Prepared by the North American Ice Service

A collaboration of the Canadian Ice Service and the National/Naval Ice Center

01 June 2007

Seasonal Outlook

For North American Arctic Waters

Summer 2007

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Ice Conditions in Northern American Arctic Waters

Introduction

This outlook is produced by the North American Ice Service, which is a joint co-operation of the Canadian Ice Service and the U.S. National Ice Center.

It will give an indication of the expected pattern of breakup and clearing of ice in the North American Arctic waters. It will identify areas and timings when breakup and clearing will likely occur with emphasis on those areas where there is ship navigation and other marine activities.

The outlook has been developed through the analysis of the meteorological and ice growth regimes. Thorough analyses have been done of extensive Radarsat imagery collected during the past winter and spring. NOAA, MODIS and ERS-1 satellite imagery were also used for the evaluation of the ice cover. All of this ice information was used in the preparation of regional ice analyses for the Arctic and Hudson Bay.

The results of the meteorological and ice analyses are then compared with previous year's ice conditions and, in conjunction with the forecast for wind and temperatures for June, are applied to evaluate the breakup and the clearing of ice in the areas of interest. The Canadian Meteorological Centre provides the temperature regime for the period from the end of June to the end of August. Any variations from these forecast parameters have an impact on the forecast breakup pattern and timing.

Tables are included showing the forecast breakup or clearing dates along with median dates and last year's dates for each region. During the summer these events will be updated by a bimonthly issue of a 30-day forecast to enable planning of shipping or other activities according to changing trends. These forecasts will also include a prediction of the beginning of the freeze-up process throughout the regions.

Daily radio broadcasts of ice charts and forecasts will be made to support ongoing operations in the various areas where ice affects marine activities. Appendix A provides a link to the key to ice symbols showing the principle features of the International Ice symbols used on the ice charts. Appendix B contains links to these broadcast schedules as well as Aerial Reconnaissance Radio Facsimile Broadcast and NOAA Alaskan Marine Radio frequencies.

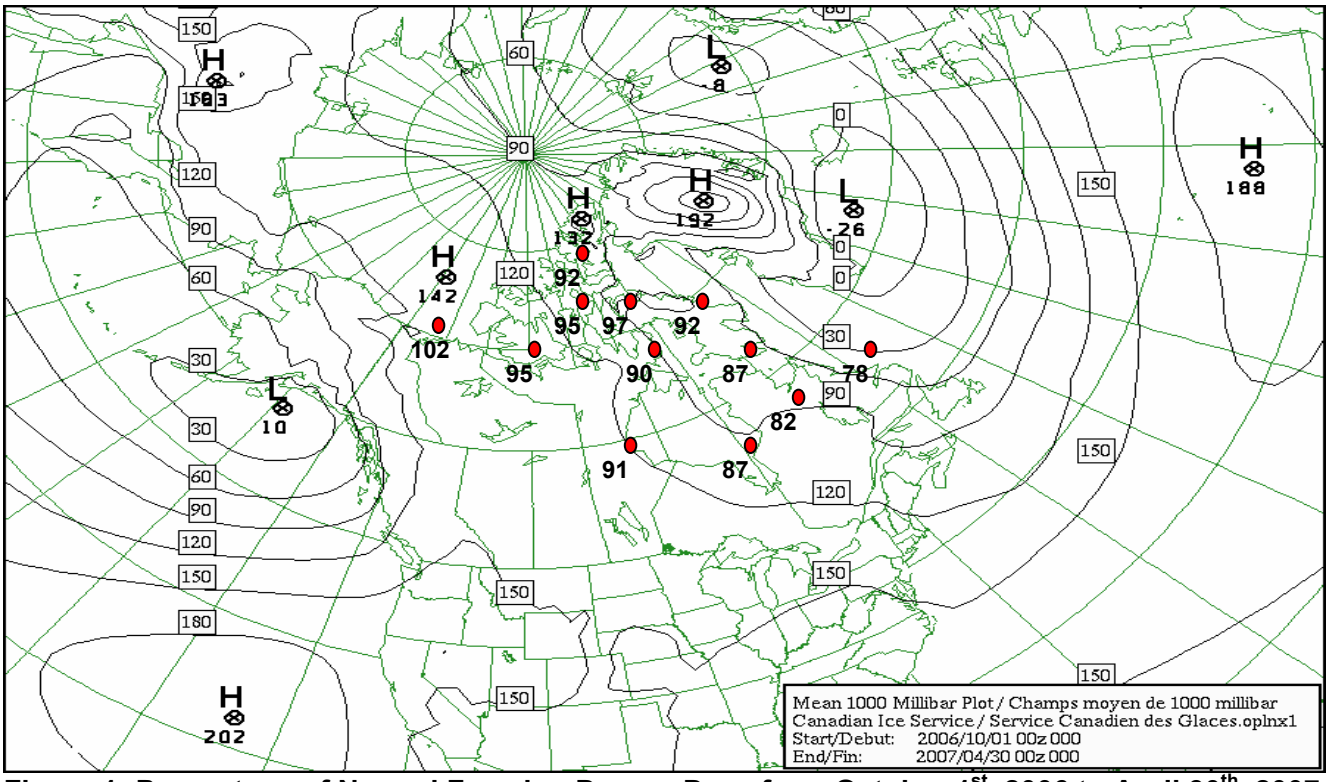

Figure 1: Percentage of Normal Freezing Degree Days from October 1st, 2006 to April 30th, 2007

