Rybalko, A., Spiridonov, M., Subetto, D., and Khomutova, V.: New data from late  
pleistocene and holocene history of Ladoga lake. (in Russian), Izvestia Geographicheskogo  
10 obshchestva, 1996.
- Arslanov, Kh.A., Svalijeva. L. A. Klimanov, V. A. Chernov, S. B., Chernova, G. M., Kuzmin,  
12 g. F., Tertychnaya, T. V., Subett, D. A., Denisenkov, V. P.: Chronology of vegetation and  
paleoclimatic stages of northwestern Russia during the late glacial and Holocene.  
14 Radiocarbon 41, 25-45, 1999.
- Axford, Y., Briner, J. P., Miller, G. H., and Francis, D. R.: Paleoecological evidence for abrupt  
16 cold reversals during peak Holocene warmth on Baffin Island, Arctic Canada. Quaternary  
Res 71, 142-149, 2009.
- 18 Axford, Y., and Kaufman, D. S.: Late glacial and Holocene glacier and vegetation fluctuations  
at Little Swift Lake, Southwestern Alaska, USA, Arctic. Antarctic Alpine Res 36, 139-146,  
20 2004.
- Axford, Y., Losee, S., Briner, J. P., Francis, D. R., Langdon, P. G., and Walker, I. R.: Holocene  
22 temperature history at the western Greenland Ice Sheet margin reconstructed from lake  
sediments. Quaternary Sci Rev 59, 87-100, 2013.
- 24 Axford, Y., Miller, G. H., Geirsdóttir, Á., and Langdon, P. G.: Holocene temperature history of  
northern Iceland inferred from subfossil midges, Quaternary Sci Rev 26, 3344-3358, 2007.
- 26 Bakhareva, V. A.: The palynological characteristics of late Quaternary and Holocene deposits  
in the vicinity of Pershino village on the Irtysh River. In Russian, The palynostratigraphy  
28 of the Mesozoic and Cenozoic of Siberia, 115-120, 1985.
- Bakke, J., Dahl, S. O., Paasche, Ø., Løvlie, R., and Nesje, A.: Glacier fluctuations, equilibrium-  
30 line altitudes and palaeoclimate in Lyngen, northern Norway, during the Lateglacial and  
Holocene. Holocene 15, 518-540, 2005.
- 32 Bender, M. M., Bryson, R. A., and Baerreis, D. A.: University of Wisconsin radiocarbon dates  
XV. Radiocarbon, 20, 157-167, 1978.

- Bigelow, N. H., and Edwards, M. E.: A 14,000 yr paleoenvironmental record from Windmill  
2 Lake, central Alaska: Evidence for high-frequency climatic and vegetation fluctuations.  
Quaternary Sci Rev 20, 203-215, 2001.
- 4 Biskaborn, B. K., Herzschuh, U., Bolshiyarov, D., Savelieva, L., Zibulski, R., and Diekmann,  
B.: Late Holocene thermokarst variability inferred from diatoms in a lake sediment record  
6 from the Lena Delta, Siberian Arctic. J Paleolimnology 49, 155-170, 2013.
- Bjune, A. E., Birks, H. J. B., and Seppä, H.: Holocene vegetation and climate history on a  
8 continental-oceanic transect in northern Fennoscandia based on pollen and plant  
macrofossils. Boreas 33, 211-223, 2004.
- 10 Blyakharchuk, T.A. and Sulerzhitsky, L.D.: Holocene vegetational and climatic changes in the  
forest zone of Western Siberia according to pollen records from the extrazonal palsas bog  
12 Bugristoye. Holocene 9, 621-628, 1999.
- Bobrov, A. A., Andreev, A. A., Schirmer, L., and Siegert, C.: Testate amoebae (Protozoa:  
14 Testacealobosea and Testaceafilosea) as bioindicators in the late quaternary deposits of the  
Bykovsky Peninsula, Laptev Sea, Russia. Palaeogeogr Palaeoecol 209, 165-181, 2004.
- 16 Borgmark, A., and Wastegård, S.: Regional and local patterns of peat humification in three  
raised peat bogs in Värmland, south-central Sweden. GFF 130, 161-176, 2008.
- 18 Brachfeld, S., Barletta, F., St-Onge, G., Darby, D., and Ortiz, J. D.: Impact of diagenesis on the  
environmental magnetic record from a Holocene sedimentary sequence from the Chukchi–  
20 Alaskan margin, Arctic Ocean, The 2005 HOTRAX Expedition to the Arctic Ocean, 68,  
100-114, 2009.
- 22 Briner, J. P., Michelutti, N., Francis, D. R., Miller, G. H., Axford, Y., Wooller, M. J., and  
Wolfe, A. P.: A multi-proxy lacustrine record of Holocene climate change on northeastern  
24 Baffin Island, Arctic Canada. Quaternary Res 65, 431-442, 2006.
- Bringué, M., and Rochon, A.: Late Holocene paleoceanography and climate variability over the  
26 Mackenzie Slope (Beaufort Sea, Canadian Arctic), Mar Geol 291–294, 83-96, 2012.
- Brubaker, L. B., Garfinkee, H. L., and Edwards, M. E.: A late Wisconsin and Holocene  
28 vegetation history from the central Brooks Range: implications for Alaskan palaeoecology.  
Quaternary Res 20, 194-214, 1983.
- 30 Carlsson, L. J., and Finney, B. P.: A 130 0-year history of vegetation and environmental change  
at Jan Lake, east-central Alaska. Holocene 14, 818-827, 2004.
- 32 Chipman, M. L., Clegg, B. F., and Hu, F. S.: Variation in the moisture regime of northeastern  
interior Alaska and possible linkages to the Aleutian Low: inferences from a late-Holocene  
34  $\delta^{18}\text{O}$  record. J Paleolimnol 48, 69-81, 2012.

