Table S1. Main driving mechanisms (causes) of the ETCW in the Arctic (or NH) according to 95 different peer reviewed papers published in 1929–2020 (values in **bold** indicate dominant forcings).

Lp.	Author(s)	Natural forcing	Anthropogenic forcing	Source
1	Tanasijcuk 1929	changes in oceanic circulation		Tanasijcuk, N, 1929, Cher den Einfluss des Nordkapstromes auf die Fauna des Kola-Fjords, Travaux de la Station Biologique de Murman, III (1), p. 24. Murmansk
2	Knipowitsch 1930	changes in oceanic circulation		Knipowitsch, N.M., 1930, Hydrologie und Fischerei. Explorations des Mers d'U. R. S. S., Fase. II, p. 33.
3	Scherhag 1931	changes in general atmospheric circulation		Scherhag R., 1931, 'Eine bemerkungswerte Klimaänderung Über Nord-Europa', Ann. Hydr. Mar. Met., 57-67.
4	Helland-Hansen 1934	changes in oceanic circulation		Helland-Hansen B., 1934, The Sognefjord Section. James Johnstone Memorial Volume, p. 257, Liverpool.
5	Jakhelln 1936	changes in oceanic circulation		Jakhelln A., 1936, Oceanographic Investigations in East Greenland Waters in the Summers of 1930—1932. Norges Svalbard- og Ishavs-Undersøgelser, 67, Oslo.
6	Scherhag 1936	changes in intensity of general atmospheric circulation and ocean currents		Scherhag R., 1936, Die Zunahme der atmospharischen Zirkulation in den letzten 25 Jahren. Annalen der Hydrographic und maritimen Meteorologie, 64. Jahrg., 397—407, Tafel 58—63. Berlin.
7	Schokalsky 1936	changes in ocean circulation		Schokalsky J., 1936, Recent Russian researches in the Arctic Sea and the in mountains of Central Asia, The Scottish Geographical Magazine, 52 (2), 73-84.
8	Scherhag 1937	changes in general atmospheric circulation		Scherhag R., 1937, 'Die Erwärmung der Arktis', ICES Journal.
9	Wiese 1937	changes in general atmospheric circulation		Wiese V. J., 1937, Cause of the rise of temperature in the Arctica. Sovjetic Arctica.

10	Brooks 1938	changes in general atmospheric circulation		Brooks C.E.P., 1938, The warming Arctic, The Meteorological Magazine, 29-32.
11	Callendar 1938		increase of the CO2 concentration	Callendar, G. S., 1938: The artificial production of carbon dioxide and its influence on temperatures. Quart. J. Roy. Meteor. Soc., 64, 223-227.
12	Jensen 1939	changes in atmospheric and oceanic circulation		Jensen Ad. S., 1939, Concerning a change of climate during recent decades in the Arctic and subarctic regions, from Greenland in the West to Eurasia in the East, and contemporary biological and geophysical changes, Det Kgl. Danske Videnskabernes Selskab. Biologiske Medd. XIV, 8.
13	Scherhag 1939a	changes in the global atmospheric circulation		Scherhag R., 1939a, Die Erwarmung des Polargebiets Ann. Hydrogr. Marit. Meteorol. 67, 57–67.
14	Scherhag 1939b	**multidecadal variations in solar activity**, atmospheric circulation changes		Scherhag R., 1939b, Die gegenwaertige Milderung der Winter und ihre Ursachen. – Ann. Hydrogr. Marit. Meteorol. 67, 292–302.
15	Weickmann 1942	changes in general atmospheric circulation		Weickmann L., 1942, Zur Diskussion der Arktis zugeführten Wärmemenge. Die Erwärmung der Arktis Veröff. Deutschen Wiss. Inst. Kopenhagen
16	Eriksson 1943	a general intensification of the atmospheric pressure gradient, providing increased supplies of warm air		Eriksson B.E., 1943, Till kannedomen om den nutida klimatandringen inom omradena kring nordligaste Atlanten" (with an English summary), Geogr. Ann. 25, 170-201.
17	Kiilerich 1943	increase of atmospheric circulation		Kiilerich A., 1943, The hydrography of the west Greenland fishing banks', Medd. fra Komm. Fisk. og Havunders., Ser. Hydrografi, 3 (3), 45 pp.
18	Ahlmann 1948	increase of atmospheric circulation or increase of transfer of heat from low to high latitude		Ahlmann H.W., son, 1948, The present climatic fluctuation, The Geographical Journal 112 (4/6), 165-193.

19	Zubov 1948	changes in general atmospheric circulation	Zubov NN, 1948. Arctic ice and the warming of the Arctic, being chapters VI and VII of “In the Center of the Arctic”: an outline of the history of Arctic exploration and of the physical geography of the central Arctic. Northern Sea Route Directorate Press: Moscow-Leningrad.
20	Petterssen 1949	changes in general atmospheric circulation (enhanced meridional circulation)	Pettersson S., 1949, Changes in the general circulation associated with the recent climatic variation, Geografiska Annaler 31, 212–221.
21	Ahlmann 1954	increase of atmospheric circulation or increase of transfer of heat from low to high latitude	Ahlmann, H. W:son, 1953, Glacier variations and climatic fluctuations, Amer. Geogr. Soc. Bowman Mem. Lectures, Ser. 3, 51 pp.
22	Dunbar 1954	changes in ocean circulation and SST temperature	Dunbar M.J., 1954, A note on climatic change in the sea, Arctic 7, 27-30.
23	Hesselberg and Johannessen 1958	changes in general atmospheric circulation (increased southerly winds and a greater number of storms)	Hesselberg T. & Johannessen T.W., 1958, The recent variations of the climate at the Norwegian Arctic stations. In R.C. Sutcliffe (ed.): Proceedings of the Polar Atmosphere Symposium. Part 1, meteorology section. Pp. 18-29. New York: Pergamon Press.
24	Bjerknes 1959	changes in general atmospheric circulation	Bjerknes, J., 1959, The recent warming of the North Atlantic, in: The Atmosphere and Sea in Motion, edited by B. Bolin, pp. 65–73, Rockefeller Inst. Press, New York.
25	Lamb and Johnsson 1959	changes in general atmospheric circulation	Lamb H.H. and Johnsson A.I., 1959, ‘Climatic variation and observed changes in the general circulation’, Geogr. Ann., 41, 94–134.
26	Bjerknes 1963	changes in general atmospheric circulation	Bjerknes J., 1963. Climatic Change as an Ocean-Atmosphere Problem Changes of Climate: Proceedings of the Rome Symposium Organized by UNESCO and WMO, Rome, UNESCO, 297–321.

