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Seasonal Summary

North American Arctic Waters
Spring 2016

By

Canadian Ice Service
Le service canadien des glaces

Canada

Foxe Basin, Hudson Bay, Davis Strait and Labrador Coast

End of Winter and Spring Ice Conditions

At the beginning of February, predominantly medium-first year ice covered Foxe Basin (figure 3) and Davis Strait while thin first-year ice covered Hudson Bay, Hudson Strait, and the Labrador coast (figure 1). A trace of old ice was embedded in the ice pack in Davis Strait. Thinner ice was present in Cumberland Sound, Frobisher Bay, northwestern Hudson Bay, and elsewhere along parts of the coast. Ice thickened to medium first-year in Hudson Bay, Hudson Strait, and the Labrador Coast during February. Thick first-year ice became predominant in Foxe Basin during February, over Davis Strait in March, and over central Hudson Bay and Hudson Strait during April.

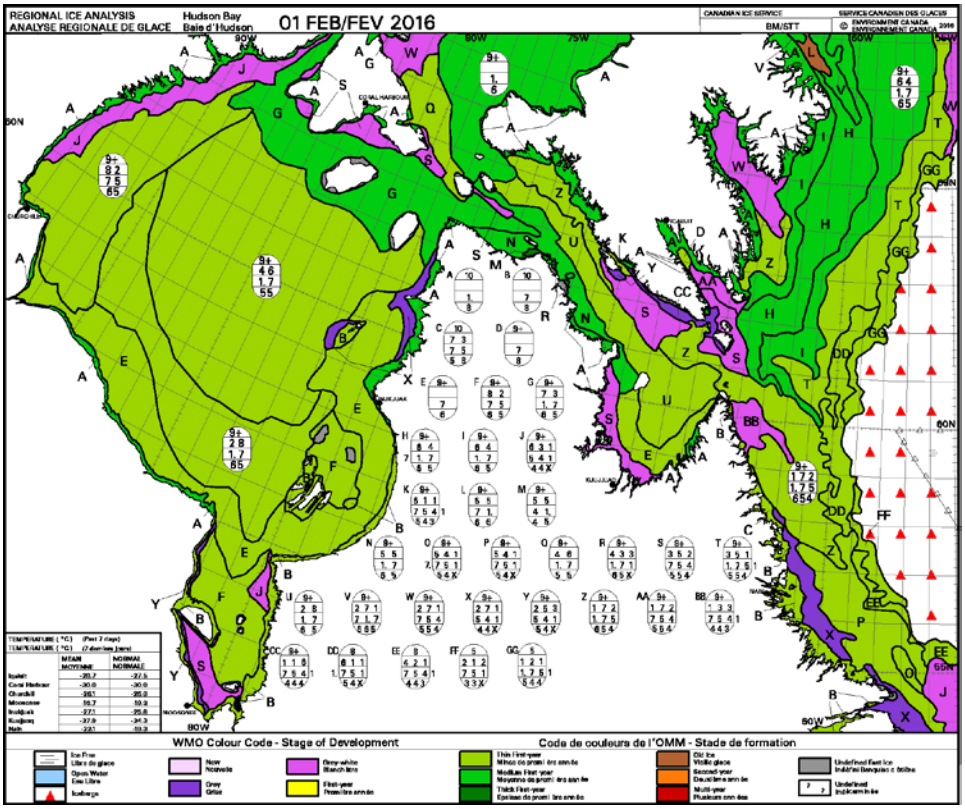

Figure 1: Ice stage of development analysis for the Hudson Bay area in early February 2016.

Throughout winter and spring, ice extent along the east coast was generally below normal in Davis Strait, but above normal near the Labrador coast.

Several coastal leads began to form throughout the area at the beginning of May. By the end of the month, a large area of open water was located over northwestern Hudson Bay. Other notable areas of bergy and open water were observed in eastern Hudson Bay, northern Hudson Strait, southwestern Ungava Bay, Davis Strait, Cumberland Sound and Frobisher Bay.

Ice break-up was generally 1-2 weeks earlier than climatology (1981-2010) over the area, except locally 4-5 weeks early over northwestern Hudson Bay (figure 2).