- Clark, P. U., Short, S. K., Williams, K. M., and Andrews, J. T.: Late Quaternary chronology  
and environments of Square Lake, Torngat Mountains, Labrador, Can J Earth Sci, 26, 2130-  
2144, 1989.
- Cook, T. L., Bradley, R. S., Stoner, J. S., and Francus, P.: Five thousand years of sediment  
transfer in a high arctic watershed recorded in annually laminated sediments from Lower  
Murray Lake, Ellesmere Island, Nunavut, Canada. J Paleolimnol 41, 77-94, 2009.
- Cwynar, L. C., and Spear, R. W.: Paleovegetation and Paleoclimatic Changes in the Yukon at 6  
ka BP, Geogr Phys Quatern 49, 29-35, 1995.
- D'Andrea, W. J., Vaillencourt, D. A., Balascio, N. L., Werner, A., Roof, S. R., Retelle, M., and  
Bradley, R. S.: Mild Little Ice Age and unprecedented recent warmth in an 1800 year lake  
sediment record from Svalbard. Geology, 2012.
- D'Andrea, W. J., and Huang, Y.: Long chain alkenones in Greenland lake sediments: Low  $\delta^{13}\text{C}$   
values and exceptional abundance, Org Geochem 36, 1234-1241, 2005.
- Daigle, T. A., and Kaufman, D. S.: Holocene climate inferred from glacier extent, lake  
sediment and tree rings at Goat Lake, Kenai Mountains, Alaska, USA. J Quaternary Sci 24,  
33-45, 2009.
- Dallimore, A., Schröder-Adams, C. J., and Dallimore, S. R.: Holocene environmental history  
of thermokarst lakes on Richards Island, Northwest Territories, Canada: Thecamoebians as  
paleolimnological indicators, J Paleolimnol 23, 261-283, 2000.
- Davydova, N.: Diatom analysis. (in Russian) , The lake history of USSR "Istoria ozer SSSR",  
256, 1986.
- Davydova, N., Subetto, D., and V. Khomutova, V.:Paleolimnology of Vishnevskoe and  
Michurinskoe lakes (Karelian Isthmus). (in Russian) In: Antropological changes of small  
lake systems "Antropogennye izmeneniya sistem malyhozer", St.Petersburg, Gidrometizdat,  
195–198, 1991.
- Davydova, N., Subetto, D., and Khomutova, V.: Lake Ilmen. (in Russian) The lake history of  
East-European Plain, "Istoria ozer Vostochno-Evropeiskoi ravniny", 101-117, 1992.
- de Vernal, A., and Hillaire-Marcel, C.: Provincialism in trends and high frequency changes in  
the northwest North Atlantic during the Holocene. Global Planet Change 54, 263-290, 2006.
- de Vernal, A., Hillaire-Marcel, C., and Darby, D. A.: Variability of sea ice cover in the  
Chukchi Sea (western Arctic Ocean) during the Holocene. Paleoceanography 20, - PA4018,  
2005.
- de Vernal, A., Hillaire-Marcel, C., Rochon, A., Fréchette, B., Henry, M., Solignac, S., and  
Bonnet, S.: Dinocyst-based reconstructions of sea ice cover concentration during the

Holocene in the Arctic Ocean, the northern North Atlantic Ocean and its adjacent seas.

Quaternary Sci Rev 79, 111-121, 2013.

Diedrich, K. E., and Loso, M. G.: Transient impacts of Little Ice Age glacier expansion on sedimentation processes at glacier-dammed Iceberg Lake, southcentral Alaska. *J Paleolimnol* 48, 115-132, 2012.

Divine, D., Isaksson, E., Martma, T., Meijer, H., Moore, J., Pohjola, V., Van de Wal, R., and Godliebsen, F.: Thousand years of winter surface air temperature variations in Svalbard and northern Norway reconstructed from ice core data, *Polar Research*, North America, 2011.

Edwards, M. E., Anderson, P. M., Garfinkel, H. L., and Brubaker, L. B.: Late Wisconsin and Holocene vegetational history of the upper Koyukuk region, Brooks Range, AK. *Can J Bot* 63, 616-626, 1985.

Edwards, M. E., and Brubaker, L. B.: Late quaternary vegetation history of the Fishhook Bend area, Porcupine River, Alaska. *Can J Earth Sci* 23, 1765-1773, 1986.

Eide, W., Birks, H., Bigelow, N., Peglar, S., and Birks, H. J.: Holocene forest development along the Setesdal valley, southern Norway, reconstructed from macrofossil and pollen evidence, *Veg Hist Archaeobotany* 15, 65-85, 2006.

Elias, S. A.: Holocene insect fossils from two sites at Ennadai lake, Keewatin, Northwest Territories, Canada. *Quaternary Res* 17, 371-390, 1982.

Elina, G., and Filimonova, L.: Late-Glacial vegetation on the territory of Karelia. In: *Palaeohydrology of the temperate zone III, Mires and lakes*, 53-69, 1987.

Elina, G. A.: Principles and methods for reconstruction and mapping of Holocene vegetation. (in Russian), 159, 1981.

Elina, G. A., and Filimonova, L. V.: Dynamics of vegetation and natural conditions in type regions Kc and Kg during the Holocene. *Palaeoecological events during the last 15,000 years: regional syntheses of palaeoecological studies of lakes and mires Europe*, 1996.

Elina, G. A., and Khomutova, V. I.: Correlation of Holocene sequences of bottom sediments from Onega Lake and its old bays in terms of palynological data, *Methods for the investigation of lake deposits: palaeoecological and palaeo-climatological aspects*, 193-203, 1987.

Eronen, M., and Hyvarinen, H.: Subfossil pine dates and pollen diagrams from northern Fennoscandia, *Geologis. Foren.* 103, 437-455, 1982.

Finkelstein, S. A., and Gajewski, K.: Responses of Fragilarioid-dominated diatom assemblages in a small Arctic lake to Holocene climatic changes, Russell Island, Nunavut, Canada. *J Paleolimnol* 40, 1079-1095, 2008.