27	Veryard 1963	changes in general atmospheric circulation	Veryard HG, 1963. A review of studies on climatic fluctuations during the period of the meteorological record. Changes of Climate: Proceedings of the Rome Symposium Organized by UNESCO and WMO, Rome, UNESCO, 3–15.
28	Rodewald 1965	changes in ocean circulation and SST temperature	Rodewald M., 1965, Wie steht es um die Erwärmung des Arktischen Beckens?, Ocean Dynamics 18, 241–252, DOI:10.1007/BF02226112.
29	Girs 1971	changes in general atmospheric circulation	Girs A.A., 1971, Long-term Fluctuations of Atmospheric Circulation and Long-term Hydrometeorological Forecasting, Gidrometeoizdat, Leningrad, 279 pp. (in Russian).
30	van Loon and Williams 1976	changes in general atmospheric circulation	van Loon H. and Williams J., 1976a, 'The connection between trends of mean temtemperature and circulation at the surface. Part I: Winter', Mon. Wea. Rev., 104, 365–-380.
31	Lamb 1977	changes in general atmospheric circulation	Lamb H.H., 1977, Climate: Present, Past and Future, vol. 2, London Methuen, 1, 835 pp.
32	Lamb and Morth 1978	changes in general atmospheric circulation	Lamb H.H. and Morth H.T., 1978, 'Arctic ice, atmospheric circulation and world climate', Geogr. J., 144, 1–22.
33	Kononova 1982	changes in general atmospheric circulation	Kononova, 1982, Natural and anthropogenic factors of climate dynamics', Mat. Meteorol. Issled., 5, 7–16. (in Russian).
34	Rogers 1985	changes in general atmospheric circulation, in particular strength and position of the Icelandic low	Rogers J.C., 1985, Atmospheric circulation changes associated with the warming over the Northern North Atlantic in the 1920s, J. Clim. Appl. Meteorol. 24, 1303–1310.

35	Overpecck et al. 1997	decreased volcanic activity and increased solar activity	increase in well-mixed greenhouse gases	Overpeck, J., K. Hughen, D. Hardy, R. Bradley, R. Case, M. Douglas, B. Finney, K. Gajewski, G. Jacoby, A. Jennings, S. Lamoureux, A. Lasca, G. MacDonald, J. Moore, M. Retelle, S. Smith, A. Wolfe, G. Zielinski, 1997, Arctic environmental change of the last four centuries. – Science 278, 1251–1256
36	Reid 1997	solar forcing (50%)	anthropogenic greenhouse-gas forcing (50%)	Reid G.C. , 1997, Solar forcing of global climate change since the mid-17th century, Climatic Change 37, 391–405.
37	Hanssen-Bauer and Førland 1998	**changes in atmospheric circulation** and other natural forcings (SST and sea-ice extent)		Hanssen-Bauer I. and Førland E. J., 1998, Long-term trends in precipitation and temperature in the Norwegian Arctic: can they be explained by changes in atmospheric circulation patterns?, Clim. Res., 10: 143–153.
38	Lean and Rind 1998	changes in solar forcing		Lean, J., and D. Rind, 1998: Climate forcing by changing solar radiation. J. Climate, 11, 3069-3094.
39	Fu et al. 1999	changes in general atmospheric circulation		Fu C., Diaz H. F., Dong D., Fletcher J., 1999, Changes in atmospheric circulation over Northern Hemisphere oceans associated with the rapid warming of the 1920s, Int. J. Climatol. 19: 581–606
40	Tett et al. 1999		gradual increase in well-mixed greenhouse gases	Tett, S. F. B., P. A. Stott, M. R. Allen, W. J. Ingram, and J. F. B. Mitchell, 1999, Causes of twentieth-century temperature change near the Earth's surface, Nature, 399, 569– 572.
41	Beer et al. 2000	changes in solar forcing		Beer, J., Mende, W., and R. Stellmacher, 2000: The role of the sun in climate forcing. Quaternary Science Review, 19, 403-415.
42	Delworth and Knutson 2000	internal variability of the coupled ocean-atmosphere system	human-induced radiative forcing	Delworth, T. L., and T. R. Knutson (2000), Simulation of early 20th century global warming, Science, 287, 2246–2250.

43	Robock 2000	a lull in volcanic activity		Robock, A., 2000, Volcanic eruptions and climate. Reviews of Geophysics, 38(2), 191–219. https://doi.org/10.1029/1998RG000054.
44	Tett et al. 2002		gradual increase in well-mixed greenhouse gases	Tett, S. F. B., et al., 2002, Estimation of natural and anthropogenic contributions to twentieth century temperature change, J. Geophys. Res., 107(D16), 4306, doi:10.1029/2000JD000028
45	Stott et al. 2003	changes in solar irradiance	gradual increase in well-mixed greenhouse gases	Stott P.A., Jones G.S. and Mitchell J.F.B., 2003, Do models underestimate the solar contribution to recent climate change?, J. Clim., 16, 4079– 4093.
46	Hegerl et al. 2003	lowering of volcanic activity	increase in well-mixed greenhouse gases	Hegerl G.C., Crowley T.J., Baum S.K., Kim K.-Y., and Hyde W.T., 2003, Detection of volcanic, solar and greenhouse gas signals in paleoreconstructions of Northern Hemispheric temperature, Geophys. Res. Lett., 30(5), 1242, doi:10.1029/2002GL016635
47	Meehl et al. 2003	solar and volcanic forcing, internal variability	increase in well-mixed greenhouse gases	Meehl G.A., Washington W.M., Wigley T.M.L., Arblaster J.M. and Dai A., 2003, Solar and greenhouse gas forcing and climate response in the twentieth century. J. Clim. 16, 426-444.
48	Polyakov et al. 2003	positive phase of the low-frequency oscillation		Polyakov, I., R. Bekryaev, G. Alekseev, U. Bhatt, R. Colony, M. Johnson, A. Makshtas, and D. Walsh, 2003b, Variability and trends of air temperature and pressure in the maritime Arctic, 1875–2000, J. Clim., 16, 2067– 2077.
49	Scott et al.. 2003		increase in well-mixed greenhouse gases	Scott P.A., Jones G.S., Mitchell J.F.B., 2003, Do models underestimate the solar contribution to recent climate change? Journal of Climate 16: 4079–4093
50	Bengtsson et al. 2004	increase of ocean heat transport into the Barents Sea, sea-ice reduction		Bengtsson L., Semenov V. and Johannessen O., 2004, The Early Twentieth-Century Warming in the Arctic –A Possible Mechanism. Journal of Climate. 17: 4045–4057, DOI:10.1175/1520-0442(2004)017<4045:TETWIT>2.0.CO;2.

51	Johannessen et al. 2004	internal atmospheric variability with low frequency, sea ice reduction		Johannessen, O.L., Bengtsson, L., Miles, M.W., Kuzmina, S.I., Semenov, V.A., Alekseev, G.V., Nagurnyi, A.P., Zakarov, V.F., Bobylev, L.P., Pettersson, L.H., Hasselmann, K., Cattle, H.P., 2004, Arctic climate change: observed and modeled temperature and sea-ice variability. Tellus 56A, 328-341.
52	Overland et al. 2004	intrinsic variability in regional flow patterns		Overland, J.E., Spillane, M.C., Percival, D.B., Wang, M., Mofjeld, H.O., 2004. Seasonal and regional variation of Pan-Arctic surface air temperature over the instrumental record. J. Clim. 17, 3263-3282
53	Polyakov et al. 2004	oceanic coirculation within the Arctic		Polyakov I.V., Alekseev G.V., Timokhov L.A., Bhatt U.S., Colony R.L., Simmons H.L., Walsh D, Walsh J.E., Zakharov F.V., 2004, Variability of the intermediate Atlantic water of the Arctic Ocean over the last 100 years. J Clim 17:4485–4497.
54	Nozawa et al. 2005	changes in solar forcing and lull in volcanic activity		Nozawa T., Nagashima T., Shiogama H., and Crooks S.A., 2005, Detecting natural influence on surface air temperature change in the early twentieth century, Geophys. Res. Lett., 32, L20719, doi:10.1029/2005GL023540.
55	Overland and Wang 2005	changes in general atmospheric circulation		Overland, J. E., and M. Wang (2005), The third Arctic climate pattern: 1930s and early 2000s, Geophys. Res. Lett., 32, L23808, doi:10.1029/2005GL024254
56	Garrett and Zhao 2006		increased cloud long-wave emissivity due to sulfate aerosols transported from Central Europe	Garrett, T.J., Zhao C., 2006, Increased Arctic cloud longwave emissivity associated with
57	Ohmura 2006	aerosol optical depth		Ohmura, A., 2006. Observed long-term variations of solar irradiance at the Earth's surface. Space Sci. Rev. 125, 111-128.