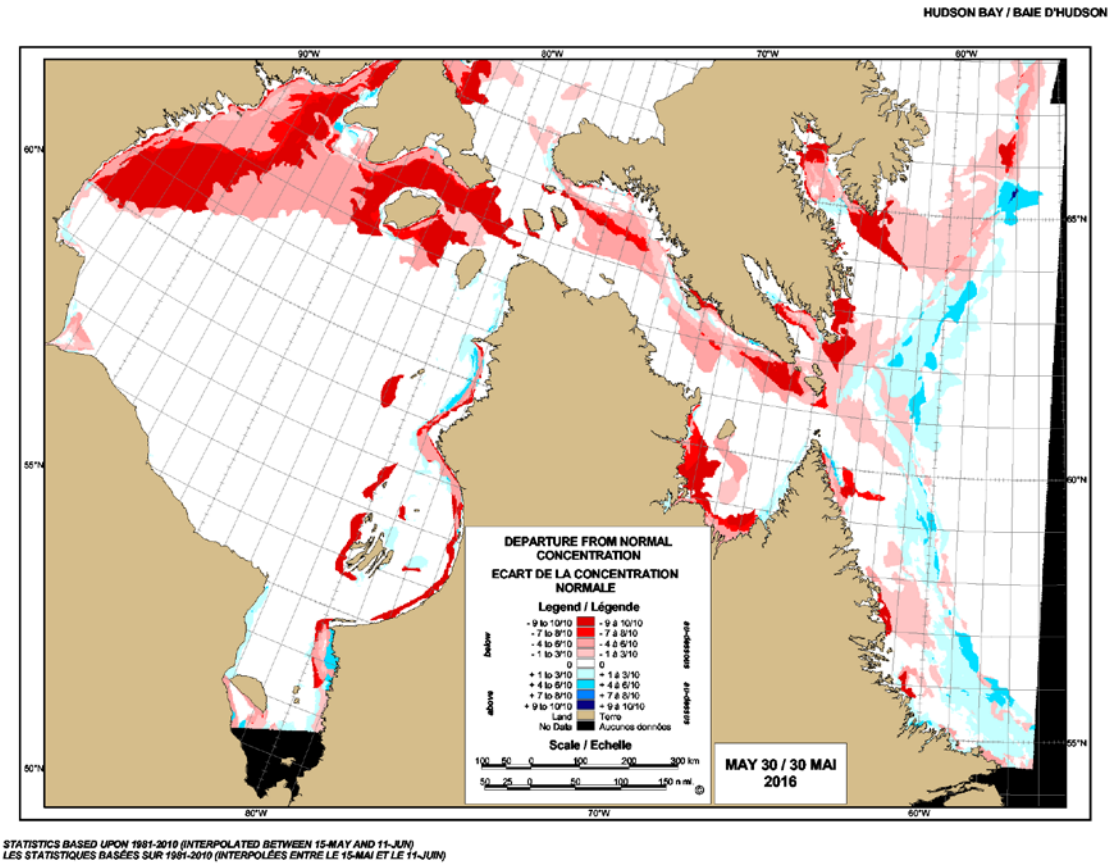

Figure 2: Departure from normal ice concentration for the Hudson Bay area at the end of May.

Table 1: End of April freezing degree days (FDD) and May temperatures for the Hudson Bay area.

Station	Actual end of April FDD	Median end of April FDD (1981-2010)	Percent of normal FDD	May average temperatures (°C)	May departure from normal (°C)
Nain	2141	2254	95	2.5	1.5
Iqaluit	3761	4019	94	-1.5	2.9
Kuujjuaq	3044	3187	96	1.0	0.8
Inukjuak	3259	3316	98	-1.3	0.5
Cape Dorset	3460	3424	101	-3.1	1.9
Churchill	3255	3638	89	0.1	0.8
Hall Beach	4835	5229	92	-6.6	2.5

Eastern and Northern Arctic

End of Winter and Spring Ice Conditions

At the beginning of February, predominantly medium first-year ice including a trace of old ice covered most of Baffin Bay except for thinner ice near Disko Island and in the extreme northwestern section of Baffin Bay (figure 3). Medium first-year ice with a trace of old ice -- present in Western Baffin Bay, Lancaster Sound, and from Prince Regent Inlet to Committee Bay -- thickened to thick first-year during the second half of February. Consolidated ice was present along the Baffin Island coast, Admiralty Inlet, and the rest of the High Arctic. High concentrations of old ice were observed north of Little Cornwallis Island, in Norwegian Bay, and in western Kane Basin. Several bands of 2 to 4 tenths of old ice were present near the central section of Baffin Bay. Concentrations of old ice were lower than normal in Committee Bay and elsewhere in the archipelago north of 75°N, but higher than normal in Nares Strait and central Baffin Bay.

