Environment Canada Environnement Canada

Seasonal Summary

North American Arctic Waters

Spring 2013

By

Canadian Ice Service
Le service canadien des glaces

Canada

Hudson Bay, Davis Strait and Labrador Coast

End of Winter and Spring Ice Conditions

End of Winter: February to March

The ice extent was near normal along the Labrador Coast during February but slightly less than normal over Davis Strait. At the beginning of February, an area of young ice was present within 120 miles of the Labrador coast south of Nain where thin-first year ice should be normally present at that time of year. Young ice was also present over western Ungava Bay, along the northern shore of Hudson Strait, along southern Southampton Island and within 120 miles of the western shore of Hudson Bay. Thinner ice than normal was also found in Frobisher Bay and western Cumberland Sound. The rest of the area was covered with medium and thin first-year ice. Young ice observed in some areas thickened to thin first-year ice by mid-February. In early February, a trace of old ice was embedded in the pack ice in Davis Strait and over the extreme northern portion of the Labrador Coast and this ice continued its southward progression to lie north of Groswater Bay by the end of February.

During the first half of March, most areas were covered in medium with some thick first-year ice, except for a few leads which contained young ice that had developed along northern Southampton Island and the western shore of Hudson Bay. The ice extent along the Labrador Coast was narrower than normal and only extended 100 miles from the coast. Up to 1 tenth of old ice was embedded in the pack ice in Davis Strait and along the Labrador Coast north of Groswater Bay. During the second half of March, a series of storms which affected the Labrador Coast and Davis Strait caused the ice edge to compress even further westward As a result, first-year ice from Davis Strait was pushed into Cumberland Sound and Frobisher Bay. The ice extent was therefore less than normal over Davis Strait and along the Labrador Coast during that period. In Hudson Bay, the consolidated first-year ice that had formed near and east of the Belcher Islands was less extensive than normal. During this period, the pack ice over most areas thickened to a mix of thick and medium first-year ice except for a few leads containing young ice which had formed along the western shore of Hudson Bay. By the end of March, the extent of the Labrador pack ice was very narrow, and lay within only 60 to 80 miles of the coast.

Spring: April to May

In April, a mix of thick and medium first-year ice was present over most regions, although thick first-year ice dominated over Foxe Basin and Davis Strait. Meanwhile, areas of thinner ice prevailed along the northern shore of Hudson Strait, northeast of Belcher Islands, along southern Southampton Island and the northwestern shore of Hudson Bay. Around mid-April, areas of young ice formed

in Frobisher Bay and Cumberland Sound, as a result of offshore winds. At mid-month, ice concentrations along the ice edge were also less than normal over Davis Strait and along the Labrador Coast. A trace of old ice was present in the pack ice from Davis Strait to the Labrador Coast throughout the month. The ice extent then expanded slightly along the Labrador Coast during the second half of the month, as the ice moved offshore. Little change in the ice extent was observed in Davis Strait. At the end of April, calculated freezing degree days were below normal over most areas except near normal over western Hudson Bay and Foxe Basin as indicated in Table 1.

During May, average air temperatures were up to 1°C above normal except 1 to 3°C below normal in Davis Strait and Foxe Basin as indicated in Table 1. A major portion of the consolidated ice in Lake Melville fractured during the first week of May. During the first half of May, the ice extent expanded eastward over southern Davis Strait and along the Labrador Coast as the ice moved offshore. At the same time, due to the spreading out of the ice pack, ice concentrations within the pack started to decrease slightly over these areas. A mix of thick and medium first-year ice dominated along most of the Labrador Coast and over Hudson Strait, while the rest of the region was covered with predominantly thick first-year ice. Near mid-May, leads of open water developed along portions of the eastern and southwestern shores of Hudson Bay. Areas of bergy water formed in Frobisher Bay as the ice drifted southeastward. A trace of old ice persisted from the Labrador Coast to Davis Strait and in the eastern entrance to Hudson Strait. After mid-May, very open drift medium first-year ice was present over Lake Melville. The ice melted completely over Lake Melville at the end 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	1527	2127	72	1.1	0.1
Iqaluit	3185	3811	84	-6.5	-2.1
Kuujjuak	2359	3073	77	0.7	0.5
Inukjuak	2679	3180	84	-2.1	-0.3
Cape Dorset	2791	3462	81	-6.6	-1.6
Churchill	3646	3539	103	0.3	1.0
Hall Beach	4493	5025	89	-12.0	-2.9

