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Seasonal Summary

North American Arctic Waters Spring 2014

By



Canadian Ice Service
Le service canadien des glaces

Hudson Bay, Davis Strait and Labrador Coast

End of Winter and Spring Ice Conditions

End of Winter: February to March

In February, the ice extent was near-normal along the Labrador Coast. Although the ice extent over Davis Strait was less than normal at the beginning of February, it also became near-normal after mid-February due to persistent northerly winds over the area. In the first half of February, grey-white and grey ice persisted in the pack ice nearest the Labrador coast (within 120 miles), while thin first-year ice prevailed along the eastern margin of the pack. In the second half of February, the young ice thickened to thin first-year ice along the northern part of the Labrador Coast. Consolidated first-year ice covered most of Lake Melville throughout February. The rest of the area (Davis Strait, Hudson Strait and Hudson Bay) was generally covered in medium first-year ice with some thick first-year ice. However, thinner than normal ice persisted along the northwestern shore of Hudson Bay, the northern shore of Hudson Strait and the western shore of James Bay. A trace of old ice was embedded in the pack ice in Davis Strait and the north Labrador Sea. Narrow areas of higher concentrations of old ice were observed east of Cumberland Sound and east of Frobisher Bay.

In March, the ice extent along the Labrador Coast extended 100 miles east of the coast which was near-normal. However, due to the prevailing northerly winds over Davis Strait, the ice edge in that area extended much farther east than normal. Most areas in the region, including the Labrador Coast, Davis Strait, Hudson Strait and Hudson Bay, were covered with medium to thick first-year ice. However, during the last week of March, northern Hudson Bay and Foxe Basin became entirely covered in thick first-year ice. Frequent periods of offshore winds maintained areas of thinner than normal ice along the northwestern shore of Hudson Bay, the northern shore of Hudson Strait and in Frobisher Bay. Lake Melville was covered with consolidated medium first-year ice. A trace of old ice was embedded in the pack ice along most of the Labrador Coast, in Davis Strait and the eastern entrance to Hudson Strait. However, narrow areas of higher concentrations of old ice were observed in the north Labrador Sea, east of Frobisher Bay and east of Cumberland Sound.

Spring: April to May

In April, the ice extent remained near-normal along the Labrador Coast but was much greater than normal over Davis Strait. Thick first-year ice dominated over the region, although medium to thick first-year ice still prevailed within 120 miles east of the Labrador Coast. Due to frequent periods of strong northwesterly winds, a large area of grey-white and grey ice developed along the northwestern shore of Hudson Bay during April.

A trace of old ice was embedded in the pack ice along the Labrador Coast and in the eastern entrance to Hudson Strait. Bands of up to 5 tenths of old ice drifted southwestward over western Davis Strait during the second part of April. At the end of April, calculated freezing degree days were near normal over most areas except slightly above normal over parts of Hudson Bay and along the Labrador Coast as indicated in Table 1.

During May, average air temperatures were 1 to 3°C above normal over most areas except near normal along the Labrador Coast as indicated in Table 1. During the first week of May, strong easterly winds developing over Davis Strait caused the pack ice to return to a near normal ice extent. Thick first-year ice prevailed over most of the region except along the Labrador Coast, where medium to thick first-year ice persisted. A trace of old ice was embedded in the pack ice along most of the Labrador Coast, while up to 4 tenths of old ice was observed in Davis Strait and the extreme northern section of the Labrador Coast. During the second week of May, narrow areas of open or bergy water developed along the northern shore of Hudson Strait and the eastern shore of Hudson Bay due to strong easterly winds. However these openings in the pack ice were short-lived as the pack ice drifted into those areas during the second half of May. In the meantime, the ice partially drifted out of Frobisher Bay and Cumberland Sound. The ice in Lake Melville fractured during the last week of May.