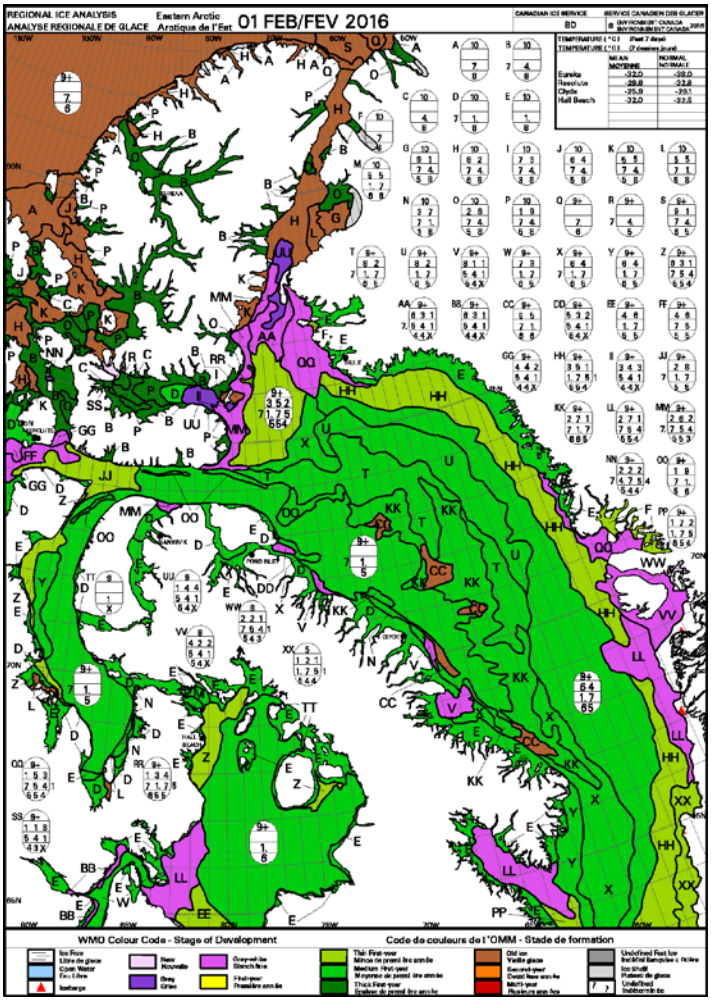

Figure 3: Ice stage of development analysis for the Eastern Arctic area in early February 2016.

During the first week of March, medium first-year ice consolidated over eastern Barrow Strait. Throughout the month, areas of relatively thinner ice persisted over western Lancaster Sound and extreme northern Baffin Bay due to the continuous outflow of ice from these areas. During this time, ice extent was also consistently lower than normal over eastern Baffin Bay near Disko Island.

Throughout the month of April, medium first-year ice present over eastern and northern Baffin Bay gradually thickened to thick first-year ice. Near the end of the month, periods of strong northwesterly winds combined with above normal temperatures initiated the break-up of the pack ice in the extreme northern section of Baffin Bay.

The break-up gradually continued throughout the month of May. The reduced ice extent over eastern Baffin Bay extended northward from Disko Island along the Greenland coast. During the second half of the month, periods of strong northwesterly winds accelerated the destruction of the ice. Near the end of the month, large sections of bergy water dominated over northern Baffin Bay and western Lancaster Sound.

Ice melt was generally 2-3 weeks earlier than climatology (1981-2010) over the region, but locally 5-6 weeks earlier than normal over northern Baffin Bay (figure 4), setting a new record for low ice coverage over northern Baffin Bay for the end of May (figure 5).