58	Shiogama et al. 2006	changes in solar forcing and lull in volcanic activity		Shiogama, H., T. Nagashima, T. Yokohata, S. A. Crooks, and T. Nozawa (2006), Influence of volcanic activity and changes in solar irradiance on surface air temperatures in the early twentieth century, Geophys. Res. Lett., 33, L09702, doi:10.1029/2005GL025622
59	Hegerl et al. 2007	decrease in volcanic forcing combined with internal climate variability	greenhouse gas increases	Hegerl G., Crowley T., Allen M., Hyde W., Pollack H., Smerdon J., Zorita E., 2007, Detection of human influence on a new, validated 1500-year temperature reconstruction. Journal of Climate, 20, 650–666. https://doi.org/10.1175/JCLI4011.1
60	McConnell et al. 2007	increase of black carbon		McConnell, J.R., Edwards, R., Kok, G.L., Flanner, M.G., Zender, C.S., Saltzman, E.S., Banta, J.R., Pasteris, D.R., Carter, M.M., Kahl, J.D.W., 2007. 20th-century industrial black carbon emissions alerted Arctic climate forcing. Science 317, 1381-1384.
61	Pohjola et al. 2007	enhanced atmospheric circulation triggered by heat excess in its source region		Pohjola, V., 2007. Arctic Warming e A Perspective from Svalbard Global Change News letter. No. 69, May 2007, 9-12.
62	Wang et al. 2007	internal atmospheric variability with low frequency		Wang, M., Overland, J.E., Kattsov, V., Walsh, J.E., Zhang, X., Pavlova, T., 2007. Intrinsic versus forced variation in coupled climate model simulations over the Arctic during the twentieth century. J. Clim. 20, 1093-1107.
63	Overland et al. 2008	changes in general atmospheric circulation		Overland J.E., Wang M., and Salo S., 2008, The recent Arctic warm period, Tellus, 60A, 589-597, DOI: 10.1111/j.1600-0870.2008.00327.x.
64	Crespin et al. 2009	natural variability of the climate system, solar irradiance variations and volcanic eruptions		Crespin E., Goose H., Fichefet T, Mann M.E, 2009, The 15th century Arctic warming in coupled model simulations with data assimilation, Climate of the Past, , 5, 389–401 https://doi.org/10.5194/cp-5-389-2009

65	Chylek et al. 2009	multidecadal pattern connected to the meridional overturning circulation		Chylek, P., C. K. Folland, G. Lesins, M. K. Dubey, and Wang M., 2009, Arctic air temperature change amplification and the Atlantic Multidecadal Oscillation, Geophys. Res. Lett., 36, L14801, doi:10.1029/2009GL038777.
66	Grant et al. 2009	changes in general atmospheric circulation	aerosol changes	Grant, A., Brönnimann, S., Ewen, T., Griesser, T., & Stickler, A., 2009, The early twentieth century warm period in the European Arctic ,Meteorologische Zeitschrift, Vol. 18, No. 4, 425-432, https://doi.org/10.1127/0941-2948/2009/0391
67	Polyakov et al. 2009	multidecadal pattern connected to the meridional overturning circulation		Polyakov, I. V., V. A. Alexeev, U. S. Bhatt, E. I. Polyakova, and Zhang X., 2009, North Atlantic warming: patterns of long-term trend and multidecadal variability, Clim. Dyn., 34, 439–457, doi:10.1007/s00382-008-0522-3.
68	Wang et al. 2009	intrinsic variability within the climate system		Wang, G., K. L. Swanson, and Tsonis A.A., 2009, The pacemaker of major climate shifts, Geophys. Res. Lett., 36, L07708, doi:10.1029/2008GL036874.
69	Wood and Overland 2010	**changes in general atmospheric circulation,** changes in oceanic circulation		Wood K.R. and Overland J.E. 2010. Early 20th century Arctic warming in retrospect. International Journal of Climatology 30: 1269–1279.
70	Wood et al. 2010	changes in general atmospheric circulation		Wood, K. R., J. E. Overland, T. Jónsson and Smoliak B.V., 2010, Air temperature variations on the Atlantic-Arctic boundary since 1802, Geophys. Res. Lett., 37, L17708, doi:10.1029/2010GL044176.
71	Overland et al. 2011	**changes in general atmospheric circulation,** coupled Arctic ocean atmosphere sea-ice processes.		Overland J., Wood K., Wang M., 2011, Warm Artic - clod continents: climate impacts of the newly open Arctic Sea, Polar Research 2011, 30, 15787, DOI: 10.3402/polar.v30i0.15787

72	Yamanouchi 2011	**intrinsic internal natural climate variability,** positive feedbacks that amplified the radiative and atmospheric forcing		Yamanouchi T., 2011, Early 20th century warming in the Arctic: A review, Polar Science 5, 53-71
73	Ring et al. 2012	internal variability of the coupled ocean-atmosphere system		Ring M. J., Lindner D., Cross E. F., Schlesinger M. E., 2012, Causes of the global warming observed since the 19th century. Atmospheric and Climate Sciences 2(4), 401–415. https://doi.org/10.4236/acs.2012.24035
74	Semenov and Latif 2012	changes in ocean heat transport or atmospheric circulation anomalies		Semenov V.A. and Latif M., 2012, The early twentieth century warming and winter Arctic sea ice, The Cryosphere, 6, 1231–1237, doi:10.5194/tc-6-1231-2012
75	Opel et al. 2013	internal climate dynamics related to shifts of atmospheric circulation patterns and corresponding sea-ice feedbacks		Opel T., Fritzsche D., and Meyer H., 2013, Eurasian Arctic climate over the past millennium as recorded in the Akademii Nauk ice core (Severnaya Zemlya), Climate of the Past, 9, 2379–2389, doi:10.5194/cp-9-2379-2013
76	Reid 2013	solar radiation	anthropogenic greenhouse effect	Reid G.C., 1997, Solar forcing of global climate change since the mid-17th century, Climatic Change 37, 391–405.
77	Suo et al.. 2013	**changes in solar forcing and lull in volcanic activity,** atmospheric and oceanic circulation		Suo L., Ottera O.H., Bentsen M., Gao Y., and Johannessen O.M., 2013, External forcing of the early 20th century Arctic warming, Tellus A, 65, 20578, http://dx.doi.org/10.3402/tellusa.v65i0.20578
78	Fyfe et al. 2013	volcanic activity, atmospheric circulation (transition of the AMO to positive phase)	rising black carbon emission	Fyfe JC, von Salzen K, Gillett NP, Arora VK, Flato GM, McConnell JR (2013) One hundred years of Arctic surface temperature variation due to anthropogenic influence. Nat Sci Rep 3:2645
79	Beitsch et al. 2014	internal variability of the Northern Hemisphere climate system		Beitsch A., Jungclaus J.H., Zanchettin D., 2014, Patterns of decadal-scale Arctic warming events in simulated climate, Clim Dyn 43:1773–1789, DOI 10.1007/s00382-013-2004-5