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, Lancaster Sound and from Prince Regent Inlet to Committee Bay. However, grey-white with some thin first-year ice was still present along the eastern margin of the pack ice in Baffin Bay and in the North Open Water polynya south of Kane Basin. Normally, thin first-year ice would prevail over these areas. A trace of old ice was observed in the pack ice over western Baffin Bay and in Committee Bay. During the second half of February, the ice continued to thicken and became medium with some thick first-year ice over these areas. Just after mid-February, consolidated ice formed over the central section of Prince Regent Inlet. Consolidated thick first-year ice also dominated along the eastern shore of Baffin Island, in Admiralty Inlet and the rest of the Eastern Arctic throughout the month. Old ice concentrations were near normal over Nares Strait, but below normal over Barrow Strait and along the shipping route to Eureka Sound where only a trace of old ice was observed.

In early March, medium with some thick first-year ice dominated over most of Baffin Bay. At the same time, the ice had thickened to predominantly thick first-year ice over northwestern Baffin Bay, in Lancaster Sound and from southern Prince Regent Inlet to Committee Bay. A trace of old ice was present in the pack ice over western Baffin Bay and in Committee Bay. The consolidated ice which had formed over the central section of Prince Regent Inlet expanded to cover the rest of the inlet and also western Lancaster Sound just before mid-March. During the second half of March, predominantly thick first-year ice was present over western Baffin Bay, while a mix of thick and medium first-year ice dominated over the rest of Baffin Bay. The North Open Water polynya which extended from just south of Kane Basin to Thule was covered in thin first-year and grey-white ice. Little change was observed in the ice cover over the rest of the Eastern Arctic.

Spring: April to May

During April, little change was observed in the mobile ice areas over most of Baffin Bay and from Gulf of Boothia to Committee Bay. However, ice concentrations were less than normal along the southeastern margin of the pack ice in Baffin Bay. Young ice prevailed south of Kane Basin throughout the month resulting in a thinner ice cover than normal. A narrow area of thinner than normal ice formed in central Lancaster Sound. A trace of old ice was still present in western Baffin Bay, in the eastern entrance to Lancaster Sound and in Committee Bay. A narrow lead of bergy formed along the western shore of

Greenland south and east of Disko Island during the last two weeks of April. At the end of April, calculated freezing degree days were below normal over most of the Eastern Arctic except near normal over the High Arctic as indicated in Table 2.

During May, average air temperatures were 1 to 3°C below normal over the whole Eastern Arctic as indicated in Table 2. A lead of bergy water south and east of Disko Island continued to slowly widen during the month. Predominantly thick first-year ice prevailed over mobile ice areas. Areas of young ice persisted in the North Open Water polynya south of Kane Basin and in central Lancaster Sound. Little change was observed in the consolidated ice over the rest of 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	3773	4638	81	-9.5	-1.3
Pond Inlet	4599	5407	85	-12.3	-3.1
Resolute	4873	5607	87	-12.7	-1.9
Eureka	6533	6886	95	-11.9	-0.9