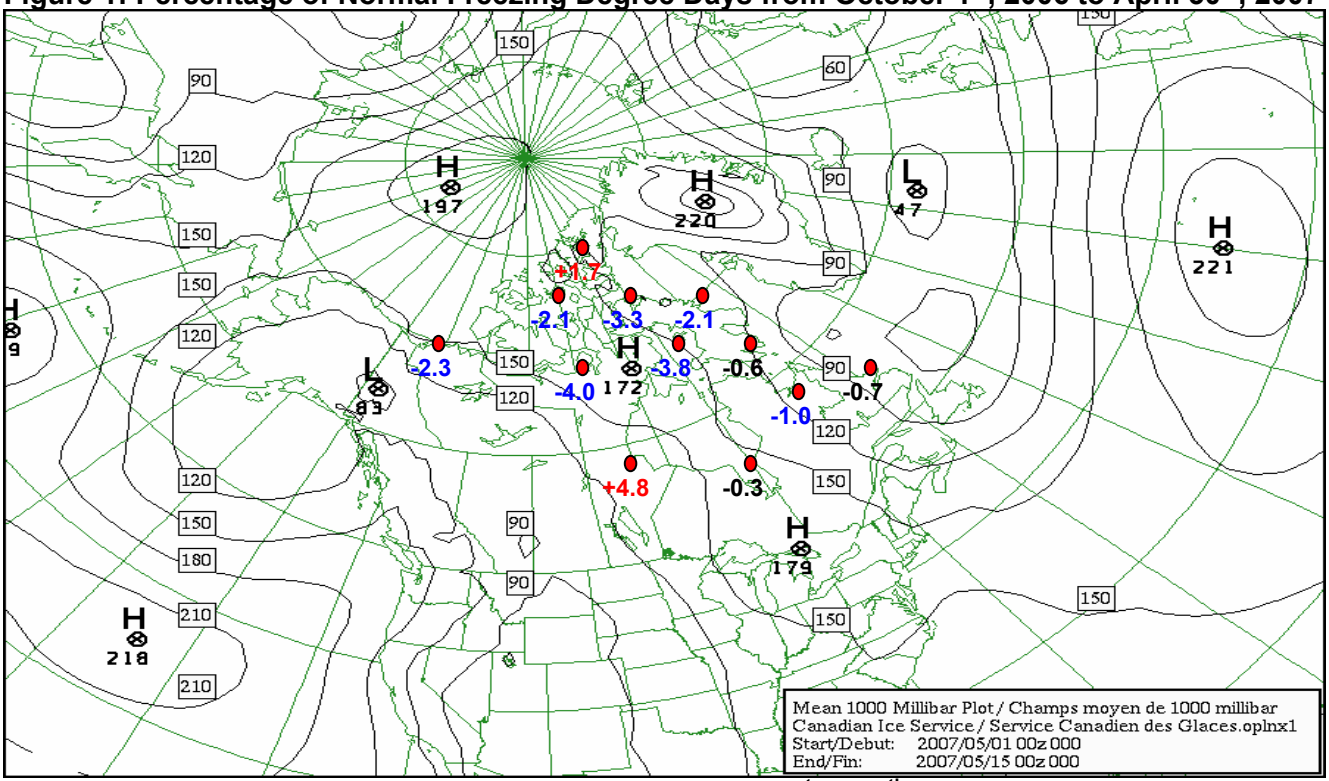

Figure 2: Departure from Normal Temperatures for May 1st to 15th, 2007

General Winter Conditions and Brief Outlook

The mean 1000 mb pressure pattern from October 01st, 2006 to April 30th, 2007 is represented in Figure 1. A low pressure system persisted east of southern Greenland with a trough lying along the western shore of Greenland. As a result, a light to moderate north to northwesterly flow prevailed along the Labrador Coast, in Davis Strait, over Hudson Strait and Hudson Bay. Light and variable winds persisted over the central part of the Arctic, in Baffin Bay and Foxe Basin, as an area of high pressure dominated over the High Arctic. Light and variable winds dominated over the Beaufort and along the Alaskan Coast, as another area of high pressure persisted over the region.

During the winter season from October 2006 to April 2007, mean air temperatures were above normal values over the whole Arctic. Temperatures were 2 to 3C above normal over Hudson Bay and Hudson Strait, along the Labrador Coast and the Eastern Arctic, while they were 1 to 3C above normal over the Western Arctic. Freezing degree day accumulations for the winter season 2006-2007 were 13 to 22 percent below normal along the Labrador Coast, Hudson Strait, Davis Strait and eastern Hudson Bay. However freezing degree day accumulations were higher over the rest of Hudson Bay and the Arctic with values being 3 to 10 percent below normal except near normal values over the Beaufort Sea. These values are indicated in Figure 1.

The mean 1000 mb pressure pattern for the first half of May is shown in Figure 2. A low pressure system redeveloped further south off the southern Labrador Coast with a trough of low pressure remaining stationary along the western Greenland Coast. This resulted in a light to moderate north to northeasterly flow to persist along the Labrador Coast, Davis Strait and Hudson Strait. Light and variable winds persisted over the rest of the Eastern and Central Arctic and Hudson Bay, as a ridge of high pressure lay from James Bay to Resolute. Light easterly winds developed over the Beaufort Sea and along the coast of Alaska, as a weak low pressure formed over Alaska. During the first half of May, mean air temperatures were in general 1 to 4C below normal except 2 to 4C above normal in Churchill and Eureka.

Above normal temperatures are generally forecast for the whole Arctic area for the first half of June except for near to slightly below normal temperatures over northern Hudson Bay, in Baffin Bay and most of the central Arctic. For the rest of the summer season, above normal temperatures are generally forecast for most areas except for near normal temperatures over northern Hudson Bay and most of the Central Arctic. As a result, breakup events will occur earlier than normal over the Beaufort Sea and along the Alaskan Coast. With the amount of old ice being significantly higher than normal, later than normal breakup events will occur in Frobisher and Ungava Bays. Near normal events will occur elsewhere in the Arctic. However, Foxe Basin, Baffin Bay and Eureka Sound will never clear this year.

Hudson Bay and Approaches

Freeze-up and Winter Ice Regime

Temperatures averaged above normal over most of the area from October through the end of January. Freeze-up was delayed by two to three weeks over all areas. As a result, by the end of January, the calculated ice thicknesses were less than normal.

There was slow ice growth through the month of November. New ice started to form along the shores of Southampton Island, in Roes Welcome Sound and along the northwestern shore of Hudson Bay during the first week in November. By the end of November, new and grey ice lay along the western and southern shores of Hudson Bay, and western James Bay. The main ice pack in Davis Strait lay north of Cumberland Sound with patchy new ice along the southern Baffin Island Coast.

There was moderate ice growth through December. Most of Hudson Bay and Hudson Strait became completely ice covered with grey to thin first year ice by Christmas Day. There was an open water area northeast of the Belcher Islands. At this time the main ice edge lay near Cape Chidley with new ice along the Labrador Coast, greywhite and grey ice in Frobisher Bay and Cumberland Sound and greywhite to thin first year offshore. By the end of January, Hudson Bay and Hudson Strait was covered with thin to medium first year ice, the Labrador Coast with greywhite to thin first year ice and Davis Strait with thin first year ice. The ice extent was near normal over Hudson Bay and Hudson Strait but less than normal along the Labrador Coast and Davis Strait. The trace of old ice lay just south of Cape Chidley at this time.

Temperatures were near to above normal values over Hudson Bay and Approaches from February to April resulting in a moderate ice growth during that period. However, slow ice growth was observed over most locations during the first half of May with temperatures being near to slightly above normal values. Most areas were covered with thick and medium first year ice at the end of April. An area of 2 tenths of old ice embedded in the first year ice was located over Davis Strait north of Cumberland Sound. Similar ice conditions were present over Newfoundland waters with close to very close pack first year ice with areas of 2 tenths old ice embedded in the ice pack. During the first half of May, large areas of bergy water are developing along the northern shore of Hudson Strait, in Frobisher Bay and in Cumberland Sound. Small open water leads are forming near Churchill and Inukjuak. Little change in the ice conditions was observed elsewhere for the first half of May. However the ice decay over Newfoundland waters has been slower than normal as mean air temperatures remained below normal values. The ice extent along the Labrador Coast and in Davis Strait was slightly further west than normal but was much further south than normal over Newfoundland waters.