80	Miles et al. 2014	abrupt rise in SSTs (Atlantic Multidecadal Oscillation) and sea ice reduction in the Greenland Sea/Iceland region		Miles, M.W., Divine, D.V., Furevik, T., Jansen, E., Moros, M., Ogilvie, A.E.J., 2014, A signal of persistent Atlantic multi decadal variability in Arctic sea ice. Geophysical Research Letters, 41, 463–469, doi:10.1002/2013GL058084.
81	Belleflamme et al. 2015	changes in atmospheric circulation		Belleflamme A., Fettweis X., and Erpicum M., 2015, Recent summer Arctic atmospheric circulation anomalies in a historical perspective, The Cryospherte, 9, 53–64, doi: 10.5194/tc-9-53-2015
82	Brönnimann 2015	**increased atmospheric heat flux from the midlatitudes**	transport of aerosols into the Arctic	Brönnimann S., 2015, Climatic Changes Since 1700, Series: Advances in Global Change Research 55, Springer, 360 p., DOI 10.1007/978-3-319-19042-6.
83	Thompson et al.. 2015	**internal factors, such as natural climate variability in the Atlantic region, external factors, such as solar variability**	greenhouse gas emissions	Thompson, D. M., Cole, J. E., Shen, G. T., Tudhope, A. W., & Meehl, G. A., 2015, Early twentieth-century warming linked to tropical Pacific wind strength. Nature Geoscience, 8, 117–121. https://doi.org/10.1038/NGEO2321
84	Johannessen et al. 2016	variations of Atlantic SST (AMO)		Johannessen O.M., Kuzmina S. I., Bobylev L.P. & Miles M.W., 2016, Surface air temperature variability and trends in the Arctic: new amplification assessment and regionalisation, Tellus A: Dynamic Meteorology and Oceanography, 68:1, 28234, https://doi.org/10.3402/tellusa.v68.28234
85	Przybylak 2016	large-scale atmospheric circulation		Przybylak R., 2016, The Climate of the Arctic, Springer
86	Tokinaga et al. 2017	**oceanic circulation and thermal state (phase shift of Pacific and Atlantic interdecadal variability modes),** atmospheric circulation	increase well-mixed greenhouse gases	Tokinaga H., Xie S-P, and Mukougawa H., 2017, Early 20th-century Arctic warming intensified by Pacific and Atlantic multidecadal variability, PNAS 114 (24), 6227-6232

87	Wegmann et al. 2017	**changes in general atmospheric circulation,** radiation forcing, circulation and state of ocean		Wegmann M, Brönnimann S., Compo G. P., 2017, Tropospheric circulation during the early twentieth century Arctic warming, Clim Dyn (2017) 48:2405–2418, DOI 10.1007/s00382-016-3212-6
88	Egorova et al. 2018	solar forcing (33%), heavily absorbed UV, energetic particles, volcanic eruptions	**increase well-mixed greenhouse gases (50%),** tropospheric ozone precursors	Egorova T., Rozanov E., Arsenovic P., Peter T, Schmutz W., 2018, Contributions of Natural and Anthropogenic Forcing Agents to the Early 20th Century Warming, Frontiers in Earth Science, 6:206. doi: 10.3389/feart.2018.00206
89	Hegerl et al. 2018	**atmospheric and ocean circulation,** internal climate variability	increase well-mixed greenhouse gases	Hegerl, G.C., Brönnimann, S., Schurer, A., Cowan, T., 2018, The early 20th century warming: Anomalies, causes, and consequences. WIREs Clim Change. 2018;9:e522. https://doi.org/10.1002/wcc.522
90	Svendsen et al. 2018	Pacific Decadal Oscillation (PDO)		Svendsen, L., N. Keenlyside, I. Bethke, Y. Gao, and N.-E. Omrani, 2018: Pacific contribution to the early twentieth-century warming in the Arctic. Nature Climate Change, 8, 793-797.
91	Łupikasza and Niedźwiedź 2019	changes in general atmospheric circulation		Łupikasza, E.B., Niedźwiedź, T., 2019, The influence of mesoscale atmospheric circulation on Spitsbergen air temperature in periods of Arctic warming and cooling. Journal of Geophysical Research: Atmospheres, 124(10), 5233-5250. https://doi.org/10.1029/2018JD029443
92	Bokuchava and Semenov 2020	internal variability		Bokuchava, D.D., Semenov V.A., 2020, Factors of natural climate variability contributing to the Early 20th Century Warming in the Arctic, IOP Conf. Ser.: Earth Environ. Sci. 606, 012008, doi:10.1088/1755-1315/606/1/012008
93	Brennan et al. 2020	reduction in sea ice cover		Brennan, M.K., Hakim, G.J., Blanchard-Wrigglesworth, E. (2020). Arctic sea-ice variability during the instrumental era. Geophysical Research Letters, 47(7),

				e2019GL086843. https://doi.org/10.1029/2019GL086843
94	Svyashchennikov et al. 2020	changes in general atmospheric circulation (increase/decrease frequency of meridional/zonal types)		Svyashchennikov P.N., Prokhorova U.V., and Ivanov B.V., 2020, Comparison of Atmospheric Circulation in the Area of Spitsbergen in 1920–1950 and in the Modern Warming Period, Russian Meteorology and Hydrology 45 (1), 22–28.
95	Xiao et al. 2020	**Pacific Decadal Oscillation (PDO),** solar and volcanic forcing	aerosol changes, greenhouse gases changes	Xiao H., Zhang F., Miao L., Liang X. S.,·Wu K., Liu R., 2020, Long-term trends in Arctic surface temperature and potential causality over the last 100 years, Climate Dynamics, https://doi.org/10.1007/s00382-020-05330-2

Table S2. Gaps in air temperature variables in daily series analyzed in the study.

No.	Station	Period	TMAX	MDAT	TMIN	DTR
1	Barentsburg	ETCAW	1934.10.14 1949.10.12			1934.10.14 1949.01.12
		CAW	complete	complete	complete	complete
2	Kanin Nos	ETCAW	complete	complete	complete	complete
		CAW	2010-11-01 – 2010-12-31	2010-11-01 – 2010-12-31	2010-11-01 – 2010-12-31	2010-11-01 – 2010-12-31
3	Tiksi	ETCAW CAW	complete	complete	complete	complete
4	Ostrov Vrangel	ETCAW	complete	complete	complete	complete
		CAW	2007.01.20		2007.01.20	2007.01.20
5	Coppermine	ETCAW		1940.11.13	1940.11.13	1940.11.13
			1946.02.16	1946.02.16		1946.02.16
			1947.01.30 - 1947.02.02	1947.01.30 - 1947.02.02		1947.01.30 - 1947.02.02
			1947.02.05 - 1947.02.07	1947.02.05 - 1947.02.07		1947.02.05 - 1947.02.07
		CAW	2014.04.04	2014.04.04	2014.04.04	2014.04.04
			2015.01.20	2015.01.20		2015.01.20
			2016.09.10	2016.09.10		2016.09.10
			2016.09.14	2016.09.14		2016.09.14
			2016.10.19	2016.10.19		2016.10.19
6	Ilulissat	ETCAW	1939.04.17 - 1939.04.18	1939.04.17 - 1939.04.19	1939.04.18 - 1939.04.19	1939.04.17 - 1939.04.19
			1939.06.17 - 1939.06.18	1939.06.17 - 1939.06.19	1939.06.18 - 1939.06.19	1939.06.17 - 1939.06.19
			1939.06.30	1939.06.30 - 1939.07.01	1939.07.01	1939.06.30 - 1939.07.01
			1940.06.03 - 1940.06.05	1940.06.03 - 1940.06.06	1940.06.04 - 1940.06.06	1940.06.03 - 1940.06.06
			1940.07.20 - 1940.07.29	1940.07.20 - 1940.07.30	1940.07.21 - 1940.07.30	1940.07.20 - 1940.07.30
			1940.12.28	1940.12.28 - 1940.12.29	1940.12.29	1940.12.28 - 1940.12.29
			1941.08.10	1941.08.10 - 1941.08.11	1941.08.11	1941.08.10 - 1941.08.11
			1942.06.22	1942.06.22 - 1942.06.23	1942.06.23	1942.06.22 - 1942.06.23
			1942.12.24	1942.12.24 - 1942.12.25	1942.12.25	1942.12.24 - 1942.12.25
			1943.08.15 - 1943.08.19	1943.08.15 - 1943.08.20	1943.08.16 - 1943.08.20	1943.08.15 - 1943.08.20
			1943.12.21	1943.12.21 - 1943.12.22	1943.12.22	1943.12.21 - 1943.12.22