- Firsov, L. V., Panychev, V. A., and Orlova, L. A.: Catalog of radiocarbon dates. Novosibirsk. In Russian, 1985.
- Fortin, M.-C., and Gajewski, K.: Holocene climate change and its effect on lake ecosystem production on Northern Victoria Island, Canadian Arctic. *J Paleolimnol* 43, 219-234, 2010.
- Fréchette, B., Wolfe, A. P., Miller, G. H., Richard, P. J. H., and de Vernal, A.: Vegetation and climate of the last interglacial on Baffin Island, Arctic Canada. *Palaeogeogr Palaeoecol* 236, 91-106, 2006.
- Gajewski, K., and Garralla, S.: Holocene vegetation histories from three sites in the tundra of northwestern Québec, Canada. *Arctic Alpine Res* 24, 329-336, 1992.
- Gajewski, K., Mott, R. J., Ritchie, J. C., and Hadden, K.: Holocene vegetation history of Banks Island, Northwest Territories, Canada. *Can J Bot* 78, 430-436, 2000.
- Gonyo, A. W., Yu, Z., and Bebout, G. E.: Late Holocene change in climate and atmospheric circulation inferred from geochemical records at Kepler Lake, south-central Alaska. *J Paleolimnol* 48, 55-67, 2012.
- Hald, M., Andersson, C., Ebbesen, H., Jansen, E., Klitgaard-Kristensen, D., Risebrobakken, B., Salomonsen, G. R., Sarnthein, M., Sejrup, H. P., and Telford, R. J.: Variations in temperature and extent of Atlantic Water in the northern North Atlantic during the Holocene. *Quaternary Sci Rev* 26, 3423-3440, 2007.
- Heinrichs, M. L., Peglar, S. M., Bigler, C., and Birks, H. J. B.: A multi-proxy palaeoecological study of Alanen Laanijärvi, a boreal-forest lake in Swedish Lapland. *Boreas* 34, 192-206, 2005.
- Hicks, S.: Variations in pollen frequency in a bog at Kanjerjoki, N.E. Finland during the Flandrian, *Commentationes Biologicae* 80, 4-28, 1975.
- Hu, F. S., Brubaker, L. B., and Anderson, P. M.: A 12000 year record of vegetation change and soil development from Wien Lake, central Alaska. *Can J Bot* 71, 1133-1142, 1993.
- Hu, F. S., Kaufman, D., Yoneji, S., Nelson, D., Shemesh, A., Huang, Y., Tian, J., Bond, G., Clegg, B., and Brown, T.: Cyclic Variation and Solar Forcing of Holocene Climate in the Alaskan Subarctic. *Science* 301, 1890-1893, 2003.
- Huang, C. C., MacDonald, G., and Cwynar, L.: Holocene landscape development and climatic change in the low arctic, Northwest Territories, Canada. *Palaeogeogr Palaeoecol* 205, 221-234, 2004.
- Huttunen, A.: Vegetation and palaeoecology of a bog complex in southern Finland, *Aquilo ser. Bot* 28, 27-37, 1990.

- Hyvarinen, H.: Absolute and relative pollen diagrams from northernmost Fennoscandia. *Fennia* 142, 1-23, 1975.
- Hyvarinen, H.: Flandrian pollen deposition rates and tree-line history in northern Fennoscandia. *Boreas* 5, 163-175, 1976.
- Hyvarinen, H.: Holocene pine and birch limits near Kilpisjarvi, western Finnish Lapland: pollen stratigraphical evidence, Special issue ESF project: "European palaeoclimate and man", 9, 1992.
- Il'ina, N. S., Lapshina, E. I., and Lavrenko, N. I.: The vegetation cover of the western Siberia continental plateau. In Russian, 1985.
- Ilyashuk, E. A., Ilyashuk, B. P., Kolka, V. V., and Hammarlund, D.: Holocene climate variability on the Kola Peninsula, Russian Subarctic, based on aquatic invertebrate records from lake sediments. *Quaternary Res* 2013.
- Jernas, P., Klitgaard Kristensen, D., Husum, K., Wilson, L., and Koç, N.: Palaeoenvironmental changes of the last two millennia on the western and northern Svalbard shelf. *Boreas* 42, 236-255, 2013.
- Jiang, S., Liu, X., Sun, J., Yuan, L., Sun, L., and Wang, Y.: A multi-proxy sediment record of late Holocene and recent climate change from a lake near Ny-Ålesund, Svalbard. *Boreas* 40, 468-480, 2011.
- Jones, M. C., Peteet, D. M., Kurdyla, D., and Guilderson, T.: Climate and vegetation history from a 14,000-year peatland record, Kenai Peninsula, Alaska. *Quaternary Res* 72, 207-217, 2009.
- Joynt III, E. H., and Wolfe, A. P.: Paleoenvironmental inference models from sediment diatom assemblages in Baffin Island lakes (Nunavut, Canada) and reconstruction of summer water temperature. *Can J Fisheries Aquatic Sci* 58, 1222-1243, 2001.
- Kaltenrieder, P., Tinner, W., Lee, B., and Hu, F. S.: A 16 000-year record of vegetational change in south-western Alaska as inferred from plant macrofossils and pollen, *J Quaternary Sci* 26, 276-285, 2011.
- Kay, P. A.: Multivariate statistical estimates of Holocene vegetation and climate change, forest-tundra transition zone, NWT, Canada. *Quaternary Res* 1979.
- Kerwin, M. W., Overpeck, J. T., Webb, R. S., and Anderson, K. H.: Pollen-based summer temperature reconstructions for the eastern Canadian boreal forest, subarctic, and Arctic, *Quaternary Sci Rev* 23, 1901-1924, 2004.