Observed Ice Conditions

The regional ice chart in figure 3 was based on the analysis of Radarsat and NOAA/MODIS imageries from around May 21st, 2007. This chart reveals some of the following features:

a) Large bergy water leads were lying over northern Hudson Strait, in Frobisher Bay and over Cumberland Sound.

b) Ice edge over Davis Strait and Labrador Waters was further west than normal.

c) Much looser ice than normal was present near Churchill, along the northwestern shore of Hudson Bay and south of Southampton Island.

d) Ice was thinner than normal over the entire area.

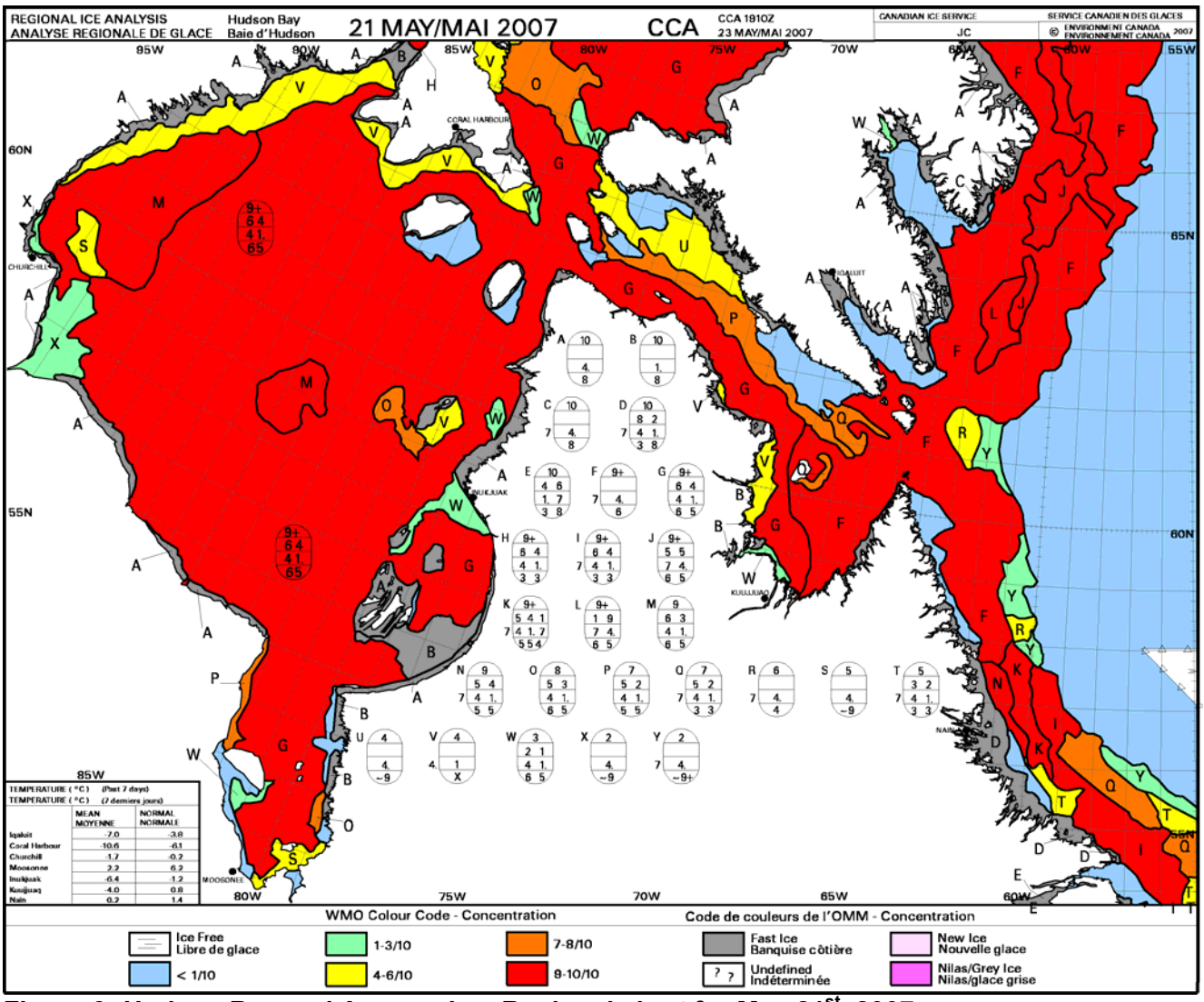

Figure 3: Hudson Bay and Approaches Regional chart for May 21st, 2007

Outlook for Hudson Bay and Approaches

In early June, a low pressure system moving over Newfoundland will bring periods of moderate north to northwesterly winds over the area. During the first two weeks of June, periods of moderate to strong south to southwesterly winds will develop over Newfoundland and southern Labrador Coast. For the rest of Hudson Bay and Approaches, a series of storms moving from central Hudson Bay to the northern Labrador Coast will bring periods of moderate southerly winds ahead of these storms, while periods of moderate northerly winds will develop in its wake. As a result, mean air temperatures will be slightly above normal values over most areas during the first half of June except near normal over northern Hudson Bay and western Hudson Strait.

Near to slightly above normal temperatures are expected over most locations for the rest of the summer season. This will result in a near to slightly later normal breakup except earlier than normal over northern Hudson Bay. The only exception is that the ice over Newfoundland waters is expected to retreat north of the Strait of Belle Isle during the third week of June which is later than normal. The presence of old ice in the Davis Strait area will bring a near normal breakup over the Frobisher Bay area. With periods of northerly winds developing over northern Hudson Bay, an open water route will develop over the area near mid-July. An open drift or less route to Frobisher Bay will develop during the third week of July. At the end of July, an open water route will form over Hudson Strait. With the ice decay being delayed over Newfoundland and along the Labrador Coast, the ice is expected to retreat normally north of Cape Chidley at the end of July. With the presence of old ice affecting the breakup in Davis Strait and the eastern entrance to Hudson Strait, the ice will melt completely over Ungava Bay and Hudson Strait during the first week of August. The ice will retreat north of Frobisher Bay a week later. With the ice melting in a near normal pattern, the ice will melt completely over James Bay in early August and near mid-August over Hudson Bay.

Table 1: Hudson Bay and Approaches - Break-up Outlook Dates for 2007

	2006	Median	Outlook for 2007
Labrador Coast to Cape Chidley **- Clearing**	10 Jul	29 Jul	28-30 Jul
Frobisher Bay **- Open drift or less** **- Clearing**	10 Jul 29 Jul	19 Jul 08 Aug	17-19 Jul 14-16 Aug
Ungava Bay **- Clearing**	09 Jul	03 Aug	09-11 Aug
Open water route through Hudson Strait (eastern entrance to south of Nottingham Island)	16 Jul	28 Jul	28-30 Jul
Hudson Strait **- Clearing**	27 Jul	08 Aug	04-06 Aug
Open water route to Churchill (eastern entrance of Hudson Strait to Churchill)	16 Jul	30 Jul	28-30 Jul
Open water route through northern Hudson Bay (south of Nottingham Island to Churchill)	16 Jul	20 Jul	14-16 Jul
James Bay **- Clearing**	29 Jul	29 Jul	02-04 Aug
Hudson Bay **- Clearing**	15 Aug	16 Aug	14-16 Aug

Eastern Arctic

Freeze-up and Winter Ice Regime

Temperatures averaged above normal over most of the area from October through the end of January. Freeze-up was delayed by two to three weeks over all areas. As a result, by the end of January, the calculated ice thicknesses were less than normal and the measured thicknesses were near or slightly less than normal.