			1943.12.25	1943.12.25 - 1943.12.26	1943.12.26	1943.12.25 - 1943.12.26
			1944.02.03	1944.02.03 - 1944.02.04	1944.02.04	1944.02.03 - 1944.02.04
			1944.04.22	1944.04.22 - 1944.04.23	1944.04.23	1944.04.22 - 1944.04.23
			1944.05.29	1944.05.29 - 1944.05.31	1944.05.31	1944.05.29 - 1944.05.31
			1944.09.15 - 1944.09.17	1944.09.15 - 1944.09.17		1944.09.15 - 1944.09.17
				1944.09.19	1944.09.19	1944.09.19
			1944.11.10	1944.11.10 - 1944.11.13	1944.11.11	1944.11.10 - 1944.11.13
			1944.11.12		1944.11.13	
			1946.02.01 - 1946.02.02	1946.02.01 - 1946.02.03	1946.02.02 - 1946.02.03	1946.02.01 - 1946.02.03
			1946.07.05 - 1946.07.07	1946.07.05 - 1946.07.08	1946.07.06 - 1946.07.08	1946.07.05 - 1946.07.08
			1946.12.24	1946.12.24 - 1946.12.25	1946.12.25	1946.12.24 - 1946.12.25
			1948.02.07 - 1948.02.08	1948.02.07 - 1948.02.09	1948.02.08 - 1948.02.09	1948.02.07 - 1948.02.09
			1948.05.05	1948.05.05 - 1948.05.06	1948.05.06	1948.05.05 - 1948.05.06
			1948.06.19	1948.06.19 - 1948.06.20	1948.06.20	1948.06.19 - 1948.06.20
			1948.07.21 - 1948.07.31	1948.07.21 - 1948.08.01	1948.07.22 - 1948.08.01	1948.07.21 - 1948.08.01
			1948.12.31	1948.12.31	1948.12.31	1948.12.31
			1950.06.17	1950.06.17 - 1950.06.18	1950.06.18	1950.06.17 - 1950.06.18
		CAW	2009.06.22	2009.06.22	2009.06.22	2009.06.22
			2010.04.05	2010.04.05	2010.04.05	2010.04.05
			2010.09.12 - 2010.09.13	2010.09.12 - 2010.09.13	2010.09.12 - 2010.09.13	2010.09.12 - 2010.09.13
			2010.10.01 - 2010.10.04	2010.09.30 - 2010.10.04	2010.09.30 - 2010.10.04	2010.09.30 - 2010.10.04
			2012.04.08 - 2012.04.09	2012.04.08 - 2012.04.09	2012.04.08 - 2012.04.09	2012.04.08 - 2012.04.09
			2014.04.06	2014.04.06	2014.04.06	2014.04.06
			2014.09.28	2014.09.28	2014.09.28	2014.09.28
			2016.04.03	2016.04.03	2016.04.03	2016.04.03

Table S3. 10-year monthly and annual means of air temperature (°C) in the analyzed Arctic stations in the ETCAW and CAW periods, and their differences (ETCAW–CAW).

Station	Period	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
Barentsburg	ETCAW	-10.4	-12.8	-12.3	-10.6	-3.4	1.8	5.5	4.7	1.1	-3.3	-6.5	-8.3	-4.5
	CAW	-7.5	-8.7	-9.7	-8.8	-1.9	3.1	6.7	5.6	2.5	-2.4	-5.8	-7.3	-2.9
	ETCAW-CAW	**-2.9**	**-4.1**	**-2.6**	**-1.8**	**-1.5**	**-1.3**	**-1.2**	**-0.9**	**-1.4**	**-0.9**	**-0.7**	**-1.0**	**-1.6**
Kanin Nos	ETCAW	-7.1	-8.4	-7.5	-3.5	0.0	4.7	8.2	9.0	6.2	2.3	-0.4	-4.4	-0.1
	CAW	-7.6	-8.5	-6.1	-2.4	1.1	6.2	9.8	9.3	7.4	3.5	-0.8	-3.5	0.7
	ETCAW-CAW	**0.6**	**0.0**	**-1.5**	**-1.1**	**-1.1**	**-1.5**	**-1.5**	**-0.2**	**-1.2**	**-1.2**	**0.4**	**-0.9**	**-0.8**
Tiksi	ETCAW	-30.7	-30.2	-24.7	-17.4	-6.3	2.4	7.2	7.5	2.1	-9.5	-22.9	-28.1	-12.5
	CAW	-28.3	-32.0	-24.2	-15.3	-4.5	4.1	8.6	9.4	3.0	-8.4	-20.6	-28.2	-11.4
	ETCAW-CAW	**-2.4**	**1.8**	**-0.5**	**-2.1**	**-1.8**	**-1.7**	**-1.4**	**-1.9**	**-0.9**	**-1.1**	**-2.3**	**0.1**	**-1.1**
Ostrov Vrangel	ETCAW	-23.9	-24.2	-23.6	-16.6	-7.9	0.4	2.6	2.1	-1.3	-6.8	-13.8	-21.3	-11.2
	CAW	-21.2	-21.8	-21.1	-14.9	-4.8	1.2	4.1	4.0	1.7	-3.2	-10.0	-16.4	-8.5
	ETCAW-CAW	**-2.7**	**-2.4**	**-2.5**	**-1.7**	**-3.1**	**-0.8**	**-1.5**	**-1.9**	**-3.0**	**-3.6**	**-3.8**	**-4.9**	**-2.7**
Coppermine	ETCAW	-29.3	-29.3	-24.9	-16.8	-5.7	3.2	9.3	7.2	2.4	-7.8	-19.8	-26.4	-11.5
	CAW	-26.3	-26.8	-25.8	-16.0	-4.1	5.8	11.0	10.0	3.9	-5.0	-16.9	-24.9	-9.6
	ETCAW-CAW	**-3.0**	**-2.5**	**0.9**	**-0.8**	**-1.6**	**-2.6**	**-1.7**	**-2.8**	**-1.5**	**-2.8**	**-2.9**	**-1.5**	**-1.9**
Ilulissat	ETCAW	-12.1	-14.6	-12.4	-7.5	0.3	5.9	8.0	6.6	2.5	-3.2	-7.7	-9.5	-3.6
	CAW	-10.7	-11.9	-13.2	-7.8	0.0	6.3	8.9	6.7	2.3	-3.5	-7.5	-9.8	-3.4
	ETCAW-CAW	**-1.4**	**-2.7**	**0.8**	**0.3**	**0.3**	**-0.4**	**-0.9**	**-0.1**	**0.2**	**0.3**	**-0.2**	**0.3**	**-0.2**

Table S4. Extreme DDTV rises and drops in seasons in the analyzed Arctic stations in the ETCAW and CAW periods.