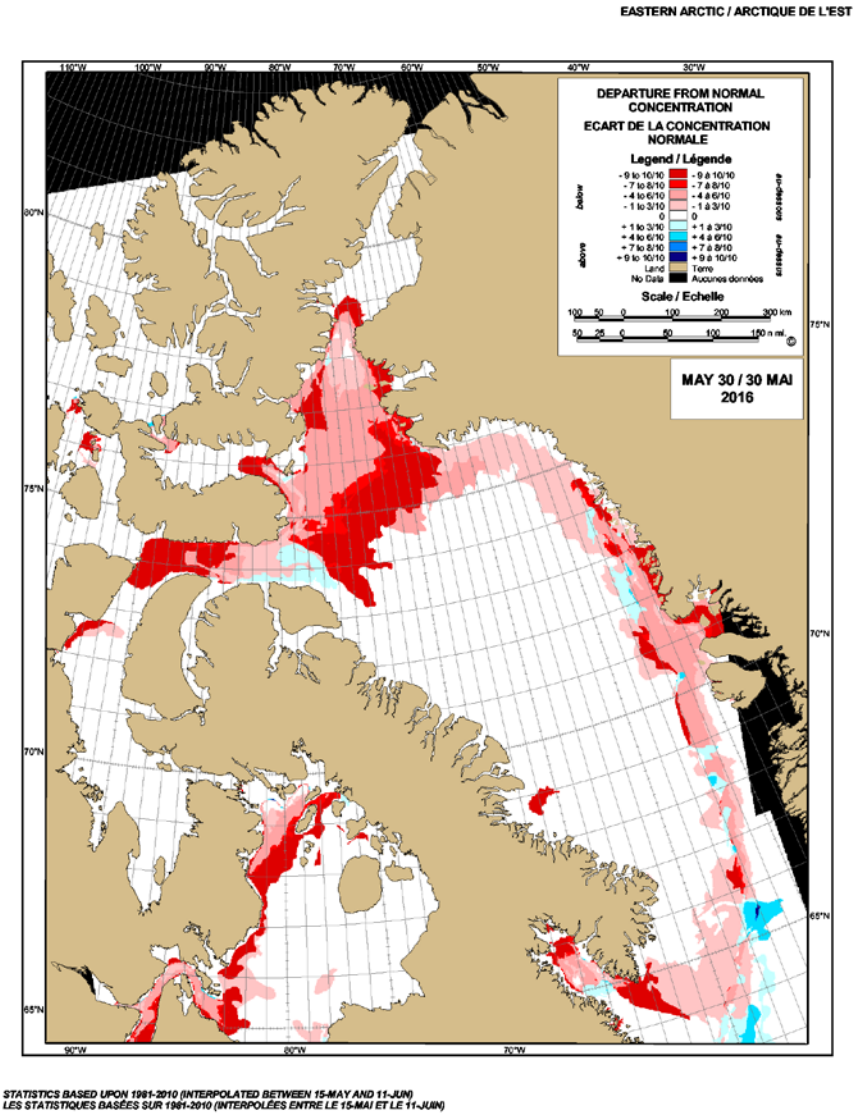

Figure 4: Departure from normal ice concentration for the Eastern Arctic area at the end of May 2016**.**

