Seasonal Summary

for the Canadian Arctic

Summer 2006



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Hudson Bay and Approaches

Mean air temperatures were above normal values over most locations during the month of May. As a result, ice conditions at the end of the May were a month earlier than normal. The ice in Goose Bay melted completely after mid-May.

June 2006

Above normal temperatures prevailed over most locations during the month of June except for near normal temperatures over southeastern Hudson Bay and Southampton Island as indicated in Table 1. Light to moderate southwesterly winds dominated along the Labrador Coast, while light to moderate west to northwesterly winds prevailed over Hudson Bay and Hudson Strait as indicated in Figure 29. As a result, ice melted at a rapid pace over all areas.

With the melting process already underway at the start of the month, large areas of bergy water were already present over northern Hudson Strait, while wide areas of open water dominated along the extreme eastern and northern sections of Hudson Bay. These areas expanded gradually during the month to prevail over the northern sections of Hudson Strait and Hudson Bay. At the end of the month, open water leads formed along the shores of James Bay and off the southwestern shore of Hudson Bay. Meanwhile, most of the ice in Ungava Bay melted completely except for strips and patches of ice which remained over the eastern section. Ice conditions improved significantly over the rest of Hudson Strait and Hudson Bay where close to very close pack ice conditions dominated over central James Bay, southwestern Hudson Bay and southern Hudson Strait. At the end of the month, Labrador Coast was clear of ice south of Nain, while loose ice conditions prevailed north of Nain and in the entrance to Frobisher Bay. Ice drifted out of Frobisher Bay during the second half of June. At the end of June, ice conditions were about 2 weeks earlier than normal.

Ice conditions as well as departure from normal ice concentration for mid-June are shown in Figure 3 and Figure 4, respectively.

July 2006

Above normal temperatures persisted over most locations during the month of July except for near normal temperatures over southwestern Hudson Bay as indicated in Table 1. Light and variable winds dominated over most locations during the first half of the month. During the last two weeks of July, light to moderate westerly winds prevailed over Hudson Bay and western Hudson Strait, while light to moderate southerly winds dominated over eastern Hudson Strait, southern Davis Strait and along the Labrador Coast as indicated in Figure 30.

As the ice was in advanced stage of melting, the ice along the Labrador Coast retreated north of Button Islands during the second week of July.

By that time, Ungava Bay and northern Hudson Bay was clear of ice except for a very small patch of loose ice near Churchill. The open water route to Churchill developed just after mid-July. Some patches of very loose ice persisted along the southwestern shore of Hudson Strait, in the entrance to Frobisher Bay and northern James Bay. Close pack ice conditions prevailed off the southwestern shore of Hudson Bay. A bergy water route formed over Frobisher Bay during the last week of July. At the end of July, most of the ice melted over all areas except for a small patch of loose ice over the southwestern section of Hudson Bay. At that time, the ice retreated north of Cumberland Sound.

Ice conditions as well as departure from normal ice concentration for mid-July are shown in Figure 5 and Figure 6, respectively.

August 2006

Above normal temperatures persisted over most locations during the month of August except for near normal temperatures along the Labrador Coast, over eastern Hudson Strait and southeastern Hudson Bay as indicated in Table 1. Light and variable winds dominated over all regions during the first half of August, while light to moderate west to southwesterly winds developed over most regions during the second half of August as indicated in Figure 31.

The remaining ice over southwestern Hudson Bay melted completely just after mid-August. The ice retreated north of Cape Dyer during the second week of August. The rest of the area was clear of ice during the month.

Ice conditions as well as departure from normal ice concentration for mid-August are shown in Figure 7 and Figure 8, respectively.

-	J	une	July		August		September	
Stations	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.
Nain	9.9	3.8	12.0	1.9	11.4	0.8	9.4	2.7
Iqaluit	4.5	1.0	9.4	1.9	8.4	1.6	3.9	1.7
Kuujjuaq	8.6	1.6	13.2	1.9	10.8	0.3	6.7	1.1
Cape Dorset	3.0	0.7	8.1	1.0	8.8	3.0	3.2	1.8
Churchill	10.5	3.9	12.2	0.4	13.6	2.1	8.1	2.4
Moosonee	12.9	0.5	16.3	0.6	14.4	-0.5	10.2	-0.3
Kuujjuarapik	7.0	0.1	12.1	1.5	12.2	0.9	8.5	1.2