- Khantemirov, R.M.: Динамика древесной растительности и изменения климата на севере  
2 западной Сибири в голоцене, PhD thesis, Ural Federal University, 271 pp, 2009.
- Khomutova, V.: Paleogeography and biostratigraphy of lake sediments from forest zone of  
4 European part of USSR by spore-pollen data. (in Russian) Dr. Degree Thesis,  
Specialization 11.00.04 - geomorphology and evolution geography, 491, 1989.
- 6 Khomutova, V., and Elina, G.: Khomutova, V., G. Elina, 1990. Stratigraphy of lake sediments  
by palynological data. (in Russian), The history of Ladoga, Onego, Pskovsko-Chudskoe,  
8 Baikal and Khanki lakes "Istoria Ladozhskogo, Onezhskogo, Pskovsko- Chudskogo ozer,  
Baikala i Khanki", 92-96, 1990.
- 10 Kimmel, K., Rajamai, R., and Janson, M.: The Holocene development of Tondi mire, N-  
Estonia: Pollen, diatom and chronological studies, 1995.
- 12 Kind, N. V.: Geochronology of the late Anthropogene by isotopic data. In Russian, 1974.
- Kinnard, C., Koerner, R. M., Zdanowicz, C. M., Fisher, D. A., Zheng, J., Sharp, M. J.,  
14 Nicholson, L., and Lauriol, B.: Stratigraphic analysis of an ice core from the Prince of  
Wales Icefield, Ellesmere Island, Arctic Canada, using digital image analysis: High-  
16 resolution density, past summer warmth reconstruction, and melt effect on ice core solid  
conductivity, J Geophys Res 113, - D24120, 2008.
- 18 Kjennbakken, H., Sejrup, H. P., and Hafliðason, H.: Mid- to late-Holocene oxygen isotopes  
from Volda fjorden, western Norway. Holocene 21, 897-909, 2011.
- 20 Klug, M., Schmidt, S., Bennike, O. L. E., Heiri, O., Melles, M., and Wagner, B.: Lake  
sediments from Store Koldewey, Northeast Greenland, as archive of Late Pleistocene and  
22 Holocene climatic and environmental changes. Boreas 38, 59-71, 2009.
- Koç, N., Jansen, E., and Hafliðason, H.: Paleoceanographic reconstructions of surface ocean  
24 conditions in the Greenland, Iceland and Norwegian seas through the last 14 ka based on  
diatoms. Quaternary Sci Rev 12, 115-140, 1993.
- 26 Koivula, L. 1987. Unpubl. Lic. Phil. Thesis (in Finnish) Department of Botany, University of  
Jyväskylä, Jyväskylä, Finland.
- 28 Kumke, T., Kienel, U., Weckström, J., Korhola, A., and Hubberten, H. W.: Inferred Holocene  
Paleotemperatures from Diatoms at Lake Lama, Central Siberia. Arct Antarct Alp Res 36,  
30 624-634, 2004.
- Kurek, J., Cwynar, L. C., Ager, T. A., Abbott, M. B., and Edwards, M. E.: Late Quaternary  
32 paleoclimate of western Alaska inferred from fossil chironomids and its relation to  
vegetation histories, Quaternary Sci Rev 28, 799-811, 2009.

- Kurek, J., Cwynar, L. C., and Vermaire, J. C.: A late Quaternary paleotemperature record from  
 2 Hanging Lake, northern Yukon Territory, eastern Beringia, *Quaternary Res* 72, 246-257,  
 2009.
- 4 Lacourse, T., and Gajewski, K.: Late Quaternary Vegetation History of Sulphur Lake,  
 Southwest Yukon Territory, Canada, *Arctic*, 53, 27-35, 2000.
- 6 Lamb, H. F.: Modern pollen spectra from Labrador and their use in reconstructing Holocene  
 vegetational history. *J Ecol* 72, 37-59, 1984.
- 8 Lapointe, F., Francus, P., Lamoureux, S. F., Saïd, M., and Cuvén, S.: 1750 years of large  
 rainfall events inferred from particle size at East Lake, Cape Bounty, Melville Island,  
 10 Canada. *J Paleolimnol* 48, 159-173, 2012.
- Larsen, N. K., Kjær, K. H., Olsen, J., Funder, S., Kjeldsen, K. K., and Nørgaard-Pedersen, N.:  
 12 Restricted impact of Holocene climate variations on the southern Greenland Ice Sheet,  
*Quaternary Sci Rev* 30, 3171-3180, 2011.
- 14 Ledu, D., Rochon, A., de Vernal, A., Barletta, F., and St-Onge, G.: Holocene sea ice history  
 and climate variability along the main axis of the Northwest Passage, *Can Arct*  
 16 *Paleoceanogr* 25, 2010.
- Levac, E., Vernal, A. D., and Blake Jr, W.: Sea-surface conditions in northernmost Baffin Bay  
 18 during the Holocene: palynological evidence, *J Quaternary Sci* 16, 353-363, 2001.
- Lichti-Federovich, S.: Pollen analysis of surface snow from five Canadian Arctic ice caps,  
 20 *Geological Survey of Canada Paper*, 75, 135-137, 1975.
- Lozhkin, A. V., and Anderson, P. M.: A late Quaternary pollen record from Elikchan 4 Lake,  
 22 northeast Siberia, *Geology of the Pacific Ocean*, 14, 18-22, 1995.
- Lozhkin, A. V., Anderson, P. M., and Belaya, B. V.: Radiocarbon dates and carbon zones from  
 24 lacustrine sediments from the region of the Kolyma-Okhotsk drainage divide. In Russian,  
*Doklady Akademii Nauk*, 343(3), 396-399, 1995.
- 26 Lozhkin, A. V., Anderson, P. M., Belaya, B. V., Glushkova, O. Y., Kozhevinkova, M. V., and  
 Kotova, L. N.: Palynological characteristics and radiocarbon dates of sediments from  
 28 Elgennya Lake, Upper Kolyma. Pages 50-64 in Yu.M. Bychkov, editor. Russian Academy of  
 Sciences, In Russian, *Quaternary climates and vegetation of western Beringia*, 1996.
- 30 Lozhkin, A. V., Anderson, P. M., Belaya, B. V., Yu, O., Glushkova, and Stetsenko, T. V.:  
 Vegetation change in northeast Siberia at the Pleistocene-Holocene boundary and during the  
 32 Holocene. In Russian, *The Quaternary period of Beringia*, 53-75, 2000.