By the end of the summer of 2006, the old ice distribution was near normal. Just after mid-September, new ice started forming in Eureka Sound, Norwegian Bay, Penny Strait and a week later in Jones Sound and Prince Regent Inlet. By early October this ice had thickened to mostly grey ice. A series of storms in October significantly delayed the formation and expansion of ice from Barrow Strait into Baffin Bay. By the end of October, Eureka Sound consolidated two weeks later than normal. Open water to bergy water areas remained in Wellington Channel and portions of Prince Regent Inlet and Lancaster Sound. Normally northwestern Baffin Bay into the High Arctic would be ice covered by this time.

Rapid ice growth and expansion was well under way by mid-November. At mid-November, Eureka Sound, Norwegian Bay and Pelly Bay had consolidated. By the end of November, McDougall Sound and southern Admiralty Inlet consolidated. At this time the ice growth in Baffin Bay extended over western Baffin Bay from Cape Dyer to 74N along the western Greenland Coast. Freeze-up in Baffin Bay was about 10 days later than normal. There was patchy two tenths of old ice in Central Baffin Bay. Most of Foxe Basin was covered with greywhite to thin first year ice. By the end of December, Barrow Strait west of Resolute had become consolidated. The bergy water lead along the west Greenland Coast extended north of Disko Island to 72N.

By the end of January, the ice extent was near normal. Barrow Strait had consolidated with Lancaster Sound and Prince Regent Inlet remaining mobile. Kennedy Channel to Kane Basin remained mobile allowing old ice to continue flowing from the north into Baffin Bay. There was a long line of 1 to 2 tenths of old ice in the main ice pack in Baffin Bay. The bergy water along the west Greenland Coast lay south of Disko Island. The ice extent was near normal but the calculated ice thicknesses remained less than normal.

Temperatures were near to above normal values over the Eastern Arctic from February to April resulting in a moderate to rapid ice growth during that period. However, moderate ice growth was observed over most areas during the first half of May with temperatures being slightly below normal values. Mostly thick first year ice was present over most areas at the end of April. As the ice bridge didn't form in Nares Strait during the winter season, bands of 2 to 4 tenths of old ice embedded in the first year ice prevailed over the western section of Baffin Bay and in the northern section of Davis Strait. Only a trace of old ice was present in the ice pack in Lancaster Sound and along the shipping route to Kugaaruk and south of Resolute. Areas of thinner ice conditions started to form over the extreme northern portion of Baffin Bay and in western Lancaster Sound.

During the first half of May, little change was observed in the ice conditions except for looser ice conditions forming east of Jones Sound, in western Lancaster Sound and over northwestern Foxe Basin. The bergy water lead along the Greenland Coast was south of Disko Island. The ice extent over Baffin Bay was slightly further west than normal.

Observed Ice Conditions

The regional ice chart in figure 4 was based on the analysis of Radarsat and NOAA/MODIS imageries from around May 21st, 2007. This chart reveals some of the following features:

a) The bergy water lead along the west Greenland Coast was south of Disko Island which was near normal.

b) The fast ice edge in eastern Barrow Strait was located east of Wellington Channel which was slightly further west than normal.

c) Only a trace of old ice was present in northern Admiralty Inlet, south of Resolute and along the shipping route to Kugaaruk.

d) The eastern extent of the sea ice was slightly further west than normal in Davis Strait and southern Baffin Bay.

e) More old ice than normal was present in western Baffin Bay, in northern Davis Strait and from Norwegian Bay to Eureka Sound.

f) Large area of bergy water was lying over the northern portion of Lancaster Sound.

g) Much looser ice than normal was present over northwestern Foxe Basin.