Figure 2: Temperature trend for Iqaluit from June 1st to September 30th





Figure 4: Departure from normal ice concentration for Hudson Bay - June 12th







Figure 6: Departure from normal ice concentration for Hudson Bay - July 17th D'HUDSON





Figure 7: Hudson Bay Regional chart - August 14th





Eastern Arctic

Mean air temperatures were above normal values over the entire area during the month of May. As a result, ice conditions at the end of May were 3 to 4 weeks earlier than normal. At the end of May, a large bergy water lead was already present south of Disko Island, while large areas of bergy water formed over the extreme northwestern portion of Baffin Bay and in western Lancaster Sound. Clearing was already under progress over the extreme northwestern portion of Foxe Basin. Otherwise ice conditions were close to normal.

June 2006

Above normal temperatures prevailed over most locations during the month of June except for near normal temperatures over Baffin Bay and the High Arctic as indicated in Table 2. Light to moderate northwesterly winds developed over most locations except for light and variable winds over Baffin Bay and Davis Strait as indicated in Figure 29. The ice melted at a rapid pace during the period.

Bergy water areas continued to expand at a rapid pace during the first two weeks of June. By mid-June, a large bergy water area prevailed from south of Kane Basin to the eastern entrance to Lancaster Sound, while most of northern Lancaster Sound and western Cumberland Sound was clear of ice. The bergy water lead along the Greenland Coast extended as far north as 75N which was earlier than normal. A large area of open water developed over the northwestern section of Foxe Basin. With the advanced stage of melting over the Eastern Arctic, loose first year ice dominated south of Melville Bay and in southern Foxe Basin. The ice melted at a rapid pace during the second half of the month. An open drift or less route formed across northern Baffin Bay during the third week of June. At the end of June, a bergy water route developed over the same area which was 3 to 4 weeks earlier than normal. At that time, a wide area of bergy water was present over the eastern and northwestern sections of Baffin Bay. Loose first year ice persisted over southern Foxe Basin. During the month of June, some old ice was embedded in the ice pack off the eastern shore of Baffin Island north of Cape Dyer. Otherwise ice conditions were near normal.

Ice conditions as well as departure from normal ice concentration for mid-June are shown in Figure 11 and Figure 12, respectively.

July 2006

Near normal temperatures prevailed over most locations during the month of July except for above normal temperatures over Baffin Bay as indicated in Table 2. Light to moderate northwesterly winds developed over most locations except for light and variable winds over Baffin Bay and Davis Strait during the first two weeks of July. Moderate southeasterly winds prevailed over most areas during the last two weeks of July except for light to moderate northerly winds over the central part of the Arctic as indicated in Figure 30. The ice melted at a moderate pace during the period.

Large amount of old ice from Kane Basin combined with moderate ice melt resulted in the consolidated ice to fracture in early July which was 3 weeks earlier than normal. The bergy water route across northern Baffin Bay to Thule was already established at the start of the month. The bergy water area over eastern and northern Baffin Bay expanded at a moderate pace during the first two weeks of July. At mid-July, a small area of loose first year with some old ice was present over the central section of Baffin Bay, while close pack first year with some old ice dominated along eastern Baffin Island north of Cumberland Sound. At that time, fast ice fractured in Jones Sound, eastern Barrow Strait and Wellington Channel which was 7 to 10 days earlier than normal. Very loose first year ice was already present along the western shore and the southern portion of Foxe Basin. Bergy water dominated over Pelly Bay.

During the second half of July, the consolidated ice fractured along the eastern shore of Baffin Island, in Admiralty Inlet and along the shipping route from Norwegian Bay to Eureka. During that time, patches of close pack first year with some old ice from Wellington Channel drifted southward into the eastern side of Barrow Strait and along the northern shore of Somerset Island. At the end of July, most of the ice in central Baffin Bay, northern Admiralty Inlet and south of Cumberland Sound melted completely. Patches of loose first year with some old ice remained along the Baffin Island shore north of Cumberland Sound except for broken pieces of fast ice north of Clyde. Most of southern Foxe Basin was clear of ice at the end of month except for areas of close pack first year ice off the eastern shore and a strip of very loose first year ice along the western shore. Loose first year ice was prevailing over the rest of Foxe Basin and in Eureka Sound. Gulf of Boothia was covered with very close pack first year with some old ice. Very loose first year and old ice dominated over Pelly Bay, western Barrow Strait and Jones Sound.