FDD= Freezing Degree Days

Western and Central Arctic
End of Winter and Spring Ice Conditions

End of Winter: February to March

During the first two weeks of February, very little ice drift was observed over the Beaufort Sea and the Arctic Ocean due to light winds and much colder than normal temperatures. A 120 mile wide tongue of predominantly old ice was located west of Banks Island south of 75°N. Over the rest of the Beaufort Sea and west of 140°W, medium first-year with some thick first-year ice prevailed. A trace of old ice was embedded in the pack ice north of Tuktoyaktuk Peninsula and over the northern section of the Beaufort Sea west of 140°W. Over the Arctic Ocean north of 75°N, old ice dominated. However, concentrations of old ice within the pack decreased to 1 to 5 tenths west of 140°W with thick first-year ice forming between floes. Consolidated medium first-year ice was present along the mainland coast and in Amundsen Gulf. The rest of the Central Arctic was covered with consolidated thick first-year ice. Bands of 9 tenths of old ice were embedded in the consolidated ice over the central section of Viscount Melville Sound south of Byam Martin Channel. Elsewhere in Viscount Melville and in M'Clure Strait, up to 2 tenths of old ice was observed in the consolidated ice. During the second half of February, the pack ice over the Beaufort Sea started to drift rapidly westwards due to strong southeasterly winds. As a result, numerous leads containing young ice developed within the pack ice. The ice remained consolidated over the Central Arctic during the period. As well, the consolidated ice along the mainland coast and in Amundsen Gulf thickened to thick first-year ice during this time.

During March, a portion of the area of old ice west of Banks Island drifted westward along 72°N and extended as far west as 142°W. Numerous leads containing young ice formed and closed within the pack ice as the ice drifted with the Beaufort Gyre. A lead with young ice extending from west of Amundsen Gulf to west of M'Clure Strait repeatedly developed and widened. Apart from this, very little change in the ice conditions was observed over the Beaufort Sea and the Arctic Ocean. The ice remained consolidated over the Central Arctic. However, during this period, thinner than normal ice was present in the pack ice west of Point Barrow due to strong easterly winds.

Spring: April to May

During the first two weeks of April, a lead filled with young ice continued to repeatedly form and widen between the mobile pack ice and the land-fast coastal ice from west of Amundsen Gulf to west of M'Clure Strait. The area of old ice located west of Banks Island and in the Arctic Ocean drifted southwestward

during this period. As a result, the pack ice containing bands of up to 2 tenths of old ice drifted into the western section of the Beaufort Sea west of 142°W. In the Arctic Ocean, predominantly old ice prevailed with long leads of thin first-year ice occasionally forming. During the second half of April, very little change in the ice conditions was observed over the Beaufort Sea and the Arctic Ocean. However the area of old ice over the eastern section of the Beaufort Sea continued its southward motion to lie about 60 miles north of Tuktoyaktuk Peninsula by the end of April. Meanwhile, the lead extending from west of Amundsen Gulf to west of M'Clure Strait narrowed during the period as the main pack ice moved closer to shore. Consolidated ice dominated along the mainland coast and over the Central Arctic during the month of April. At the end of April, calculated freezing degree days were near normal over the whole Western Arctic as indicated in Table 3.

During May, average air temperatures were near normal over the Western Arctic as indicated in Table 3. During the period, medium and thin first-year ice dominated within 30 to 60 miles west of Banks Island and west of M'Clure Strait. Farther offshore, a 130 mile wide area of predominantly old ice dominated over the eastern section of the Beaufort Sea and remained 60 miles north of Tuktoyaktuk Peninsula. West of 140°W and over the Beaufort Sea, thick first-year ice with up to 2 tenths of old ice persisted. Predominantly old ice was observed north of 75°N and over the Canadian side of the Arctic Ocean with long refrozen leads containing medium first-year ice persisting within the pack ice. The mainland coast and the Central Arctic were covered with consolidated ice.

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	5725	5977	96	-10.9	0.0
Cambridge Bay	5170	5381	96	-9.9	-0.8
Kugluktuk	4580	4515	101	-5.2	-0.2
Tuktoyaktuk	4510	4333	104	-4.7	-0.5

FDD= Freezing Degree Days