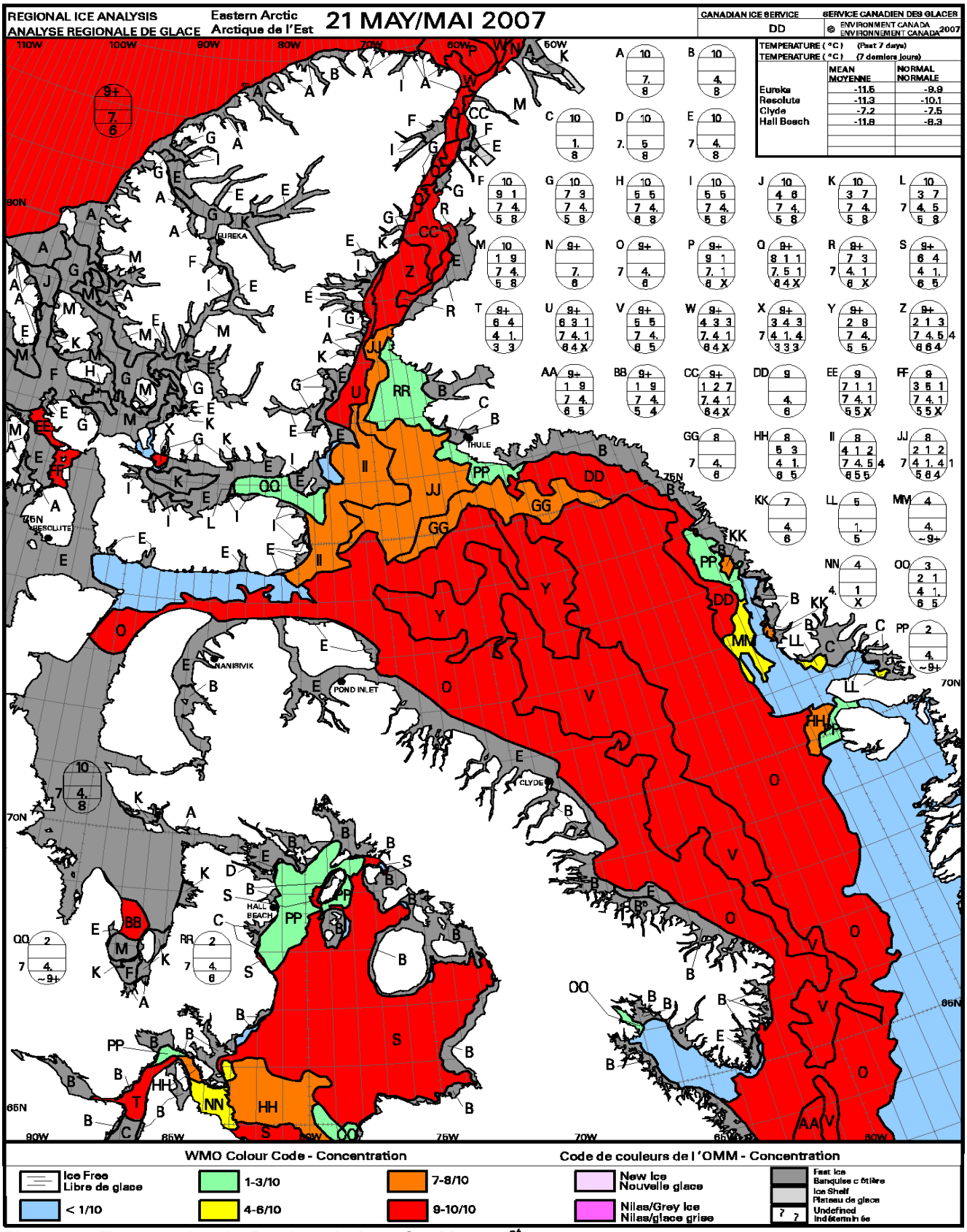

Figure 4: Eastern Arctic Regional chart for May 21st, 2007

Outlook for the Eastern Arctic

During the first week of June, light and variable winds will dominate over the Eastern Arctic. Periods of moderate southerly winds will develop over the central part of the Arctic during the second week of June, while light and variable winds will persist over the rest of the Eastern Arctic. As a result, mean air temperatures will be near to slightly below normal over most locations except slightly above normal over the High Arctic and in Davis Strait.

Above normal temperatures are expected over most locations for the rest of the summer season except for near normal temperatures over the central part of the Arctic and in Barrow Strait. This will result in a near normal breakup over most areas except for slightly earlier than normal breakup events in northern Baffin Bay and eastern Barrow Strait. The ice in eastern Barrow Strait will fracture during the first week of July. With periods of northerly winds developing over northern Baffin Bay, an open drift or less route will form over the area near mid-July. A week later, the ice will fracture in northern Admiralty Inlet and in western Barrow Strait. During the last week of July, an open water route will develop normally over northern Baffin Bay, while fracture will occur in Pond Inlet and Wellington Channel. At the end of July, an open drift or less route to Cape Dyer will form over the area. The ice will continue to fracture over Jones and Eureka Sounds at that time.

In early August, the ice will fracture in southern Norwegian Bay. At that time, most of the ice will melt over Pond Inlet. During the first week of August, ice will fracture in northern Norwegian Bay and in McDougall Sound, while an open drift or less route will develop to Home Bay. At that time, the ice will melt completely over northern Admiralty Inlet. As the old ice continues to flow through Kane Basin during the summer, this will prevent Baffin Bay to clear out completely mostly over the western section. The old ice which will be present in the ice pack during the summer season will delay the clearing of Davis Strait until first week of September. With periods of northerly winds and near normal temperatures over Foxe Basin during the summer, an open water route will form in early September. As a result, most of the remaining ice at the end of the summer will lay along the northern shore of Southampton Island. As some floes of old ice are present north of Eureka Sound, this will prevent the area to clear off.

Table 2: Eastern Arctic - Break-up Outlook Dates for 2007

	2006	Median	Outlook for 2007
Route across Northern Baffin Bay			
- Open drift or less	21 Jun	19 Jul	14-16 Jul
- Bergy water route	27 Jun	29 Jul	25-27 Jul
Baffin Bay			
- Clearing	22 Aug	10 Sep	Never clear
Davis Strait			
- Clearing	09 Aug	02 Sep	01-03 Sep
Home Bay			
- Open drift or less	25 Jul	08 Aug	07-09 Aug
Cape Dyer			
- Open drift or less	18 Jul	27 Jul	28-30 Jul
Open water route			
to Hall Beach	16 Aug	04 Sep	03-05 Sep
Foxe Basin			
- Clearing	01 Sep	20 Sep	Never clear
Pond Inlet			
- Fracture[1]	24 Jul	25 Jul	25-27 Jul
- Clearing	03 Aug	12 Aug	03-05 Aug
Admiralty Inlet northern half			
- Fracture[1]	23 Jul	22 Jul	20-22 Jul
- Bergy water	29 Jul	10 Aug	07-09 Aug
Lancaster Sound			
- Fracture[1]	Not consolidated	08 Jul	Not consolidated
Barrow Strait to Resolute			
- Fracture/eastern[1]	04 Jul	11 Jul	05-07 Jul
- Fracture/western[1]	20 Jul	25 Jul	22-24 Jul
Wellington Channel			
- Fracture[1]	17 Jul	28 Jul	26-28 Jul
McDougall Sound			
- Fracture[1]	27 Jul	05 Aug	05-07 Aug
Kane Basin			
- Fracture[1]	03 Jul	23 Jul	Not consolidated
Jones Sound			
- Fracture[1]	20 Jul	01 Aug	29-31 Jul
Norwegian Bay			
- Fracture/southern[1]	04 Aug	02 Aug	03-05 Aug
- Fracture/northern[1]	04 Aug	09 Aug	09-11 Aug
Eureka Sound			
- Fracture[1]	02 Aug	02 Aug	31 Jul-02 Aug
- Bergy water	Never cleared	18 Aug	Never clear
Pacer Goose route to Thule			
-Open drift or less	21 Jun	19 Jul	14-16 Jul
-Bergy water route	27 Jun	29 Jul	25-27 Jul

[1] Fracture indicates complete breakage of consolidated ice.

Western Arctic

Freeze-up and Winter Ice Regime

Temperatures averaged above normal over most of the area from October through the end of January. Freeze-up was delayed by two to three weeks over all areas. As a result, by the end of January, the calculated and measured ice thicknesses were less than normal at Inuvik and Cambridge Bay.

At the beginning of freeze-up, the old ice extent was less than normal over Larsen Sound. Elsewhere, there was open water from St. Roch Basin through Dease Strait into the Amundsen Gulf and along the Alaskan Coast. The main pack of old ice was farther north than normal along the Alaskan Coast. New ice growth started in early October over Larsen and Peel Sounds which was later than normal. Until mid-October, there was slow ice growth and expansion. By the end of October there was moderate ice growth with new and grey ice along the Alaskan Coast to Point Barrow and in Mackenzie Bay. The old ice pack was well offshore. Portions of the Tuktoyaktuk Peninsula and Queen Maud Gulf had become consolidated. Most of the Amundsen Gulf, western Coronation Gulf and portions of the Queen Maud Gulf, St Roch Basin, Rasmussen Basin and Peel Sound remained open water. Normally, most of these areas would be completely ice covered by this time.

There was rapid ice growth and expansion in November. By mid-November, greywhite and grey ice covered Peel Sound through the Queen Maud Gulf into the Amundsen Gulf and along the Alaskan Coast to Point Barrow. Dease Strait had become consolidated. By the end of November, Peel Sound was consolidated with first year ice while Coronation Gulf, southern Queen Maud Gulf, St Roch and Rasmussen Basins were consolidated with greywhite and thin first year ice. Greywhite to thin first year ice covered the shipping route from Larsen Sound through the remainder of the Queen Maud Gulf. First year ice covered the Amundsen Gulf and the Alaskan Coast to Point Barrow. Normally by this time most of these inland areas and the Alaskan Coast would be consolidated. The old ice edge lay about 30 miles west of Banks Island, 90 miles north of the Tuktoyaktuk Peninsula and 200 miles north of Point Barrow.