Ice conditions as well as departure from normal ice concentration for mid-July are shown in Figure 13 and Figure 14, respectively.

August 2006

Above normal temperatures prevailed over most locations during the month of August except for near normal temperatures over the High Arctic as indicated in Table 2. Light and variable winds prevailed over most areas during the first half. Light to moderate southeasterly winds dominated over Baffin Bay and Davis Strait, while light to moderate northerly winds developed over the rest of the Eastern Arctic as indicated in Figure 31. The ice melted at a moderate to rapid pace during the period.

Most of the ice melted completely over Pond and northern Admiralty Inlets in early August. The remaining ice over the Eastern Arctic melted rapidly during the first two weeks of August. Patches of old ice in Davis Strait melted completely during the second week of August which was 1 month earlier than normal. By mid-August, Baffin Bay was clear of ice except for a patch of loose first year with some old ice near Clyde. Bergy water was also present in Prince Regent Inlet and Jones Sound. Large patches of very loose first year ice persisted over the northern and eastern sections of Foxe Basin and over Eureka Sound. Norwegian Bay and Gulf of Boothia was still covered with close pack first year with some old ice. An area of very close pack old ice compacted into the western entrance to Fury and Hecla Strait. Most of the ice in Wellington Channel drifted out into Barrow Strait creating patches of loose first year ice with some old ice. Areas of close pack old ice drifted southward into the northeastern entrance to Jones Sound.

The ice continued to melt at a moderate to rapid pace during the second half of August. The remaining ice in Baffin Bay and Barrow Strait melted late in the third week of August which was 10 to 14 days earlier than normal. At the end of August, Foxe Basin was clear of ice except for narrow patches of first year ice along the southeastern shore. Ice concentrations decreased rapidly over Norwegian Bay and Gulf of Boothia where loose first year ice with some old ice dominated over these areas at the end of month. Patches of close pack old ice was drifting into Fury and Hecla Strait during the last two weeks of August. Area of very loose old ice was present in the eastern entrance to Jones Sound. Some of the first year and old ice from Nansen Sound drifted southward to cover most of Eureka Sound preventing any clearing over the area.

Ice conditions as well as departure from normal ice concentration for mid-August are shown in Figure 15 and Figure 16, respectively.

September 2006

Above normal temperatures prevailed over most locations during the month of September as indicated in Table 2. Light to moderate northerly winds dominated over the Eastern Arctic except for light and variable winds over Baffin Bay and Davis Strait during the first half of September as indicated in Figure 32. Freeze-up over the High Arctic was delayed by 2 weeks.

Bergy water continued to dominate over Baffin Bay, Davis Strait and most of Lancaster Sound, while ice free conditions persisted over Foxe Basin and eastern Barrow Strait. A continuous flow of old ice from Kane Basin maintained an area of very loose to loose old ice conditions in the entrance to Jones and Lancaster Sounds. The ice in Gulf of Boothia almost completely melted during the period except for a very small area of loose old ice in the northern entrance to Pelly Bay. The old ice which drifted into Penny Strait continued to push towards the northern shore of LCI maintaining an area of close pack old ice during the period. Some of this old ice drifted through Crozier Strait keeping an area of very loose old ice over the western side of Barrow Strait. New ice started to form over the High Arctic in late September which was 2 weeks later than normal.

Ice conditions as well as departure from the normal ice concentration for mid-September are shown in Figure 17 and Figure 18, respectively.

	J	une	July		August		September	
Stations	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.
Eureka	2.1	0.4	6.4	0.9	3.3	0.9	-4.2	3.7
Resolute	-0.2	0.2	4.4	0.4	4.0	2.6	-2.0	3.0
Pond Inlet	2.8	1.2	7.1	1.3	7.4	3.4	0.5	2.3
Clyde	0.7	0.2	5.5	1.3	5.4	1.6	1.9	2.2
Hall Beach	1.7	1.1	6.2	0.4	7.5	3.0	2.0	2.5
Pelly Bay	5.0	2.1	9.0	0.3	9.3	2.9	1.9	1.8

Table 2: Temperatures and departures from normal (°C) for Eastern Arctic









Figure 11: Eastern Arctic Regional chart - June 14th

Figure 12: Departure from normal ice concentration for Eastern Arctic - June 14th





Figure 13: Eastern Arctic Regional chart - July 17th

Figure 14: Departure from normal ice concentration for Eastern Arctic - July 17th