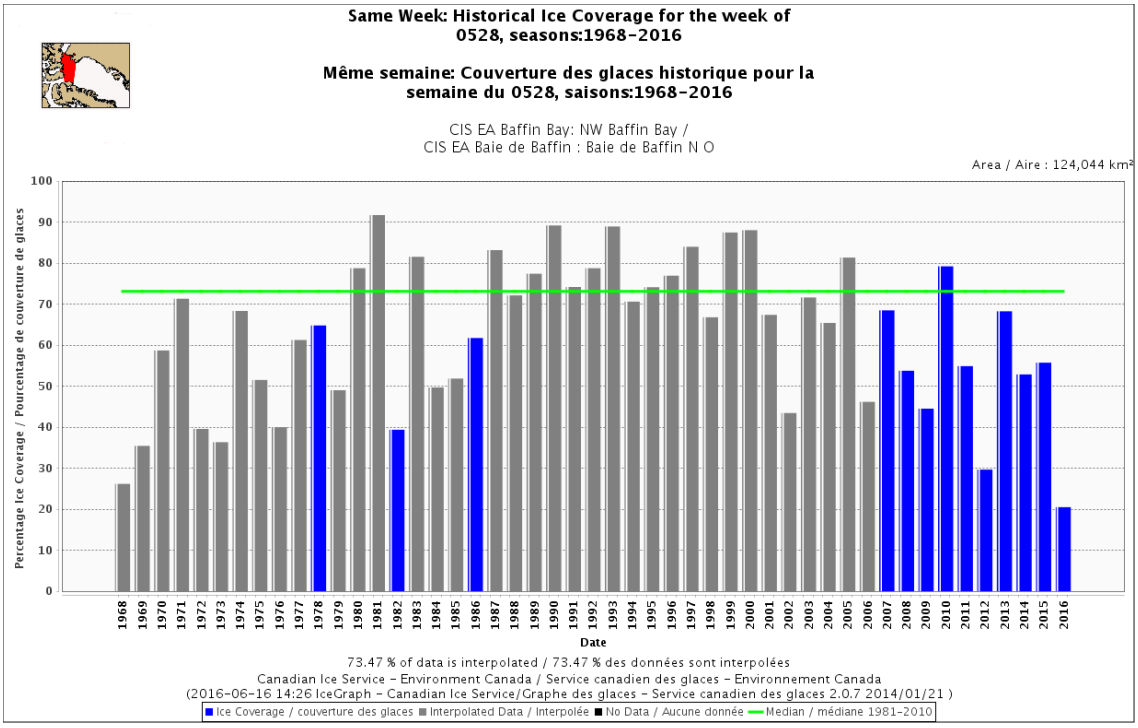

Figure 5: Comparison of historical ice coverage in northern Baffin Bay at the end of May.

Table 2: End of April freezing degree days (FDD) and May temperatures for the Eastern Arctic area**.**

Station	Actual end of April FDD	Median end of April FDD (1981-2010)	Percent of normal FDD	May average temperatures (°C)	May departure from normal (°C)
Clyde	4246	4678	91	-5.6	2.2
Pond Inlet	5035	5433	93	-5.5	3.7
Resolute	5326	5796	92	-7.7	3.1
Eureka	6470	7131	91	-9.4	1.6

Western and Central Arctic

End of Winter and Spring Ice Conditions

In February, medium first-year ice was present over the southern Beaufort Sea. Over the northern Beaufort Sea, a mix of old and thick first-year ice dominated up to 75°N then became predominantly old ice in the Arctic Ocean (figure 6). Consolidated medium first-year ice was present in shallow waters along the mainland coast in the Beaufort Sea, along the shipping route from Dolphin and Union Strait to Taloyoak, and also in the central Arctic south of 75 °N. Consolidated old and thick-first year ice prevailed over Queen Elizabeth Islands. Areas of high concentrations of old ice were present in eastern Queen Maud Gulf, southern Larsen Sound, northern M'Clintock Channel, southern and eastern Viscount Melville Sound, and M'Clure Strait.