By the end of December, Amundsen Gulf and the area from the Alaskan Coast to the old ice edge were covered with medium first year with a trace of old ice. The waterways was completely consolidated with medium first year ice. During the month of January, there was little change in the ice pattern. There was a mean easterly flow over the Beaufort Sea during this period causing the main pack of old ice to move slightly westwards. By the end of January, the old ice edge lay 70 miles west of Banks Island, 100 miles north of the Tuktoyaktuk Peninsula and 60 miles north of Point Barrow.

Temperatures were near normal values over the Western Arctic from February to April resulting in a moderate to rapid ice growth during that period. However, slow to moderate ice growth was observed over most areas during the first half of May with temperatures being below normal values. Little change was observed in the ice conditions during the period. First year ice was present over the southern Beaufort Sea and along the Alaskan Coast.

The southern edge of the old ice lay along its normal position but was further north than normal near Point Barrow. The position of the old ice pack was about 100 miles north of Tuktoyaktuk Peninsula, 90 miles north of Barter Island and 60 miles north of Point Barrow at the end of April. There is no old ice present in the ice pack in the Bering Sea and south of Point Barrow in the Chukchi Sea this year. Thick first year ice dominated along the shipping route from Amundsen Gulf to Peel Sound with only a trace of old ice embedded. Narrow bands of one tenth of old ice can be encountered in the ice pack in central Larsen Sound. Periods of easterly winds which developed during the second half of April maintained narrow areas of thinner ice conditions along the western shore of Banks Island, over the extreme eastern section of Amundsen Gulf and off the fast ice along the Tuktoyaktuk Peninsula. During the first half of May, clearing was already under progress over these areas.

Observed Ice Conditions

The regional ice charts in figures 5 and 6 were based on the analysis of Radarsat and NOAA/MODIS imageries from around May 21st, 2007. These charts reveal some of the following features:

a) Only a trace of old ice dominated along the shipping route from east of Amundsen Gulf to Peel Sound except for near normal old ice concentrations in central Larsen Sound.

b) The southern edge of the old ice pack was in its normal position over the Beaufort Sea except much further north than normal north of Point Barrow.

c) A trace of old ice lay southwest of Point Barrow.

d) Much less than normal old ice concentrations were in M'Clintock Channel and Viscount Melville Sound.