Station	Period		DJF change (°C)	DJF date	DJF MDAT (°C)	MAM change (°C)	MAM date	MAM MDAT (°C)	JJA change (°C)	JJA date	JJA MDAT (°C)	SON change (°C)	SON date	SON MDAT (°C)
Barentsburg	ETCAW	max. rise	**16.8**	1938-02-25	-16.4	**25.8**	1948-03-14	-32.8	**7.3**	1948-07-03	1.9	**9.6**	1939-10-20	-8.2
				1938-02-26	0.4		1948-03-15	-7.0		1948-07-04	9.2		1939-10-21	1.4
		max. drop	**-19.7**	1940-12-31	-7.4	**-13.7**	1938-03-01	0.5	**-4.6**	1935-07-23	10.7	**-12.1**	1939-11-05	1.4
				1948-12-01	-19.3		1938-03-02	-13.2		1935-07-24	6.1		1939-11-06	-10.7
	CAW	max. rise	**15.5**	2015-02-15	-13.0	**12.3**	2015-03-25	-13.8	**4.1**	2009-07-10	4.3	**9.3**	2012-11-24	-12.8
				2015-02-16	2.5		2015-03-26	-1.5		2009-07-11	8.4		2012-11-25	-3.5
		max. drop	**-18.0**	2011-02-21	-2.3	**-10.1**	2009-04-11	-4.5	**-4.4**	2016-08-02	10.6	**-10.6**	2011-11-12	-0.2
				2011-02-22	-20.3		2009-04-12	-14.6		2016-08-03	6.2		2011-11-13	-10.8
Kanin Nos	ETCAW	max. rise	**14.3**	1940-01-19	-26.5	**10.9**	1934-05-23	-0.2	**15.9**	1940-07-27	7.3	**6.4**	1949-11-27	-12.9
				1940-01-20	-12.2		1934-05-24	10.7		1940-07-28	23.2		1949-11-28	-6.5
		max. drop	**-11.0**	1936-02-27	-8.6	**-10.5**	1935-03-16	-1.8	**-10.7**	1940-08-26	22.2	**-8.6**	1939-12-27	-8.0
				1936-02-28	-19.6		1935-03-17	-12.3		1940-08-27	11.5		1939-12-28	-16.6
	CAW	max. rise	**12.1**	2011-02-20	-18.4	**8.9**	2008-03-10	-12.2	**9.5**	2013-07-20	10.8	**6.0**	2014-11-23	-5.4
				2011-02-21	-6.3		2008-03-11	-3.3		2013-07-21	20.3		2014-11-24	0.6
		max. drop	**-11.8**	2015-01-07	-6.2	**-7.4**	2010-05-19	7.9	**-10.4**	2013-06-01	13.6	**-5.6**	2014-10-19	-0.9
				2015-01-08	-18.0		2010-05-20	0.5		2013-06-02	3.2		2014-10-20	-6.5
Tiksi	ETCAW	max. rise	**16.9**	1939-02-17	-31.2	**19.0**	1946-04-03	-28.2	**13.2**	1948-07-27	4.3	**13.0**	1947-11-19	-26.2
				1939-02-18	-14.3		1946-04-04	-9.2		1948-07-28	17.5		1947-11-20	-13.2
		max. drop	**-12.6**	1937-01-13	-26.7	**-15.8**	1949-04-10	0.3	**-13.7**	1936-07-04	24.0	**-10.8**	1947-11-17	-22.2
				1937-01-14	-39.3		1949-04-11	-15.5		1936-07-05	10.3		1947-11-18	-33.0
	CAW	max. rise	**16.8**	2015-12-10	-36.5	**17.0**	2014-04-01	-27.0	**12.7**	2013-06-13	3.9	**15.9**	2008-11-21	-31.7
				2015-12-11	-19.7		2014-04-02	-10.0		2013-06-14	16.6		2008-11-22	-15.8
		max. drop	**-13.1**	2013-02-25	-19.4	**-13.1**	2014-04-11	0.0	**-12.9**	2009-07-18	20.3	**-11.3**	2011-10-29	-12.2
				2013-02-26	-32.5		2014-04-12	-13.1		2009-07-19	7.4		2011-10-30	-23.5
Ostrov Vrangel	ETCAW	max. rise	**16.7**	1937-01-26	-26.6	**12.2**	1939-04-05	-20.4	**7.0**	1938-06-16	-1.0	**12.0**	1946-11-14	-23.3
				1937-01-27	-9.9		1939-04-06	-8.2		1938-06-17	6.0		1946-11-15	-11.3
		max. drop	**-14.2**	1949-01-20	-12.0	**-14.2**	1939-04-03	-7.0	**-6.1**	1939-07-05	9.6	**-13.1**	1950-11-19	-6.7
				1949-01-21	-26.2		1939-04-04	-21.2		1939-07-06	3.5		1950-11-20	-19.8
	CAW	max. rise	**19.1**	2010-01-22	-31.1	**14.0**	2013-03-05	-19.9	**5.6**	2015-06-02	-1.1	**14.4**	2013-11-06	-20.9
				2010-01-23	-12.0		2013-03-06	-5.9		2015-06-03	4.5		2013-11-07	-6.5
		max. drop	**-17.0**	2007-02-04	-3.6	**-13.4**	2009-03-01	-16.5	**-7.3**	2011-07-10	10.8	**-8.9**	2014-11-22	-1.3
				2007-02-05	-20.6		2009-03-02	-29.9		2011-07-11	3.5		2014-11-23	-10.2
Coppermine	ETCAW	max. rise	**12.8**	1934-12-04	-23.7	**13.3**	1939-03-28	-27.2	**10.3**	1935-06-17	3.9	**8.3**	1934-11-26	-29.7
				1934-12-05	-10.9		1939-03-29	-13.9		1935-06-18	14.2		1934-11-27	-21.4
		max. drop	**-13.9**	1940-01-20	-12.8	**-13.1**	1950-04-21	-5.0	**-11.6**	1946-07-24	16.1	**-13.6**	1936-10-26	-7.0
				1940-01-21	-26.7		1950-04-22	-18.1		1946-07-25	4.5		1936-10-27	-20.6
	CAW	max. rise	**12.8**	2015-12-18	-32.0	**15.3**	2013-04-07	-21.4	**9.7**	2016-07-04	9.3	**10.2**	2015-11-09	-16.6
				2015-12-19	-19.2		2013-04-08	-6.1		2016-07-05	19.0		2015-11-10	-6.4
		max. drop	**-12.1**	2007-12-23	-22.2	**-10.3**	2008-03-08	-18.9	**-10.5**	2012-06-23	17.4	**-13.5**	2010-11-19	-16.6
				2007-12-24	-34.3		2008-03-09	-29.2		2012-06-24	6.9		2010-11-20	-30.1
Ilulissat	ETCAW	max. rise	**11.9**	1945-02-28	-27.1	**12.6**	1950-03-05	-30.0	**5.4**	1946-06-19	6.8	**8.8**	1945-11-15	-12.3
				1945-03-01	-15.2		1950-03-06	-17.4		1946-06-20	12.1		1945-11-16	-3.6
		max. drop	**-11.2**	1943-02-16	-2.7	**-12.5**	1950-04-12	-6.4	**-10.1**	1943-07-02	15.2	**-9.4**	1944-11-25	-2.7
				1943-02-17	-13.9		1950-04-13	-18.9		1943-07-03	5.1		1944-11-26	-12.1
	CAW	max. rise	**13.7**	2015-02-01	-18.4	**14.3**	2007-03-19	-16.6	**6.5**	2008-07-04	8.4	**12.3**	2012-11-26	-11.7
				2015-02-02	-4.7		2007-03-20	-2.3		2008-07-05	14.8		2012-11-27	0.6
		max. drop	**-8.9**	2015-12-27	-3.7	**-11.6**	2008-03-18	-2.9	**-6.6**	2007-06-03	9.6	**-10.6**	2009-10-29	1.2
				2015-12-28	-12.5		2008-03-19	-14.5		2007-06-04	3.0		2009-10-30	-9.4