Figure 15: Eastern Arctic Regional chart - August 14th

Figure 16: Departure from normal ice concentration for Eastern Arctic - August 15th

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Figure 17: Eastern Arctic Regional chart - September 18th

Figure 18: Departure from normal ice concentration for Eastern Arctic -September 18th



Western Arctic

Mean air temperatures were above normal values over the entire area during the month of May. At the end of May, ice conditions were 2 weeks earlier than normal from Amundsen Gulf eastward except near normal over the rest of the Western Arctic. However, the extent of the old ice pack was further south than normal over the Beaufort Sea, while old ice concentrations were much more extensive than normal over Queen Maud Gulf and Bering Strait. Amundsen Gulf was already mobile at the start of the spring season.

June 2006

Above normal temperatures prevailed over most locations during the month of June except for near normal temperatures along the Alaskan Coast as indicated in Table 3. Light to moderate northwesterly winds developed over the Central Arctic except for light and variable winds over the Beaufort Sea and along the Alaskan Coast as indicated in Figure 29. The ice melted at a rapid pace over parts of the Central Arctic during the month. Due to the extensive amount of old ice present over the Beaufort Sea and along the Alaskan Coast, the ice decayed at a near normal rate.

The ice started to decay at a rapid pace over the eastern side of Amundsen Gulf with loose first year ice. Open water areas started to develop over Mackenzie Bay after mid-June and a week later over Kugmallit Bay which were near normal events. At the end of month, fast ice fractured over Dolphin and Union Strait and western Coronation Gulf. The rest of the Northwest Passage remained consolidated during the period. The complete fracture of the ice along Tuktoyaktuk Peninsula occurred at the end of June. The Beaufort Sea and Alaskan Coast were covered with mostly first year ice. The extent of the old ice was slightly further south than normal throughout the month. The old ice pack lay near Point Barrow with an extensive amount of old ice in Bering Strait.

Ice conditions as well as departure from normal ice concentration for mid-June are shown in Figure 21 and Figure 22, respectively.

<u>July 2006</u>

Near normal temperatures prevailed over most areas during the month of July except for above normal temperatures over Coronation Gulf as indicated in Table 3. Light to moderate northwesterly winds persisted over the Central Arctic during the month. Light to moderate easterly winds dominated over the Beaufort Sea and along the Alaskan Coast during the first half of July. Moderate southerly winds developed over these areas during the second half of the month as indicated in Figure 30. The ice melted at a moderate pace over the Central Arctic.

Due to the extensive amount of old ice present over the Beaufort Sea and along the Alaskan Coast, the ice decayed at a slow rate in July.

Fast ice fractured over eastern Coronation Gulf and in Dease Strait during the first week of July and in Queen Maud Gulf and Larsen Sound near mid-July. These events were 2 weeks earlier than normal. Due to the moderate ice melt, large areas of open water were present over Coronation Gulf, Dolphin and Union Strait and in eastern Amundsen Gulf near mid-July. At that time, very close pack old and first year ice dominated over most of Queen Maud Gulf and Larsen Sound. Most of Peel Sound remained consolidated with first year ice. Ice concentrations decreased significantly over western Amundsen Gulf as loose first year with some old ice covered the area. A very narrow open water area prevailed from Mackenzie Bay to Cape Bathurst but not wide enough to permit shipping activities. Open water leads developed along the Alaskan Coast showed very little change with the old ice pack further south than normal and near Point Barrow.

With the ice melting at a moderate pace, an open water route developed from eastern Amundsen Gulf to western Queen Maud Gulf at the end of July. At that time, loose old ice conditions persisted over eastern Queen Maud Gulf. Open water areas were also present over Rasmussen Basin, in eastern Larsen Sound and central Peel Sound. Very close pack old and first year ice dominated from Victoria Strait to western Larsen Sound, while the rest of Peel Sound was covered with very close pack first year ice. With southerly winds developing over the Beaufort Sea, the remaining ice in western Amundsen Gulf drifted out of the area during the last two weeks of July. However, the ice just off the Tuktoyaktuk Peninsula slowly moved offshore at that time, as areas of open water continued to widen. Very narrow open water leads persisted in shallow bays and inlets along the Alaskan Coast and west of Point Barrow. Otherwise ice concentrations remained more extensive than normal over the Beaufort Sea and off the Alaskan Coast.