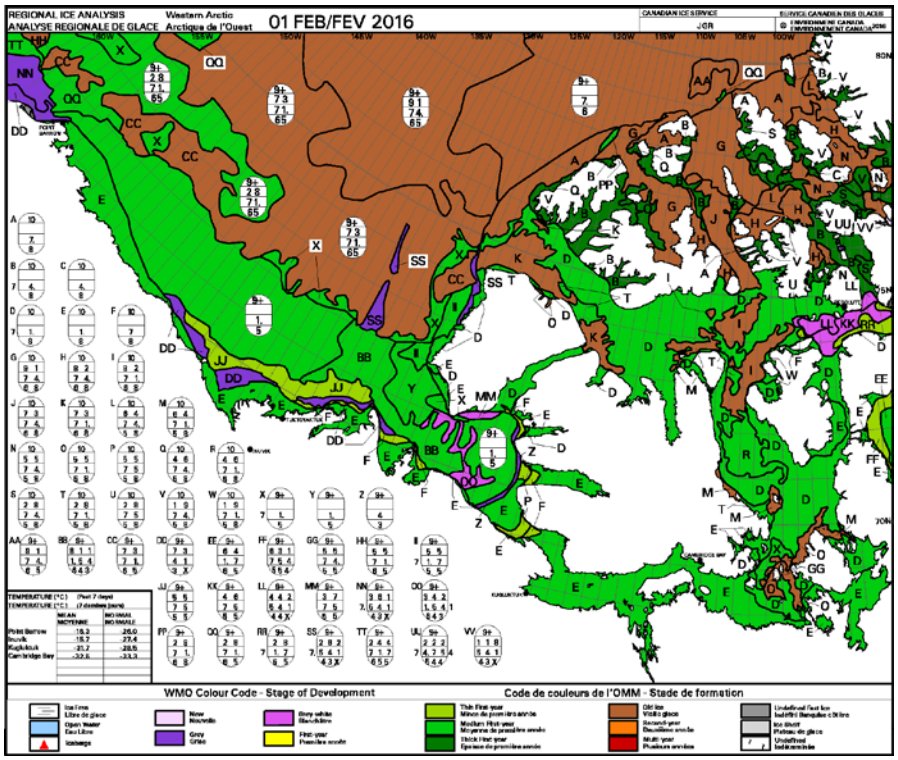

Figure 6: Ice stage of development analysis for the Western Arctic area in early February 2016.

Ice thickened to thick-first year ice in the archipelago during the first half of February. During this time, medium fist-year ice consolidated in Amundsen Gulf.

Over the southern Beaufort Sea, ice thickened to thick first-year during the first half of March and over Amundsen Gulf at the beginning of April.

During the last week of April, a combination of persistent easterly winds and warmer than normal temperature caused an early break-up of the ice in the southern Beaufort Sea. The break-up continued throughout May, and by the end of the month open water dominated the southern Beaufort Sea (figure 7), conditions not normally seen until August.