- Lozhkin, A. V., Anderson, P. M., Eisner, W. R., Hopkins, D. M., and Brubaker, L. B.: Changes  
of vegetation cover of Western Alaska during the last 18000 years, *Quaternary climates and  
vegetation of Beringia*, 31-42, 1996.
- Lozhkin, A. V., Anderson, P. M., Eisner, W. R., Ravako, L. G., Hopkins, D. M., Brubaker, L.  
B., Colinvaux, P. A., and Miller, M. C.: Late Quaternary lacustrine pollen records from  
southwestern Beringia, *Quaternary Research*, 39, 314-324, 1993.
- Lozhkin, A. V., Anderson, P. M., Glushkova, O. Y., Solomatkina, T. B., and Federova, I. N.:  
About features of development of lakes in the mountain regions of the upper Kolyma. In  
Russian, *The Quaternary period of Beringia*, 20-45, 2000.
- Lozhkin, A. V., Anderson, P. M., Vartanyan, S. L., Brown, T. A., Belaya, B. V., and Kotov, A.  
N.: Late Quaternary paleoenvironments and modern pollen data from Wrangel Island  
(northern Chukotka), *Quaternary Science Reviews*, 20, 217-233, 2001.
- Lozhkin, A. V., Skorodumov, I. N., Meshkov, A. P., Rovako, and L.G: Changed  
paleogeographic environments in the region of Glukhoye Lake (north coast of the Okhotsk  
Sea) during the Pleistocene-Holocene transition. In Russian, *Doklady Akademii Nauk*, 316  
(1), 184-188, 1990.
- Luoto, T. P., Kultti, S., Nevalainen, L., and Sarmaja-Korjonen, K.: Temperature and effective  
moisture variability in southern Finland during the Holocene quantified with midge-based  
calibration models. *J Quaternary Sci* 25, 1317-1326, 2010.
- MacDonald, G. M.: Holocene vegetation history of the upper Natla River area, Northwest  
Territories, Canada. *Arct Alp Res* 169-180, 1983.
- MacDonald, G. M.: Postglacial vegetation history of the Mackenzie River Basin *Quaternary  
Res* 28, 245-262, 1987.
- MacDonald, G. M.: Vegetation of the continental Northwest Territories at 6 ka BP, *Géographie  
physique et Quaternaire*, 49, 37-43, 1995.
- MacDonald, G. M., and Cwynar, L. C.: A fossil pollen based reconstruction of the late  
Quaternary history of lodgepole pine (*Pinus contorta* ssp. *latifolia*) in the western interior of  
Canada, *Canadian Journal of Forest Research*, 15, 1039-1044, 1985.
- Matthews, J. V., Jr.: Paleocology of John Klondike Bog, Fisherman Lake region, southwest  
district of Mackenzie, *Geological Survey of Canada Paper* 80-22, 1980.
- Melles, M., Brigham-Grette, J., Glushkova, O. Y., Minyuk, P. S., Nowaczyk, N. R., and  
Hubberten, H.-W.: Sedimentary geochemistry of core PG1351 from Lake El'gygytgyn—a  
sensitive record of climate variability in the East Siberian Arctic during the past three  
glacial–interglacial cycles. *J Paleolimnol* 37, 89-104, 2007.

- Miller, G. H., Mode, W. N., Wolfe, A. P., Sauer, P. E., Bennike, O., Forman, S. L., Short, S. K., and Stafford, T. W.: Stratified interglacial lacustrine sediments from Baffin Island, Arctic Canada: chronology and paleoenvironmental implications. *Quaternary Sci Rev* 18, 789-810, 1999.
- Miller, G. H., Wolfe, A. P., Briner, J. P., Sauer, P. E., and Nesje, A.: Holocene glaciation and climate evolution of Baffin Island, Arctic Canada, *Quaternary Land-ocean Correlation* 24, 1703-1721, 2005.
- Miller, R. D., and Dobrovolsky, E.: *Surficial geology of Anchorage and vicinity, Alaska, Book, Whole*, USGPO, 1959.
- Mode, W. N., and Jacobs, J. D.: Surficial geology and palynology, inner Frobisher Bay, Glacial Geology and Holocene Events, Southern Baffin Island, NWT: Guidebook for Field Trip C, 2, 53-62, 1987.
- Moser, K. A., and MacDonald, G. M.: Holocene vegetation change at treeline north of Yellowknife, Northwest Territories, Canada. *Quaternary Res* 34, 227-239, 1990.
- Naurzbaev, M. M., Vaganov, E. A., Sidorova, O. V., and Schweingruber, F. H.: Summer temperatures in eastern Taimyr inferred from a 2427-year late-Holocene tree-ring chronology and earlier floating series. *Holocene* 12, 727-736, 2002.
- Nazarova, L., de Hoog, V., Hoff, U., Dirksen, O., and Diekmann, B.: Late Holocene climate and environmental changes in Kamchatka inferred from the subfossil chironomid record. *Quaternary Sci Rev* 67, 81-92, 2013.
- Neishtadt, M. I.: Holocene processes in western Siberia and associated problems. In Russian, *Studying and mastering the environment*, 90-99, 1976.
- Neishtadt, M. I.: About environmental changes in middle taiga of western Siberia during the Holocene. In Russian, *Palynology of the USSR*, 156-161, 1976.
- Nesje, A., Olaf Dahl, S., and Lie, Ø.: Holocene millennial-scale summer temperature variability inferred from sediment parameters in a non-glacial mountain lake: Danntjørn, Jotunheimen, central southern Norway, *Holocene climate variability - a marine perspective*, 23, 2183-2205, 2004.
- Neustadt, M. I., and Zelikson, E. M.: Neue Angaben zur stratigraphie der Torfmoore Westsibiriens, *Acta Agralia fennica*, 123, 27-32, 1985.
- Nichols, H.: Palynological and paleoclimatic study of the late quaternary displacements of the boreal forest-tundra ecotone in Keewatin and Mackenzie, NWT [Northwest Territories], Canada, Colorado University. Institute of Arctic and Alpine Research. Occasional paper no.15, 1975.