Ice conditions as well as departure from normal ice concentration for mid-July are shown in Figure 23 and Figure 24, respectively.

August 2006

Above normal temperatures prevailed over most locations during the month of August except for near normal temperatures along the Alaskan Coast as indicated in Table 3. Light and variable winds dominated over the whole Western Arctic during the first half of the month. Light to moderate easterly winds prevailed over the Beaufort Sea and along the Alaskan Coast during the second half of the month, while light to moderate northerly winds developed over the Central Arctic as indicated in Figure 31. The ice melted at a moderate to rapid pace over the Western Arctic during the month.

As the ice continued to melt over the Northwest Passage, an open water route to Taloyoak established itself during the first week of August.

Most of the ice melted completely along the shipping route from eastern Victoria Strait to Peel Sound during the third week of August which was 3 weeks earlier than normal. At that time, an open water route developed from Mackenzie Bay to Cape Bathurst. Strips and patches of old ice persisted over western Victoria Strait at the end of the month. The ice in the Beaufort Sea continued to retreat northward during the month of August as it lay about 80 miles north of Tuktoyaktuk Peninsula at the end of August. However the northward progression of the ice off the Alaskan Coast was much slower than in the Beaufort Sea, as ice concentrations remained more extensive than normal. An area of loose to close pack old ice persisted from Barter Island to Point Barrow. West of Point Barrow, an area of very loose old ice remained close to the shore during the whole month. Ice decay was also occurring in the old ice pack over the Arctic Ocean during the month of August.

Ice conditions as well as departure from normal ice concentration for mid-August are shown in Figure 25 and Figure 26, respectively.

September 2006

Above normal temperatures prevailed over the whole Western Arctic during the month of September as indicated in Table 3. Light and variable winds dominated over the Beaufort Sea and along the Alaskan Coast during the first two weeks, while moderate easterly winds developed over the area during the second half of the month. Light to moderate northerly winds prevailed over the Central Arctic during September as indicated in Figure 32. The ice continued to melt over the Western Arctic during the month of September.

Ice free to open water conditions persisted over the Beaufort Sea and the Northwest Passage during the month except for patches of very loose old ice over the western side of Victoria Strait. Mostly open water dominated off the Alaskan Coast east of Harrison Bay. However an area of very loose to loose old ice never melted completely along the Alaskan Coast from Barter Island to Point Barrow. An open drift or less route from Mackenzie Bay to Point Barrow developed during the first week of September which was 3 weeks later than normal. The old ice pack over the Beaufort Sea remained 80 to 90 miles north of the coast and returned to its normal position at the end of the month. Freeze-up over the Western Arctic occurred in late September which was a week later than normal.

Ice conditions as well as departure from normal ice concentration for mid-September are shown in Figure 27 and Figure 28, respectively.

	J	une	July		August		September	
Stations	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.	Temp.	Depart.
Gjoa Haven	3.1	1.6	7.4	-0.1	7.9	2.3	1.4	1.7
Cambridge Bay	5.4	3.2	9.3	1.2	9.8	3.6	1.8	2.4
Kugluktuk	9.9	5.0	11.6	1.2	12.7	4.1	6.4	3.8
Tuktoyaktuk	8.2	2.0	11.9	0.9	11.1	2.0	7.4	4.7
Point Barrow	3.0	0.7	3.9	-0.4	2.5	-0.6	2.5	3.2

Table 3: Temperatures and departures from normal (°C) for Western Arctic



Figure 20: Temperature trend for Cambridge Bay from June 1st to September 30th





Figure 21: Western Arctic Regional chart - June 14th













Figure 25: Western Arctic Regional chart - August 14th REGIONAL ICE ANALYSIS Western Arctic ANALYSE REGIONALE DE GLACE Arctigue de l'Ouest 14 AUG/AOU 2006

Figure 26: Departure from normal ice concentration for Western Arctic - August 14th

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Figure 28: Departure from normal ice concentration for Western Arctic - September 18th

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WESTERN ARCTIC / ARCTIQUE DE L'OUEST







Seasonal Summary - Canadian Arctic Waters - Summer 2006



Figure 30: 1000 mb pattern for July 1-15 and July 16-31

Seasonal Summary - Canadian Arctic Waters - Summer 2006





Seasonal Summary - Canadian Arctic Waters - Summer 2006



Figure 32: 1000 mb pattern for September 1-15 and September 16-30