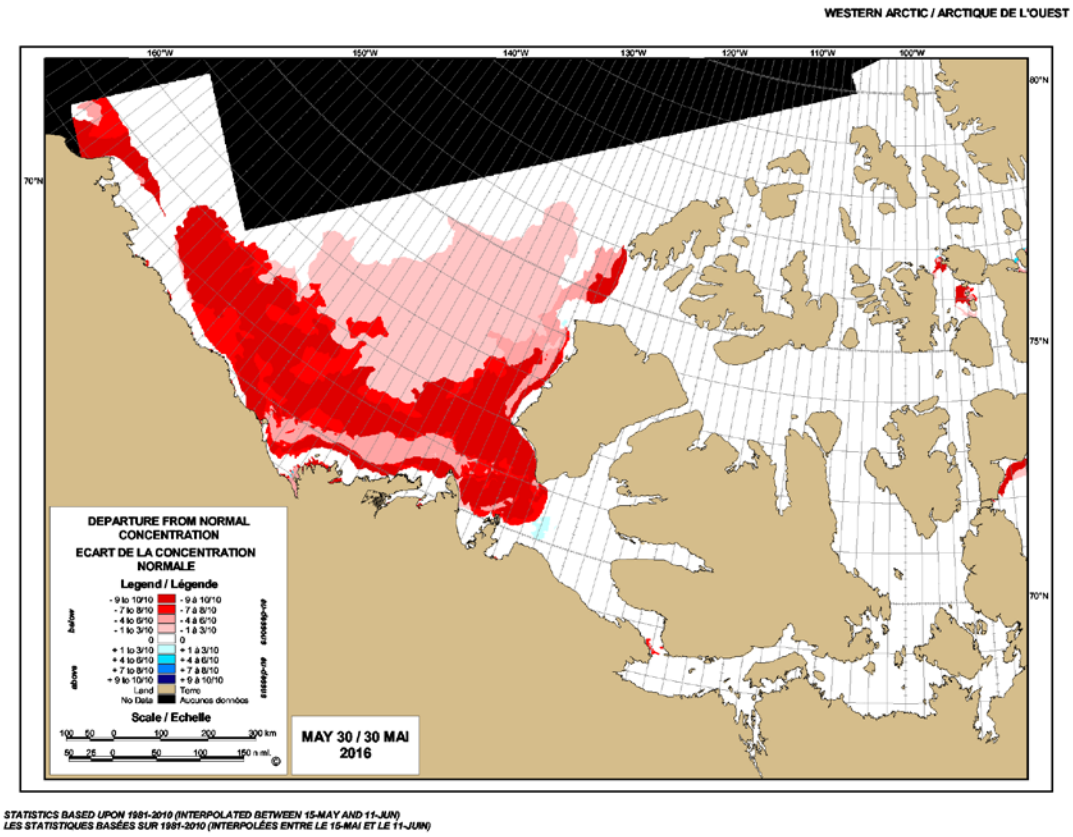

Figure 7: Departure from normal ice concentration for the Western Arctic area at the end of May 2016.

Ice melt over the Western Arctic at the end of May was 7-8 weeks earlier than climatology (1981-2010), setting a new record of low ice extent over the area for the period (figure 8).

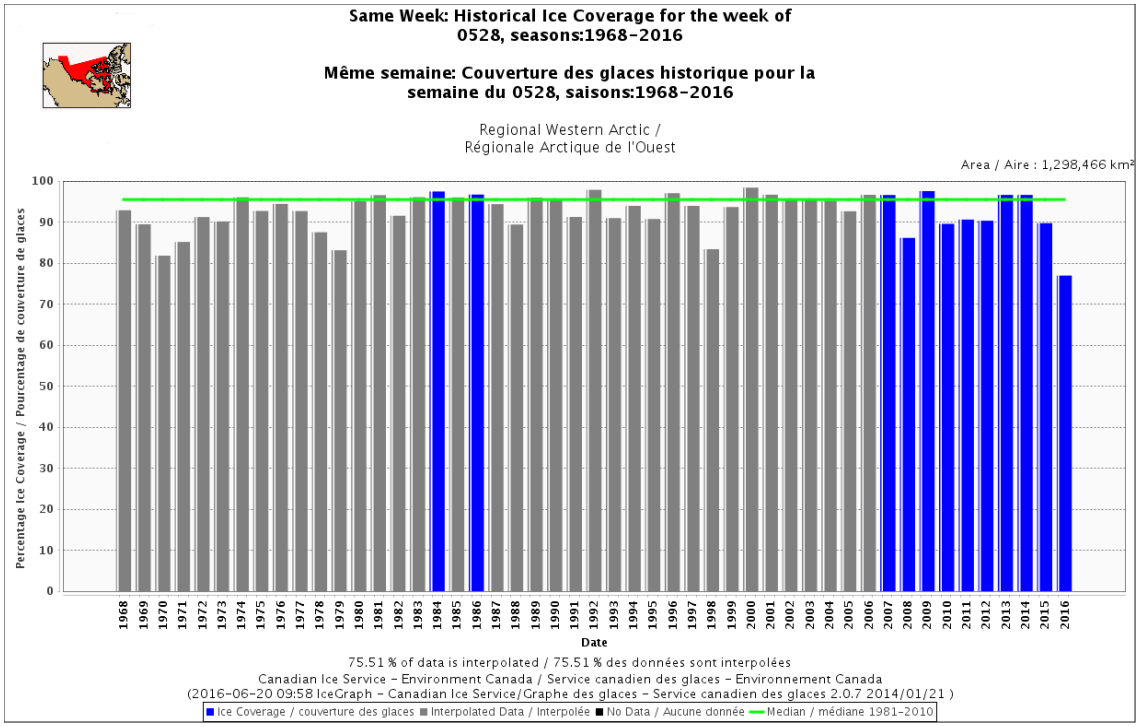

Figure 8: Comparison of historical ice coverage in the Western Arctic area at the end of May.

Table 3: End of April freezing degree days and May temperatures (FDD= Freezing Degree Days).

Station	Actual end of April FDD	Median end of April FDD (1981-2010)	Percent of normal FDD	May average temperatures (°C)	May departure from normal (°C)
Mould Bay	5497	6148	89	-6.8	4.1
Cambridge Bay	5108	5513	93	-6.6	2.5
Kugluktuk	4445	4598	97	-1.7	3.3
Tuktoyaktuk	3866	4271	91	1.7	5.9