- Olsen, J., Anderson, N. J., and Knudsen, M. F.: Variability of the North Atlantic Oscillation over the past 5,200 years. *Nature Geosci* 5, 808-812, 2012a.
- Olsen, J., Anderson, N. J., and Leng, M. J.: Limnological controls on stable isotope records of late-Holocene palaeoenvironment change in SW Greenland: a paired lake study, *International Association of Limnogeology – Isotopes and Lakes*, 66, 85-95, 2013.
- Olsen, J., Kjær, K. H., Funder, S., Larsen, N. K., and Ludikova, A.: High-Arctic climate conditions for the last 7000 years inferred from multi-proxy analysis of the Bliss Lake record, North Greenland. *J Quaternary Sci* 27, 318-327, 2012b.
- Oswald, W. W., Brubaker, L. B., and Anderson, P. M.: Late Quaternary vegetational history of the Howard Pass area, northwestern Alaska, *Canadian Journal of Botany*, 77, 570-581, 1999.
- Oswald, W. W., Gavin, D. G., Anderson, P. M., Brubaker, L. B., and Hu, F. S.: A 14,500-year record of landscape change from Okpilak Lake, northeastern Brooks Range, northern Alaska, *J Paleolimnol* 48, 101-113, 2012.
- Parra-Vergara, I.: Analyse pollinique du bassin de Sobrestany (Girona, Catalunya): Action anthropique et changements climatiques pendant l'Holocène, *Diplome EPHE Sciences, terre et vie*, 96, 1988.
- Paul, C. A., Rühland, K. M., and Smol, J. P.: Diatom-inferred climatic and environmental changes over the last ~ 9000 years from a low Arctic (Nunavut, Canada) tundra lake, *Palaeogeogr Palaeoecol* 291, 205-216, 2010.
- Paus, A. A.: *Paleo-okologiske undersøkelser pafaroya, sor-trondelag*. Dissertation, 1982.
- Paus, A. A., and Jevne, O. E.: Innerdalens historie belyst ved den pollenanalytisk methoden, *Rapport arkeologisk serie*, 1, 7-89, 1987.
- Perren, B., Anderson, N. J., Douglas, M. V., and Fritz, S.: The influence of temperature, moisture, and eolian activity on Holocene lake development in West Greenland. *J Paleolimnol* 48, 223-239, 2012.
- Peteet, D. M.: Modern pollen rain and vegetational history of the Malaspina Glacier District, Alaska. *Quaternary Res* 25, 100-120, 1986.
- Pienitz, R., Smol, J. P., and MacDonald, G. M.: Paleolimnological reconstruction of Holocene climatic trends from two boreal treeline lakes, Northwest Territories, Canada. *Arct Antarct Alp Res* 82-93, 1999.
- Pitkänen, A., Turunen, J., Tahvanainen, T. and Tolonen, K.: Holocene vegetation history from the Salym-Yugan Mire Area, West Siberia. *Holocene* 12, 353-362, 2002.

- Pompeani, D. P., Steinman, B. A., and Abbott, M. B.: A sedimentary and geochemical record of water-level changes from Rantin Lake, Yukon, Canada. *J Paleolimnol* 48, 147-158, 2012.
- Quillmann, U., Jennings, A. E., and Andrews, J. T.: Reconstructing Holocene palaeoclimate and palaeoceanography in Isafjarðardjúp, northwest Iceland, from two fjord records overprinted by relative sea-level and local hydrographic changes. *J Quaternary Sci* 25, 1144-1159, 2010.
- Ramfjord, H.: Vegetasjons- og klimahistorie gjennom de siste 9000 ar i Naeroy, Nord-Trondelag. Cand. real.Thesis, 1979.
- Ramfjord, H.: On the late Weichselian and Flandrian shoreline displacement in Naeroy, Norway. *Norsk Geologisk Tidsskrift*, 62, 191-205, 1979.
- Ran, L., Jiang, H., Knudsen, K. L., and Eiriksson, J.: A high-resolution Holocene diatom record on the North Icelandic shelf. *Boreas*, 37, 399-413, 2008.
- Rankama, T., and Vuorela, I.: Memo. Soc. Fauna Flora, Fennica, 64, 25-34, 1988.
- Rasmussen, T. L., Forwick, M., and Mackensen, A.: Reconstruction of inflow of Atlantic Water to Isfjorden, Svalbard during the Holocene: Correlation to climate and seasonality. *Mar Micropaleontol* 94–95, 80-90, 2012.
- Richard, P.: Histoire post-wisconsinienne de la vegetation du Quebec meridional par l'analyse pollinique. Service de la recherche, Direction generale des forets, Ministere des Terres et Forets du Quebec. Publications et rapports divers, 2, 142, 1977.
- Richard, P. J. H.: Paléophytogéographie postglaciaire en Ungava par l'analyse pollinique, Paleo-Quebec Trois-Rivières, 1-153, 1981.
- Ritchie, J. C.: The modern and late Quaternary vegetation of the Campbell-Dolomite Uplands, near Inuvik, N.W.T. Canada. *Ecol Monographs* 47, 401-423, 1977.
- Ritchie, J. C.: The modern and late-Quaternary vegetation of the Doll Creek area, North Yukon, Canada, *New Phytologist*, 90, 563-603, 1982.
- Ritchie, J. C.: A Holocene pollen record of boreal forest history from the Travaillant Lake area, Lower Mackenzie River Basin. *Can J Botany* 62, 1385-1392, 1984.
- Ritchie, J. C., and Hare, F. K.: Late-Quaternary vegetation and climate near the arctic tree line of Northwestern North America. *Quaternary Res* 1, 331-342, 1971.
- Ritchie, J. C., and Harrison, S. P.: Vegetation, lake levels, and climate in western Canada during the Holocene, *Global climates since the last glacial maximum*. University of Minnesota Press, Minneapolis, 401-414, 1993.
- Rosén, P., Segerström, U., Eriksson, L., and Renberg, I.: Do Diatom, Chironomid, and Pollen Records Consistently Infer Holocene July Air Temperature? A Comparison Using Sediment

Cores from Four Alpine Lakes in Northern Sweden. *Arct Antarct Alp Res* 35, 279-290, 2003.

Rosqvist, G., Jonsson, C., Yam, R., Karlén, W., and Shemesh, A.: Diatom oxygen isotopes in pro-glacial lake sediments from northern Sweden: a 5000 year record of atmospheric circulation, *Isotopes in Quaternary Paleoenvironmental reconstruction*, 23, 851-859, 2004.

Rosqvist, G., Leng, M. J., and Jonsson, C.: North Atlantic region atmospheric circulation dynamics inferred from a late-Holocene lacustrine carbonate isotope record, northern Swedish Lapland. *Holocene* 17, 867-873, 2007.