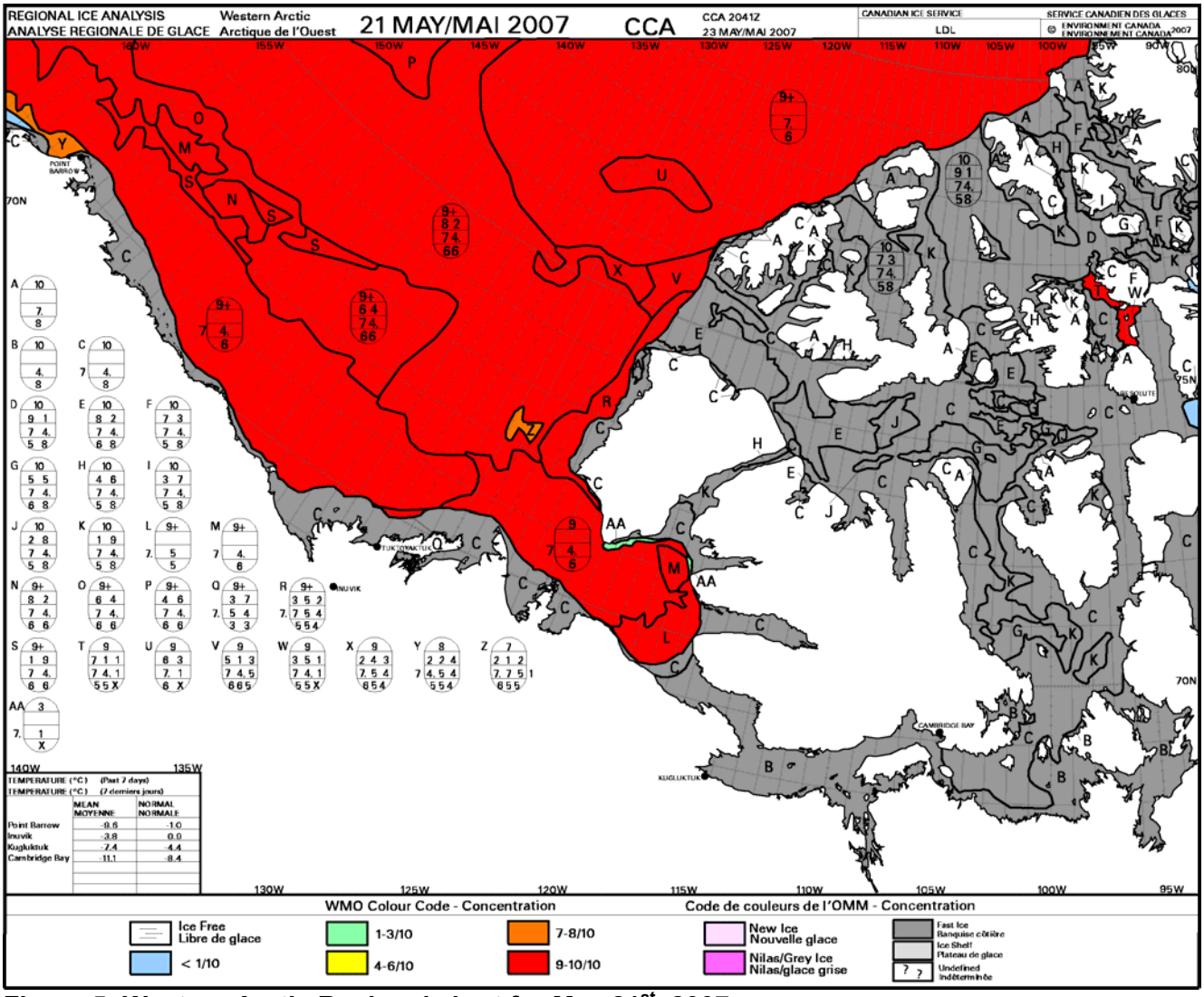

Figure 5: Western Arctic Regional chart for May 21st, 2007

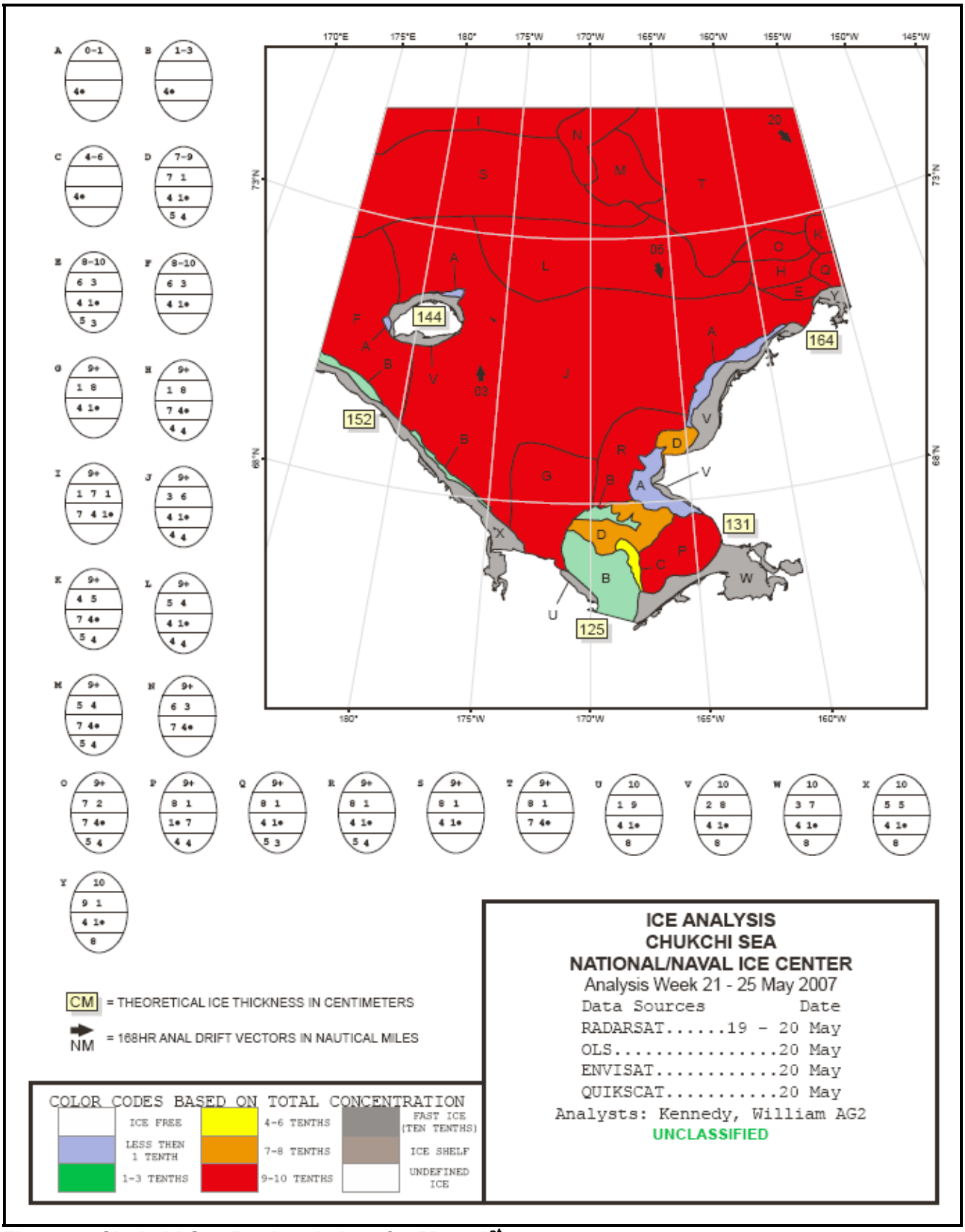

Figure 6: Chukchi Sea Regional chart for May 21st, 2007

Outlook for the Western Arctic

During the first half of June, a moderate southerly flow will develop over the Northwest Passage, while periods of moderate easterly winds will dominate over the Beaufort Sea and along the Alaskan Coast. By mid-June, a moderate northerly flow will dominate over the central part of the Arctic, while a moderate easterly flow will persist over the rest of the Western Arctic. As a result, mean air temperatures will be above normal over most locations except near normal from Coronation Gulf to Peel Sound.

Above normal temperatures are expected over most locations for the rest of the summer season except for near normal temperatures over the central part of the Arctic from Coronation Gulf to Peel Sound. This will result in an earlier than normal breakup over most areas except for near normal breakup events over Tuktoyaktuk Peninsula, in Mackenzie Bay and along the shipping route from Amundsen Gulf to Peel Sound. The ice will melt completely in Mackenzie Bay and in Kugmallit Bay during the third week of June. The ice will fracture along the Tuktoyaktuk Peninsula at the beginning of July. The ice will completely fracture over Coronation and Queen Maud Gulfs during the third week of July, while an open drift or less route from Cape Lisburne to Point Barrow will form over the area. A week later, an open water route from Mackenzie Bay to Cape Bathurst will develop over the area. At the end of the last week of July, the ice will continue to fracture along the shipping route from Larsen to Peel Sounds. With periods of easterly winds developing over the Beaufort Sea this summer, this will result in the open drift or less route to develop from Prudhoe Bay to Point Barrow at the end of July. At that time, the ice will melt completely over Coronation Gulf.

At the end of the first week of August, an open drift or less route from Mackenzie Bay to Prudhoe Bay will establish itself over the area, while an open water route will form along the western Alaskan Coast to Point Barrow. With near normal temperatures this summer, an open water route will develop from Amundsen Gulf to Taloyoak at the beginning of the third week of August. The ice will clear out of Amundsen Gulf just before mid-August.

Table 3: Western Arctic - Break-up Outlook Dates for 2007

	2006	Median	Outlook for 2007
Mackenzie Bay			
- Clearing	18 Jun	18 Jun	19-21 Jun
Kugmallit Bay			
- Clearing	26 Jun	27 Jun	22-24 Jun
Tuktoyaktuk Peninsula			
- Fracture[1]	30 Jun	03 Jul	30 Jun-02 Jul
Mackenzie Bay to Cape Bathurst			
- Open water route	20 Aug	27 Jul	22-24 Jul
Coastal waterway Mackenzie Bay to Prudhoe Bay			
- Open drift or less	30 Aug	14 Aug	09-11 Aug
Coastal waterway Prudhoe Bay to Point Barrow			
- Open drift or less	04 Sep	12 Aug	29-31 Jul
- Close pack (refreeze)	13 Oct	06 Oct	10-12 Oct
Cape Lisburne to Point Barrow			
- Open drift or less	07 Aug	05 Aug	21-23 Jul
- Open water route	11 Aug	17 Aug	07-09 Aug
Wainwright			
- Open drift or less	26 Jul	29 Jun	25-27 Jun
Coastal waterway Prudhoe Bay to Barter Island			
- Open drift or less	30 Aug	01 Aug	21-23 Jul
Open water route			
to Taloyoak	07 Aug	17 Aug	19-21 Aug
Amundsen Gulf			
- Fracture[1]	Not consolidated	07 Jul	Not consolidated
- Clearing	01 Sep	15 Aug	10-12 Aug
Coronation Gulf			
- Fracture[1]	03 Jul	16 Jul	15-17 Jul
- Clearing	17 Jul	01 Aug	29-31 Jul
Queen Maud Gulf			
- Fracture	12 Jul	23 Jul	19-21 Jul
Larsen Sound			
- Fracture[1]	16 Jul	01 Aug	27-29 Jul
Peel Sound			
- Fracture[1]	31 Jul	31 Jul	27-29 Jul

[1] Fracture indicates complete breakage of consolidated ice.