Table 1: End of April freezing degree days and May temperatures

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	2367	2127	111	1.5	0.5
Iqaluit	3771	3811	99	-2.3	2.1
Kuuujuaq	3254	3073	106	1.8	1.6
Inukjuak	3435	3180	108	1.5	3.3
Cape Dorset	3432	3462	99	-1.8	3.2
Churchill	3896	3539	110	1.2	1.9
Hall Beach	5020	5025	100	-7.7	1.4

FDD= Freezing Degree Days

Eastern and Northern Arctic

End of Winter and Spring Ice Conditions

End of Winter: February to March

During the first half of February, medium first-year ice dominated in Baffin Bay, Prince Regent Inlet, Gulf of Boothia and Committee Bay. In Lancaster Sound, however, a mix of thin first-year and grey-white ice prevailed due to the continued outflow of ice into Baffin Bay. The ice in Baffin Bay, Prince Regent Inlet, Gulf of Boothia and Committee Bay finally thickened to a mix of thick and medium first-year ice during the last two weeks of February. During February, thinner than normal ice persisted near Disko Island, Greenland, and in the North Open Water polynya south of Kane Basin. Consolidated ice was observed over the High Arctic north of 75°N, in Kane Basin and along the Baffin Island coast. A mobile mix of first-year and grey-white ice with a trace of old ice in Kennedy Passage consolidated during the second week of February. Up to 5 tenths of old ice was embedded in the pack ice over western Baffin Bay, eastern Lancaster Sound and southeastern Committee Bay. Up to 3 tenths of old ice was embedded in the fast ice in eastern Kane Basin, Eureka Sound and Barrow Strait. Higher concentrations of old ice dominated over the rest of the High Arctic north of 75°N. Old ice concentrations were greater than normal over western Baffin Bay, the High Arctic and in southeastern Committee Bay.

In March, medium to thick first-year ice dominated in eastern Baffin Bay and eastern Lancaster Sound, while thick first-year ice covered the rest of Baffin Bay, Prince Regent Inlet, Gulf of Boothia and Committee Bay. However, for most of March, thinner than normal ice persisted over western Lancaster Sound, in the North Open Water polynya and near Disko Island. Grey-white and grey ice prevailed over these areas. Little change was observed in the ice cover for the rest of the Eastern Arctic, although the ice in northern Prince Regent Inlet consolidated and became land-fast after mid-March. Bands of up to 5 tenths of old ice were embedded in the pack ice over western Baffin Bay and southeastern Committee Bay.

Spring: April to May

During April, predominantly thick first-year ice covered most of Baffin Bay, eastern Lancaster Sound, southern Prince Regent Inlet, Gulf of Boothia and Committee Bay. Thinner than normal ice was still observed near Disko Island, in the North Open Water polynya and parts of western Lancaster Sound. Up to 2 tenths of old ice was embedded in the pack ice over western Baffin Bay. Higher concentrations of old ice observed over southwestern Baffin Bay drifted out of the area at the end of April.

Little change was observed in the pack ice over the rest of the Eastern Arctic. At the end of April, calculated freezing degree days were near normal over the whole Eastern Arctic as indicated in Table 2.

During May, average air temperatures were 1 to 3°C above normal over the whole Eastern Arctic as indicated in Table 2. A narrow lead of bergy water formed along the Greenland Coast south of Disko Island in early May. The lead of bergy water widened during the second half of May where it prevailed south of 73°N. Meanwhile, ice concentrations decreased along the eastern margin of the Baffin Bay pack ice and in the North Open Water polynya south of Kane Basin. Most of the ice drifted out of Lancaster Sound during the last week of May and ice concentrations in this area decreased to open drift or less ice. A portion of the consolidated ice in northern Prince Regent Inlet showed signs of fracture at the end of May. Little change was observed in the pack ice elsewhere in the Eastern Arctic.

