



## Freeze-Up and Winter Ice Regime

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### Hudson Bay and Approaches

During October and November, temperatures averaged above normal but they were slightly below normal over Northwestern Hudson Bay. Freeze-up started early over Northwestern Hudson Bay but by the end of November freeze-up was delayed ten days over all areas. Below normal temperatures covered all regions during December and January. As a result, ice conditions and calculated ice thicknesses were near normal by the end of January.

New ice started to form along the shores of Southampton Island, in Roes Welcome Sound and along the northwestern shore of Hudson Bay the second half of October. By mid- November, new and grey ice lay along the western and southern shores of Hudson Bay, James Bay and southern Ungava Bay. There was mostly grey ice over Northwestern Hudson Bay, Foxe Channel and off Southampton Island to Nottingham Island. Freeze-up occurred 10 days later than normal.

By the beginning of December, most of Hudson Bay was covered with grey to greywhite ice except for thin first year ice covered northern Hudson Bay. East of the Belcher Islands there was an area of open water. New and grey ice lay along the shores of Ungava Bay and the southern half of Hudson Strait. Bergy water persisted in northern Hudson Strait and along the Labrador Coast to Resolution Island with patchy new and grey ice into Frobisher Bay. Mostly greywhite ice persisted north of Frobisher Bay. Normally Hudson Bay and most of Hudson Strait would be completely ice covered by this time with the main ice edge off the Labrador Coast near Cape Chidley.

By the first of January, Hudson Bay, Hudson Strait and north of Resolution Island were covered with mostly greywhite to thin first year ice. There was mostly grey and greywhite ice off the Labrador Coast. The ice extent was near normal.

By the beginning of February, Hudson Bay and Hudson Strait was covered with thin to medium first year ice, the Labrador Coast with greywhite to thin first year and Davis Strait with thin first year ice. The ice extent was near normal. The trace of old ice lay down to Cape Chidley at this time.

### Eastern Arctic

Above normal temperatures were recorded over all areas during the month of October. Temperatures dropped to below normal over Northern Baffin Bay, the High Arctic and Foxe Basin in November. Temperatures over southern Baffin Bay and Davis Strait continued above normal in November but dropped to below normal in December. Below normal temperatures continued through January

except for a rebound over the High Arctic in January to above normal temperatures. Freeze-up started near normal over the High Arctic and slightly later than normal over Baffin Bay. By the end of January, near normal ice conditions were reported over the entire area. Calculated and measured ice thicknesses were near to slightly above normal.

By the end of the summer of 2004, the old ice distribution was near normal except for more old ice than normal in southern Lancaster Sound and Norwegian Bay. Around mid-September, new ice started forming between the old ice floes in Eureka Sound, Norwegian Bay, Wellington Channel, Barrow Strait and Prince Regent Inlet. By early October this ice had thickened to greywhite over Eureka Sound, Norwegian Bay, Wellington Channel and grey over Jones Sound and Prince Regent Inlet.

By the end of October this grey and greywhite ice had thickened to mostly thin first year with new and grey ice over northwestern Baffin Bay and northern Foxe Basin. Freeze-up was well under way.

At mid-November, Eureka Sound, Norwegian Bay, northwestern Wellington Channel, Admiralty, Pond and Navy Board Inlets, Pelly Bay, southern portions of Committee Bay and portions of Foxe Basin consolidated. At this time the ice growth in Baffin Bay extended southward along the eastern side of Baffin Island to the entrance of Cumberland Sound and 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. Foxe Basin was covered with greywhite to thin first year ice.

By the end of December, Barrow Strait west of Resolute Bay, Jones Sound and northern Nares Strait had become consolidated. The bergy water lead along the west Greenland Coast extended north to Disco Island.

By the end of January, ice thicknesses and ice extent were near normal. Kane Basin had consolidated and Eastern Barrow Strait to Resolute remained mobile. There was a large area of up 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 Disco Island.

## Western Arctic

During the month of October, there were above normal temperatures over the Beaufort Sea and below normal temperatures elsewhere. Temperatures were near to slightly below normal over all areas in November. December was a cold month with below normal temperatures. There was a rebound in temperatures in January with above normal temperatures recorded. By the end of January, the ice extent was near normal; however the old ice edge was farther offshore than normal. The measured ice thicknesses were greater than normal at Inuvik and Cambridge Bay.

At the beginning of freeze-up, the old ice extent was slightly greater than normal over Larson Sound. There was open water from Victoria Strait into the Amundsen Gulf and along the Alaskan Coast. The main pack of old ice was farther offshore than normal along the Alaskan Coast. New ice growth started in mid-September over Larson and Peel Sound but rapid ice growth did not occur until mid-October which was near normal.

By mid-October, there was rapid ice growth and expansion with new and grey ice along the Alaskan Coast to Point Barrow, in Mackenzie Bay eastward to Queen Maud Gulf. Peel Sound had thickened to greywhite with more multi year ice than normal in Larson Sound. Two weeks later, portions of the Tuktoyaktuk Peninsula and Queen Maud Gulf had become consolidated. Ice had thickened in the waterways to grey and greywhite. New and grey ice covered most of Beaufort Sea south of the main old ice pack. The old ice pack was well offshore.

At mid-November, Peel Sound had consolidated. By the end of November, Larson Sound, most of the Queen Maud Gulf and Coronation Gulf had become consolidated. Ice had thicken to thin first year over the Amundsen Gulf and Beaufort Sea with the old ice edge about 30 miles off Banks Island and 120 miles north of the Tuktoyaktuk Pensinsula.

By the end of December, Amundsen Gulf and along the Alaskan Coast to the old ice edge was covered with thin and medium first year with a trace of old ice. The waterways was completely consolidated with medium first year ice.

During the month of January, the fast ice edge along the Alaskan Coast and Amundsen Gulf broadened and thickened to thick first year with a trace of old ice. There was a mean westerly flow over the Beaufort Sea during this period causing the main pack of old ice to move eastwards and southwards. By the end of January, the old ice edge lay near Banks Island, 60 miles north of the Tuktoyaktuk Peninsula and 120 miles north of Point Barrow. There was also a large tongue of thick first year with up to three tenths of old ice just north of the main old ice pack in the Beaufort Sea. This area was so extensive due to a combination of melt back of the ice during the previous summer and a mean westerly flow in January to move this area eastwards.