Rouillard, A., Rosén, P., Douglas, M. S. V., Pienitz, R., and Smol, J. P.: A model for inferring dissolved organic carbon (DOC) in lakewater from visible-near-infrared spectroscopy (VNIRS) measures in lake sediment. *J Paleolimnol* 46, 187-202, 2011.

Rowe, J. S., Spittlehouse, D., Johnson, E., and Jasieniuk, M.: Fire studies in the Upper Mackenzie Valley and adjacent Precambrian uplands. Department of Indian and Northern Affairs, Ottawa, Canada. INA Publication No, 1975.

Rühland, K., Jacques, J.-M. S., Beierle, B. D., Lamoureux, S. F., Dyke, A. S., and Smol, J. P.: Lateglacial and Holocene paleoenvironmental changes recorded in lake sediments, Brock Plateau (Melville Hills), Northwest Territories, Canada. *Holocene* 19, 1005-1016, 2009.

Rühland, K., and Smol, J. P.: Diatom shifts as evidence for recent Subarctic warming in a remote tundra lake, NWT, Canada. *Palaeogeogr Palaeoecol* 226, 1-16, 2005.

Rymer, M. J., and Sims, J. D.: Lake-sediment evidence for the date of deglaciation of the Hidden Lake area, Kenai Peninsula, Alaska. *Geology* 10, 314-316, 1982.

Saarse, L., and Liiva, A.: Geology of the Antu group of lakes, *Proceedings Acad. Sci. Estonia*, 1995.

Saarse, L., Veski, S., Rajamae, R., Sarv, A., and Heinsalu, A.: Geology of lake Maardu. In *Russian*, 32, 1990.

Saarse, L., Vishnevskaya, Y., Sarv, A., Rajamae, R., and Ilves, E.: Evolution of the lakes of Saaremaa island (in Russian), *Eesti Teaduste Akadeemia Toimetised Biologia*, 39, 34-45, 1990.

Salonen, J. S.: Quantitative climate reconstructions based on fossil pollen: novel approaches to calibration, validation, and spatial data analysis, 2012.

Salonen, J. S., Seppä, H., Väliranta, M., Jones, V. J., Self, A., Heikkilä, M., Kultti, S., and Yang, H.: The Holocene thermal maximum and late-Holocene cooling in the tundra of NE European Russia. *Quaternary Res* 75, 501-511, 2011.

- Saulnier-Talbot, É., and Pienitz, R.: Postglacial chironomid assemblage succession in  
 2 northernmost Ungava Peninsula, Canada. *J Quaternary Sci* 25, 203-213, 2010.
- Saulnier-Talbot, E., Pienitz, R., and Vincent, W. F.: Holocene lake succession and palaeo-  
 4 optics of a subarctic lake, northern Québec, Canada. *Holocene* 13, 517-526, 2003.
- Schmidt, S., Wagner, B., Heiri, O., Klug, M., Bennike, O. L. E., and Melles, M.: Chironomids  
 6 as indicators of the Holocene climatic and environmental history of two lakes in Northeast  
 Greenland. *Boreas* 40, 116-130, 2011.
- 8 Schweger, C. E.: Chronology of late glacial events from the Tangle Lakes, Alaska Range,  
 Alaska. *Arctic Anthropol* 97-101, 1981.
- 10 Sejrup, H. P., Haflidason, H., Flatebø, T., Klitgaard Kristensen, D., Grøsfjeld, K., and Larsen,  
 E.: Late-glacial to Holocene environmental changes and climate variability: evidence from  
 12 Voldafjorden, western Norway. *J Quaternary Sci* 16, 181-198, 2001.
- Seppä, H., and Poska, A.: Holocene annual mean temperature changes in Estonia and their  
 14 relationship to solar insolation and atmospheric circulation patterns. *Quaternary Res* 61, 22-  
 31, 2004.
- 16 Shilo, N. A., Lozhkin, A. V., Titov, E. E., and Schumilov, Y. V.: Kirgirlakh mammoth:  
 paleogeography aspect. In Russian, 1983.
- 18 Short, S. K., Andrews, J. T., Williams, K. M., Weiner, N. J., and Elias, S. A.: Late Quaternary  
 marine and terrestrial environments, northwestern Baffin Island, Northwest Territories,  
 20 *Geogr Phys Quatern* 48, 85-95, 1994.
- Smith, L. M., Andrews, J. T., Castañeda, I. S., Kristjánsdóttir, G. B., Jennings, A. E., and  
 22 Sveinbjörnsdóttir, Á. E.: Temperature reconstructions for SW and N Iceland waters over the  
 last 10 cal ka based on  $\delta^{18}\text{O}$  records from planktic and benthic Foraminifera, *Quaternary*  
 24 *Land-ocean Correlation* 24, 1723-1740, 2005.
- Solignac, S., Giraudeau, J., and de Vernal, A.: Holocene sea surface conditions in the western  
 26 North Atlantic: spatial and temporal heterogeneities. *Paleoceanography* 21, 2006.
- Solignac, S., Grelaud, M., de Vernal, A., Giraudeau, J., Moros, M., McCave, I. N., and  
 28 Hoogakker, B.: Reorganization of the upper ocean circulation in the mid-Holocene in the  
 northeastern Atlantic. *Can J Earth Sci* 45, 1417-1433, 2008.
- 30 Spear, R.: Paleoeological approaches to a study of treeline fluctuations in the Mackenzie delta  
 region, Northwest Territories: Preliminary results, *Nordicana*, 47, 61-72, 1983.
- 32 Spear, R. W.: The palynological record of Late-Quaternary arctic tree-line in northwest  
 Canada, *Rev palaeobot palynol* 79, 99-111, 1993.