Table 2: End of April freezing degree days and May temperatures

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	4433	4638	96	-5.8	2.4
Pond Inlet	5303	5407	98	-7.0	2.2
Resolute	5537	5607	99	-9.5	1.3
Eureka	7251	6886	105	-8.4	2.6

FDD= Freezing Degree Days

Western and Central Arctic

End of Winter and Spring Ice Conditions

End of Winter: February to March

During February, medium first-year ice prevailed over the southern Beaufort Sea south of 72°N except for bands of up to 2 tenths of old ice north of the Alaskan Coast. Predominantly old ice dominated in the Beaufort Sea north of 72°N except for large cracks containing medium and thin first-year ice. During the last week of February, a significant area containing a mix of old and medium first-year ice drifted southwards towards Point Barrow. As a result, the southern edge of the old pack ice was slightly farther north than normal except near normal north of Point Barrow. Consolidated first-year ice was observed in shallow waters along the mainland coast in the Beaufort Sea and along the shipping route from Dolphin and Union Strait to Peel Sound. However bands of 2 tenths of old ice were embedded in the pack ice over Peel Sound and Larsen Sound. Consolidated thick first-year ice with a trace of old ice dominated along the shipping route from west of Barrow Strait to M'Clure Strait and in Prince of Wales Strait except for bands of higher concentrations of old ice over eastern Viscount Melville Sound and northern M'Clure Strait. Some of the old ice extended into the central section of M'Clintock Channel. Consolidated old ice prevailed over Queen Elizabeth Islands.

In early March, the area of old and medium first-year ice which touched the coast near Point Barrow drifted westward, thus being replaced with thick first-year ice with 2 tenths of old ice. During the first week of March, the ice in the southern Beaufort Sea thickened to thick first-year ice. However, narrow areas of thinner than normal ice developed north of the consolidated ice along the Tuktoyaktuk Peninsula due to periods of strong southeasterly winds. In March, bands of up to 2 tenths of old ice embedded in the pack ice persisted north of the Alaskan Coast. The main pack of old ice remained north of 72°N. Little change was observed in the consolidated ice over the Central Arctic and along the mainland coast in the Beaufort Sea. The highest concentrations of old ice in the Archipelago were located over eastern Viscount Melville Sound, northern M'Clure Strait, central M'Clintock Channel and in the Queen Elizabeth Islands.

Spring: April to May

During the first week of April, the ice over eastern Amundsen Gulf consolidated, while the rest of the Gulf remained mobile. However this event was short-lived, as periods of strong southeasterly winds then caused the new consolidated ice to fracture just before mid-April.

The southern Beaufort Sea and western Amundsen Gulf was covered in thick first-year ice within 120 miles of the coast. A trace of old ice was embedded in the pack ice north of the Alaskan Coast. Beyond 120 miles of the coast, old ice prevailed over the northern Beaufort Sea and the Arctic Ocean. Consolidated ice persisted in the central Arctic and along the mainland coast in the Beaufort Sea. During the last week of April, strong southeasterly winds over the southern Beaufort Sea caused the pack ice to drift northwestward. While thick first-year ice still dominated over the area, large areas of new and grey ice now prevailed in a wide shore lead off the consolidated ice along the Tuktoyaktuk Peninsula, west of Banks Island and west of Point Barrow. At the end of April, calculated freezing degree days were near normal over most of the Western Arctic except much below normal over the Beaufort Sea as indicated in Table 3.

During May, average air temperatures were 1 to 4°C above normal over the whole Western Arctic as indicated in Table 3. During the first week of May, strong westerly winds along the Alaskan Coast caused the lead west of Point Barrow to close. Leads of thinner than normal ice off the consolidated ice along the Tuktoyaktuk Peninsula, west of Banks Island and over the extreme eastern section of Amundsen Gulf persisted until the third week of May. After the third week of May, ice concentrations decreased slowly due to periods of strong easterly winds, although thick first-year ice still dominated over the southern Beaufort Sea within 135 miles of the coast. Beyond 135 miles of the mainland coast, the main pack of old ice prevailed over the area. A trace of old ice was embedded in the pack ice north of the Alaskan Coast. Little change was observed in the consolidated ice over the Central Arctic and along the mainland coast in the southern Beaufort Sea.

Table 3: End of April freezing degree days and May temperatures

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	5410	5977	91	-7.4	3.5
Cambridge Bay	5124	5381	95	-8.0	1.1
Kugluktuk	4256	4515	94	-3.1	1.9
Tuktoyaktuk	3706	4333	86	0.1	4.3

FDD= Freezing Degree Days