Table 4: Selected Sea Ice Data and Severity Index for the north coast of Alaska (1953-2006)

		1	2	3	4	5	6	7	8		
RANK	YEAR	10-Aug	15-Sep	10-Aug	15-Sep	date	date	#days	#days	Obs Inx	Fcst Indx
1	2004	13	238	70	260	16-Jul	8-Oct	71	68	637	602
2	1958	50	150	50	210	19-Jul	25-Oct	92	99	624	446
3	1968	25	165	30	200	19-Jul	18-Oct	86	91	615	495
4	1998	15	105	20	240	15-Jul	21-Oct	72	100	584	486
5	2005	70	130	85	250	23-Jul	3-Oct	63	70	580	381
6	2003	18	167	27	185	21-Jul	20-Oct	52	92	568	481
7	1993	0	130	5	185	18-Jul	7-Nov	64	112	565	388
8	2002	0	135	18	225	13-Aug	14-Oct	32	64	504	293
9	1962	25	150	30	150	19-Jul	30-Sep	49	68	490	406
10	1973	5	80	5	190	31-Jul	20-Oct	73	82	486	344
11	1954	20	115	20	210	1-Aug	30-Sep	38	61	484	552
12	1997	28	150	40	150	8-Aug	10-Oct	47	63	463	297
13	1963	5	130	5	130	13-Aug	18-Oct	67	67	442	351
14	1990	0	90	40	90	23-Jul	12-Oct	75	105	429	173
15	1961	15	105	15	135	25-Jul	24-Sep	49	62	418	414
16	1996	10	65	70	155	16-Jul	25-Sep	37	71	405	446
17	1979	0	125	0	125	4-Aug	8-Oct	31	56	394	178
18	1989	10	70	55	110	19-Jul	22-Oct	34	95	383	284
19	1974	10	100	10	100	6-Aug	5-Oct	35	61	351	372
20	1978	5	70	30	95	25-Jul	9-Oct	35	76	343	492
21	1986	10	80	10	110	29-Jul	21-Oct	30	58	342	517
22	1999	15	45	45	105	30-Jul	8-Oct	56	70	338	98
23	1977	5	55	25	85	2-Aug	15-Oct	63	74	336	381
24	1959	20	65	20	65	19-Jul	6-Oct	42	86	331	271
25	1995	30	30	50	50	15-Jul	17-Oct	70	94	329	477
26	1972	0	60	30	90	31-Jul	1-Oct	45	63	320	251
27	1982	0	85	0	95	3-Aug	10-Oct	21	69	318	271
28	2006	17	18	17	69	4-Aug	13-Oct	60	70	275	-462
29	1994	10	35	10	60	5-Aug	24-Sep	44	55	251	334
30	1957	5	45	70	60	1-Aug	6-Oct	18	67	250	300
31	1987	0	10	0	85	5-Aug	30-Oct	35	59	250	299
32	1981	0	0	35	100	26-Jul	1-Oct	0	66	232	521
33	2000	10	70	10	75	31-Jul	2-Oct	19	33	228	274
34	1985	0	35	0	55	1-Aug	15-Oct	22	52	224	245
35	1967	15	0	30	50	25-Jul	12-Oct	25	68	213	212
36	1984	0	25	0	50	11-Aug	15-Oct	21	42	209	219
37	1966	5	0	5	45	1-Aug	22-Oct	24	65	194	296

		1	2	3	4	5	6	7	8		
RANK	YEAR	10-Aug	15-Sep	10-Aug	15-Sep	date	date	#days	#days	Obs Inx	Fcst Indx
38	1992	15	0	15	75	9-Aug	19-Sep	24	37	188	560
39	1965	0	10	0	70	25-Aug	25-Sep	25	32	173	182
40	2001	0	25	15	25	17-Aug	8-Oct	26	52	172	262
41	1980	15	25	15	25	5-Aug	30-Sep	11	42	159	426
42	1953	0	0	5	35	27-Jul	16-Sep	5	52	157	213
43	1976	0	15	0	15	15-Aug	7-Oct	21	53	150	106
44	1971	0	0	0	30	23-Aug	1-Nov	8	71	147	166
45	1991	0	0	0	20	16-Aug	2-Oct	0	46	111	199
46	1960	0	0	20	20	5-Aug	7-Sep	0	34	110	231
47	1988	0	0	0	25	9-Aug	20-Sep	0	32	110	354
48	1964	0	0	0	5	13-Aug	20-Sep	0	39	95	536
49	1983	0	10	0	10	8-Aug	16-Sep	0	21	92	41
50	1970	0	0	5	0	6-Aug	14-Sep	0	32	87	251
51	1956	0	0	0	40	7-Sep	30-Sep	0	24	87	93
52	1969	0	0	0	30	7-Sep	18-Sep	5	12	70	157
53	1955	0	0	5	15	13-Sep	24-Sep	0	12	44	44
54	1975	5	0	5	0	NEVER	NEVER	0	0	0	8

1 - Distance from Point Barrow northward to ice edge (10 Aug)

2 - Distance from Point Barrow northward to ice edge (15 Sept)

3 - Distance from Point Barrow northward to boundary of five tenths ice concentration (10 Aug)

4 - Distance from Point Barrow northward to boundary of five tenths ice concentration (15 Sep)

5 - Initial date entire sea route to Prudhoe Bay less than/equal to five tenths ice concentration

6 - Date that combined ice concentration and thickness dictate end of prudent navigation

7 - Number of days entire sea route to Prudhoe Bay ice free

8 - Number of days entire sea route to Prudhoe Bay less than/equal to five tenths ice concentration

Appendix A : Key To Canadian Ice Service Sea Ice Symbols

For more information on this section, please refer to the following web link on the Canadian Ice Service web site:

http://ice-glaces.ec.gc.ca/App/WsvPageDsp.cfm?Lang=eng&lnid=76&ScndLvl=no&ID=11030

or on the National Ice Center web site:

http://www.natice.noaa.gov/egg_code/index.html

Appendix B : Broadcast Schedules For Arctic Ice and Marine Conditions

For more information on this section, please refer to the following web links:

Canadian Coast Guard (Radio Aids to Marine Navigation):

http://www.ccg-gcc.gc.ca/mcts-sctm/ramn/docs/index_e.htm#ae

Alaska Marine VHF Voice:

http://www.nws.noaa.gov/om/marine/akvhfv.htm

NOAA MF/HF Voice – 4125 kHz:

http://www.nws.noaa.gov/om/marine/noaahfv.htm

NOAA Weather Radio at U.S. Coast Guard Sites in Alaska:

http://www.nws.noaa.gov/om/marine/aknwr.htm

For further information, please contact Canadian Ice Service by:

Phone: 1-877-789-7733
Fax: 1-613-947-9160
E-Mail: ECWeather-Meteo@ec.gc.ca

Or National Ice Center by:

Phone: 1-301-394-3050
E-Mail: liaison@natice.noaa.gov