Table. S5. Relative frequencies of occurrence (in %) of DTR ≥15 °C, ≥10 °C and ≥5 °C in the analyzed Arctic stations during the ETCAW and CAW periods, and differences (ETCAW–CAW).

Station	Criterion (in %)	ETCAW					CAW					ETCAW-CAW				
		DJF	MAM	JJA	SON	Year	DJF	MAM	JJA	SON	Year	DJF	MAM	JJA	SON	Year
Barentsburg	DTR ≥ 15°C	3.2	1.0	0.0	0.1	1.1	0.3	0.3	0.0	0.0	0.2	2.9	0.7	0.0	0.1	0.9
	DTR ≥ 10°C	14.2	6.6	0.0	1.2	5.5	5.9	2.3	0.2	1.1	2.4	8.3	4.3	-0.2	0.1	3.1
	DTR ≥ 5°C	55.5	47.0	16.4	25.2	36.1	36.7	32.1	16.6	22.0	26.8	18.8	14.9	-0.2	3.2	9.3
Kanin Nos	DTR ≥ 15°C	0.3	0.2	1.0	0.0	0.4	0.3	0.0	0.8	0.0	0.3	0.0	0.2	0.2	0.0	0.1
	DTR ≥ 10°C	5.1	2.6	8.7	0.3	4.2	3.6	1.2	6.0	0.3	2.8	1.5	1.4	2.7	0.0	1.4
	DTR ≥ 5°C	44.2	33.5	43.0	17.9	34.7	33.7	23.8	38.8	10.6	26.8	10.5	9.7	4.2	7.3	7.8
Tiksi	DTR ≥ 15°C	2.5	9.7	6.7	1.8	5.2	2.7	6.6	6.1	1.2	4.2	-0.2	3.1	0.6	0.6	1.0
	DTR ≥ 10°C	15.5	35.7	24.2	14.7	22.6	15.8	32.0	25.3	12.6	21.5	-0.3	3.7	-1.1	2.1	1.1
	DTR ≥ 5°C	66.4	79.8	60.0	57.0	65.8	71.3	80.3	63.0	55.7	67.6	-4.9	-0.5	-3.0	1.3	-1.8
Ostrov Vrangel	DTR ≥ 15°C	4.5	2.4	0.0	1.1	2.0	2.3	0.3	0.0	0.1	0.7	2.2	2.1	0.0	1.0	1.3
	DTR ≥ 10°C	17.7	19.9	2.2	5.5	11.3	11.5	9.9	2.2	2.1	6.4	6.2	10.0	0.0	3.4	4.9
	DTR ≥ 5°C	71.5	76.0	37.7	41.8	56.7	57.3	63.4	39.2	24.1	46.0	14.2	12.6	-1.5	17.7	10.7
Coppermine	DTR ≥ 15°C	7.2	10.9	5.8	3.3	6.8	4.3	5.5	8.2	2.1	5.0	2.9	5.4	-2.4	1.2	1.8
	DTR ≥ 10°C	26.1	35.8	23.9	16.5	25.6	25.8	33.5	32.4	15.0	26.7	0.3	2.3	-8.5	1.5	-1.1
	DTR ≥ 5°C	73.4	78.2	70.0	61.4	70.7	82.6	86.7	79.8	65.5	78.7	-9.2	-8.5	-9.8	-4.1	-8.0
Ilulissat	DTR ≥ 15°C	8.6	7.7	0.1	2.0	4.6	3.7	2.4	0.3	0.7	1.8	4.9	5.3	-0.2	1.3	2.8
	DTR ≥ 10°C	22.2	31.2	9.9	12.6	19.1	14.0	14.3	13.8	7.0	12.3	8.2	16.9	-3.9	5.6	6.8
	DTR ≥ 5°C	52.0	75.7	69.1	51.2	62.0	72.3	76.4	80.5	63.4	73.2	-20.3	-0.7	-11.4	-12.2	-11.2

Table S6. Relative frequencies of occurrence (in %) of characteristic days in the analyzed Arctic stations during the ETCAW and CAW periods, and differences (ETCAW–CAW).

Station	Criterion (in %)	ETCAW					CAW					ETCAW-CAW				
		DJF	MAM	JJA	SON	Year	DJF	MAM	JJA	SON	Year	DJF	MAM	JJA	SON	Year
Barentsburg	TMAX > 15°C	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.0	0.2	0.0	0.0	-0.6	0.0	-0.2
	TMAX > 10°C	0.0	0.0	7.6	0.2	2.0	0.0	0.0	15.4	0.2	3.9	0.0	0.0	-7.8	0.0	-1.9
	TMAX > 5°C	0.4	1.0	66.0	9.4	19.3	0.2	0.0	74.6	16.0	22.8	0.2	1.0	-8.6	-6.6	-3.5
	TMIN > 0°C	1.6	1.1	84.0	18.8	26.0	1.9	3.2	92.8	28.4	31.7	-0.3	-2.1	-8.8	-9.6	-5.7
	TMAX > 0°C, TMIN ≤ 0°C	15.6	19.2	13.9	32.9	20.5	17.8	22.4	7.2	25.2	18.1	-2.2	-3.2	6.7	7.7	2.4
	TMAX < 0°C	82.2	79.1	1.8	47.5	52.5	79.7	73.9	0.0	45.4	49.6	2.5	5.2	1.8	2.1	2.9
	TMAX < -10°C	35.1	27.7	0.0	5.8	17.1	22.7	18.5	0.0	3.4	11.1	12.4	9.2	0.0	2.4	6.0
	TMAX < -20°C	4.0	3.4	0.0	0.0	1.8	1.2	0.0	0.0	0.0	0.3	2.8	3.4	0.0	0.0	1.5
	TMAX < -30°C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Kanin Nos	TMAX > 15°C	0.0	0.2	17.4	0.5	4.6	0.0	0.2	21.0	0.6	5.6	0.0	0.0	-3.6	0.0	-1.0
	TMAX > 10°C	0.0	1.1	44.6	6.6	13.1	0.0	2.9	52.8	9.2	16.5	0.0	-1.8	-8.3	-2.6	-3.4
	TMAX > 5°C	0.0	4.9	87.4	41.8	33.6	0.0	10.3	91.6	50.7	38.5	0.0	-5.4	-4.2	-8.9	-4.9
	TMIN > 0°C	1.3	6.6	92.6	59.6	40.2	1.3	13.5	97.3	68.8	45.5	0.1	-6.8	-4.7	-9.2	-5.4
	TMAX > 0°C, TMIN ≤ 0°C	16.9	32.2	7.4	29.6	21.5	14.9	27.9	2.7	20.2	16.4	2.0	4.2	4.7	9.3	5.1
	TMAX < 0°C	80.4	59.8	0.0	10.3	37.5	82.2	56.7	0.0	10.8	37.1	-1.8	3.0	0.0	-0.5	0.4
	TMAX < -10°C	14.6	5.1	0.0	0.1	4.9	14.8	3.2	0.0	0.1	4.4	-0.2	2.0	0.0	0.0	0.5
	TMAX < -20°C	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1
	TMAX < -30°C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tiksi	TMAX > 15°C	0.0	0.7	21.1	0.3	5.6	0.0	0.3	27.2	0.4	7.0	0.0	0.4	-6.1	-0.1	-1.4
	TMAX > 10°C	0.0	1.0	41.5	5.3	12.0	0.0	1.4	54.5	4.4	15.2	0.0	-0.4	-13.0	0.9	-3.2