- Spielhagen, R. F., Werner, K., Sørensen, S. A., Zamelczyk, K., Kandiano, E., Budeus, G.,  
 2 Husum, K., Marchitto, T. M., and Hald, M.: Enhanced Modern Heat Transfer to the Arctic  
 by Warm Atlantic Water, *Science*, 331, 450-453, 2011.
- 4 Stetsenko, T. V.: A pollen record from Holocene Lake deposits in the Malyk-Siena depression,  
 upper Kolyma basin. Environmental changes in Beringia during the Quaternary. In Russian,  
 6 63-68, 1998.
- Sweetman, J. N., LaFace, E., Rühland, K. M., and Smol, J. P.: Evaluating the response of  
 8 Cladocera to recent environmental changes in lakes from the central Canadian Arctic  
 treeline region. *Arct Antarct Alp Res* 40, 584-591, 2008.
- 10 Szeicz, J. M., MacDonald, G. M., and Duk-Rodkin, A.: Late Quaternary vegetation history of  
 the central Mackenzie Mountains, Northwest Territories, Canada. *Palaeogeogr Palaeoecol*  
 12 113, 351-371, 1995.
- Tarasov, P., Harrison, S., Saarse, L., Pushenko, M., Andreev, A., Aleshinskaya, Z., Davydova,  
 14 N., Dorofeyuk, N., Yu, E., Khomutova, V., Sevastyanov, D., Tamosaitis, J., Uspenskaya,  
 O., Yakushko, O., and Tarasova, I.: Lake status records from the former Soviet Union and  
 16 Mongolia: data base documentation, *Paleoclimatology Publications series Report No.2*, 86-  
 88, 1994.
- 18 Thomas, E. K., and Briner, J. P.: Climate of the past millennium inferred from varved  
 proglacial lake sediments on northeast Baffin Island, Arctic Canada. *J Paleolimnol* 41, 209-  
 20 224, 2009.
- Thomas, E. K., McGrane, S., Briner, J. P., and Huang, Y.: Leaf wax  $\delta^2H$  and varve-thickness  
 22 climate proxies from proglacial lake sediments, Baffin Island, Arctic Canada. *J Paleolimnol*  
 48, 193-207, 2012.
- 24 Thomas, E. K., Szymanski, J., and Briner, J. P.: Holocene alpine glaciation inferred from  
 lacustrine sediments on northeastern Baffin Island, Arctic Canada. *J Quaternary Sci* 25, 146-  
 26 161, 2010.
- Tinner, W., Hu, F. S., Beer, R., Kaltenrieder, P., Scheurer, B., and Krähenbühl, U.: Postglacial  
 28 vegetational and fire history: pollen, plant macrofossil and charcoal records from two  
 Alaskan lakes. *Veg Hist Archaeobotany* 15, 2006.
- 30 Vasari, Y.: Studies on the vegetational history of the Kuusamo district (north east Finland)  
 during the late quaternary period. III. Maansel"nsuo, a late-glacial site in Kuusamo, *Ann.*  
 32 *Botan.*, 2, 219-235, 1965.

- Velichko, A. A., Andreev, A. A., and Klimanov, V. A.: Climate and vegetation dynamics in the  
tundra and forest zone during the late glacial and Holocene. *Quaternary International* 41/42,  
71-96, 1997.
- Velle, G., Brooks, S. J., Birks, H. J. B., and Willassen, E.: Chironomids as a tool for inferring  
Holocene climate: an assessment based on six sites in southern Scandinavia. *Quaternary Sci  
Rev* 24, 1429-1462, 2005.
- Volkov, I. A., Gurtovaya, E. E., and Firsov, L. V.: The structure, age and history of Holocene  
peat near Gorno-Slinkino village on the Irtysh River. In Russian, *The Pleistocene of Siberia  
and neighboring regions*, 55-68, 1973.
- Volkova, V. S.: The Quaternary deposits of the lower Irtysh River and their biostratigraphic  
characteristics. In Russian, 1966.
- Voronina, E., Polyak, L., Vernal, A. D., and Peyron, O.: Holocene variations of sea-surface  
conditions in the southeastern Barents Sea, reconstructed from dinoflagellate cyst  
assemblages. *J Quaternary Sci* 16, 717-726, 2001.
- Vuorela, I.: *Bull. Geol. Soc. Finland*, 53 (1), 47-61, 1981.
- Vuorela, I.: *Geologian tutkimuskeskus, raportti* (in Finnish), *Geologian tutkimuskeskus*, 21,  
1990.
- Wernar, K., Tarasov, P.E., Andreev, A.A., Müller, S., Kienast, F., Zech, M., Zech, W., and  
Diekmann, B.: A 12.5-kyr history of vegetation dynamics and mire development with  
evidence of Younger Dryas larch presence in the Verkhoyansk Mountains, East Siberia,  
Russia. *Boreas* 39, 56-68, 2010.
- Werner, K., Spielhagen, R. F., Bauch, D., Hass, H. C., Kandiano, E., and Zamelczyk, K.:  
Atlantic Water advection to the eastern Fram Strait — Multiproxy evidence for late  
Holocene variability. *Palaeogeogr Palaeoecol* 308, 264-276, 2011.
- Willemse, N. W., and Törnqvist, T. E.: Holocene century-scale temperature variability from  
West Greenland lake records. *Geology* 27, 580-584, 1999.
- Wolfe, B. B., Edwards, T. W. D., Aravena, R., Forman, S. L., Warner, B. G., Velichko, A. A.,  
and MacDonald, G. M.: Holocene Paleohydrology and Paleoclimate at Treeline, North-  
Central Russia, Inferred from Oxygen Isotope Records in Lake Sediment Cellulose.  
*Quaternary Res* 53, 319-329, 2000.
- Wolfe, B. B., Edwards, T. W. D., Hall, R. I., and Johnston, J. W.: A 5200-year record of  
freshwater availability for regions in western North America fed by high-elevation runoff.  
*Geophysical Res Lett* 38, 2011.



Wolfe, B. B., Edwards, T. W. D., Jiang, H., MacDonald, G. M., Gervais, B. R., and Snyder, J.

2 A.: Effect of varying oceanicity on early-to mid-Holocene palaeohydrology, Kola Peninsula,  
Russia: isotopic evidence from treeline lakes. *Holocene* 13, 153-160, 2003.

4 Zamelczyk, K., Rasmussen, T. L., Husum, K., Haflidason, H., de Vernal, A., Ravna, E. K.,  
Hald, M., and Hillaire-Marcel, C.: Paleooceanographic changes and calcium carbonate  
6 dissolution in the central Fram Strait during the last 20 ka. *Quaternary Res* 78, 405-416,  
2012.

8