8.6 Summary of Regional Observations of Sea Ice

8.6.1 Uummannaq Fjord

Most of Uummannaq Fjord is normally covered with fast ice from late December until late May/early June. The medium first-year ice category is reached in the areas northwest, north and east of Ubekendt Ejland at the end of the freeze-up season. Freeze-up begins in the small fjords in the area in early November.

8.6.2 Baffin Bay, west of Ubekendt Ejland

During winter and spring, the waters west of or near Ubekendt Ejland mark the shear zone between the fast ice in Uummannaq Fjord and the mobile drift ice in southeastern Baffin Bay. When sea ice is present, the area is characterized by large ice floes primarily in the thin first-year ice category. Sea ice normally is present from December until June. Wide leads or large sea ice free areas are also common, which is an indication of the complexity of the surface currents. During the freeze-up and break up season, sea ice drifts out of Uummannaq Fjord, driven by easterly winds.

8.6.3 Vaigat and Disko Bay

During winter, sea ice normally forms in early January and melts again during May or early June, depending on the severity of the previous winter. Fast ice is generally formed by midwinter in periods of cold and calm weather conditions. The occurrence of sea ice in Disko Bay can be summarized as follows:

Mild winters: freeze up early February, young ice and thin first-year ice, mostly large drift ice floes, free of sea ice early May. Normal winters: freeze up mid January, young ice and thin first-year ice, very large floes or fast ice, free of sea late May. Cold winters: freeze up late December, thin first-year ice, mostly fast ice except in the break-up season, free of sea late June. The latest report of sea ice in Disko Bay since 1958 is early July (1970).

Sea ice appears earlier and melts later close to the coast in south-eastern Disko Bay than in the rest of the Disko Bay area. The melt and break-up of the fast ice or consolidated ice in Disko Bay is often a 'pincers process', starting from the waters around Kronprinsens Ejland and from the waters east of Disko Island. This process is mainly controlled by the anticlockwise surface currents in Disko Bay.

8.6.4 Davis Strait, west of Disko Island

The waters west of Disko Island and around Hareøen are normally free of sea-ice from mid-June to mid-November, however, belts of sea ice occasionally drift from the central parts of southern Baffin Bay to the area during the summer. An 'ice bridge' often occurs northwest of Disko Island due to onshore currents west of Nuussuaq, even when large open water areas are present west of Uummannaq Fjord and Svartenhuk. When sea ice is present, the area is characterized by large floes of thin first year ice, however the ice cover is very variable, and large open water areas or large areas with young ice only occur from time to time.

8.6.5 Davis Strait, west of Aasiaat and Disko Bay

Kronprinsens Ejland south of Disko Island marks a north-south boundary between the ice regime of Disko Bay and the ice regime southwest of Disko Island. Here the sea ice is characterized by the young and thin first-year ice categories. The ice concentrations vary depending on the local meteorological conditions. Sea ice normally occurs from mid-December until early May. In normal winters, a second west-east oriented 'ice bridge' consisting of high concentrations of slowly moving drift ice forms west of Aasiaat at 68° N, primarily due to the onshore component of the surface current. During the summer, belts of remaining sea ice in the central parts of Davis Strait occasionally drift close to the Greenland coast.

8.6.6 Davis Strait between 65°N and 68°N

Even in severe winters, navigation normally is possible in the eastern part of Davis Strait as far north as Sisimiut due to the existence of the relatively warm north going current. Furthermore, the sea ice drift has a significant offshore component (the West Ice), and for this reason sea ice only covers the Davis Strait in the last half of very cold winters. If sea ice is present close to the Greenland coast, it is very sensitive to easterly winds, and break-up occurs quickly. When sea ice covers the entire strait, a narrow lead (may be covered with thin ice) normally forms close to the Greenland coast, just off the fast ice edge. The normal ice type in the area is young ice or thin first-year ice in varying floe sizes. Wide belts of small floes normally occur near the ice edge. Multi-year ice ('Storis') from the Greenland east coast almost never drifts north of 65° 30' N. This has only been observed a few times in 20th century and not in the period 1958-99.

8.6.7 Fyllas Banke

Fyllas Banke probably is the offshore area at Greenland which is least affected by the occurrence of sea ice. Sometimes the 'West Ice' drifts eastward in late winter into the Fyllas Banke area for periods ranging from only a few days to several weeks. Other times, also in late winter, sea ice forms locally during very cold periods. Locally formed sea ice in the Fyllas Banke area is normally characterized by the young and thin first-year ice categories, and is very sensitive to southeasterly (warm) winds. The ice cover may disappear within a few days, however it normally takes one or two weeks to clear the Fyllas Banke. Under normal conditions, the northwestern part of the area is free of sea ice ('West Ice') from early May until early January and the southeastern part from mid April until late January.

Multi-year ice from the Arctic Ocean drifts southward along the east coast of Greenland to the Cape Farewell area. Melt and break-up processes significantly reduce the sizes of these floes. When the floes drift into the Cape Farewell area they are always less than 100 meters in diameter, however, the thickness of the floes is still about 2-3 meters. The atmospheric pressure lows in spring and summer are weaker and less frequent than during winter. During winter, the lows move into the Davis Strait and cause south-easterly winds. Under these physical conditions, the belts of multi-year ice or 'Storis' in the Cape Farewell area normally drift westwards into northeastern Labrador Sea or northwestward along the West Greenland coast. The 'Storis' drifts north of 63° N (into the Fyllas Banke area) every second year on average. In some years, the multi-year ice is only present as a few narrow ice belts for a couple of days, while other years the 'Storis' may cover large areas and persist for several weeks. Since 1958, the Fyllas Banke has always been reported as being completely free of sea ice from mid-August until mid-December. In January 1982, multi-year ice drifted north of 63° N due to extreme wind conditions in the last months of 1981. With the exception of 1982, 'Storis' has not been observed north of 63° N earlier than late February during the period 1958-99.

8.6.8 Northeastern Labrador Sea between Nunarsuit and 63° N

This area is normally free of sea ice from late summer until mid-winter. In the late winter the 'West Ice' occasionally affects the area. In very cold periods sea ice forms locally within 50-60 kilometers of the Greenland coast. Varying amounts of 'Storis' occur almost every year from late winter/early spring until mid-summer. Due to the offshore component of the West Greenland Current, the multi-year ice is sometimes present only far from the shoreline.

8.6.9 Julianehåb Bay and Cape Farewell waters

The 'West Ice' almost never affects the area. The occurrence of 'Storis' varies from nothing to huge amounts from early-or mid-winter depending on the storm tracks and low pressure intensity. In the spring and summer months, wide belts of close packed multi-year ice are normally present close to the Greenland coast.