	TMAX > 5°C	0.0	3.2	73.3	15.4	23.1	0.0	6.1	86.3	17.7	27.7	0.0	-2.9	-13.0	-2.3	-4.6
	TMIN > 0°C	0.0	1.4	76.7	14.4	23.3	0.0	2.5	87.2	17.6	27.0	0.0	-1.1	-10.5	-3.2	-3.7
	TMAX > 0°C, TMIN ≤ 0°C	0.0	11.4	20.5	18.6	12.7	0.0	14.6	10.7	16.2	10.4	0.0	-3.2	9.8	2.4	2.3
	TMAX < 0°C	100.0	87.0	2.7	66.5	63.9	100.0	82.4	2.1	66.2	62.5	0.0	4.6	0.6	0.3	1.4
	TMAX < -10°C	99.7	55.8	0.0	40.4	48.8	99.2	47.2	0.0	35.3	45.2	0.5	8.6	0.0	5.1	3.6
	TMAX < -20°C	82.4	22.6	0.0	15.8	30.0	77.3	22.4	0.0	10.9	27.5	5.1	0.2	0.0	4.9	2.5
	TMAX < -30°C	30.0	3.4	0.0	1.3	8.6	29.5	5.1	0.0	0.5	8.7	0.5	-1.7	0.0	0.8	-0.1
Ostrov Vrangel	TMAX > 15°C	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.2	0.0	0.0	-0.7	0.0	-0.2
	TMAX > 10°C	0.0	0.0	2.6	0.0	0.7	0.0	0.0	13.2	0.4	3.4	0.0	0.0	-10.6	-0.4	-2.7
	TMAX > 5°C	0.0	0.0	36.5	1.6	9.6	0.0	1.3	53.6	9.0	16.1	0.0	-1.3	-17.1	-7.4	-6.5
	TMIN > 0°C	0.0	0.0	48.9	3.5	13.2	0.0	1.0	65.9	16.8	21.0	0.0	-1.0	-17.0	-13.3	-7.8
	TMAX > 0°C, TMIN ≤ 0°C	0.2	5.3	46.3	21.5	18.4	0.6	11.7	31.4	22.5	16.6	-0.4	-6.4	14.9	-1.0	1.8
	TMAX < 0°C	99.8	94.5	4.5	73.6	67.9	99.3	87.2	2.6	59.9	62.1	0.5	7.3	1.9	13.7	5.8
	TMAX < -10°C	91.0	58.4	0.0	24.2	43.2	83.0	50.1	0.0	11.0	35.9	8.0	8.3	0.0	13.2	7.3
	TMAX < -20°C	50.2	19.1	0.0	1.6	17.6	31.9	13.7	0.0	0.0	11.3	18.3	5.4	0.0	1.6	6.3
	TMAX < -30°C	2.4	0.1	0.0	0.0	0.6	0.4	0.0	0.0	0.0	0.1	2.0	0.1	0.0	0.0	0.5
Coppermine	TMAX > 15°C	0.0	0.0	19.7	1.3	5.3	0.0	0.5	34.6	2.3	9.4	0.0	-0.5	-14.9	-1.0	-4.1
	TMAX > 10°C	0.0	0.4	44.1	5.5	12.6	0.0	1.6	68.9	7.8	19.7	0.0	-1.2	-24.8	-2.3	-7.1
	TMAX > 5°C	0.0	3.8	80.7	16.0	25.3	0.0	5.7	92.6	21.1	30.0	0.0	-1.9	-11.9	-5.1	-4.7
	TMIN > 0°C	0.0	1.2	77.3	15.3	23.6	0.0	1.2	87.9	21.9	27.9	0.0	0.0	-10.6	-6.6	-4.3
	TMAX > 0°C, TMIN ≤ 0°C	0.2	12.6	20.4	17.8	12.8	0.1	19.6	11.7	20.4	13.0	0.1	-7.0	8.7	-2.6	-0.2
	TMAX < 0°C	99.8	84.0	1.3	63.3	61.8	99.9	78.9	0.3	57.2	58.9	-0.1	5.1	1.0	6.1	2.9
	TMAX < -10°C	97.1	51.7	0.0	32.4	45.0	95.0	51.3	0.0	23.2	42.2	2.1	0.4	0.0	9.2	2.8
	TMAX < -20°C	70.8	22.7	0.0	7.8	25.1	62.0	24.5	0.0	3.7	22.4	8.8	-1.8	0.0	4.1	2.7
	TMAX < -30°C	22.7	2.4	0.0	0.3	6.3	11.9	3.2	0.0	0.2	3.8	10.8	-0.8	0.0	0.1	2.5
Ilulissat	TMAX > 15°C	0.0	0.4	9.8	0.2	2.6	0.0	0.3	12.5	0.1	3.3	0.0	0.1	-2.8	0.1	-0.7
	TMAX > 10°C	0.0	3.7	48.7	4.5	14.0	0.2	2.2	55.9	3.4	15.6	-0.2	1.5	-7.2	1.1	-1.5

TMAX > 5°C	2.9	17.9	91.7	21.1	33.1	2.4	12.5	94.1	22.7	33.1	0.5	5.5	-2.4	-1.6	0.0
TMIN > 0°C	0.9	7.3	93.0	18.9	29.6	1.5	6.0	92.6	17.2	29.5	-0.7	1.3	0.4	1.7	0.1
TMAX > 0°C, TMIN ≤ 0°C	13.3	33.8	7.0	33.6	22.1	14.4	31.0	7.3	35.1	21.9	-1.0	2.8	-0.3	-1.6	0.2
TMAX < 0°C	85.4	57.7	0.0	47.2	47.8	82.6	60.2	0.1	45.8	47.0	2.8	-2.5	-0.1	1.3	0.7
TMAX < -10°C	43.2	16.6	0.0	4.8	16.1	36.2	21.3	0.0	5.9	15.8	7.0	-4.7	0.0	-1.1	0.4
TMAX < -20°C	6.1	1.5	0.0	0.1	1.9	2.7	2.2	0.0	0.0	1.2	3.4	-0.7	0.0	0.1	0.7
TMAX < -30°C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0