

2010 Regional Sea Ice Outlook

August Report

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Nares Strait

In our forecast for July 2010 we expected that the outflow into the Baffin Bay would be low based on the assumptions that the wind pattern met in June would continue and that the air temperature would be the same or larger than before. In fact, the outflow became very low due to the fact that southern winds dominated. At Littleton Island the percentages of southern and northern winds were 62.2% and 29.0% with the corresponding numbers at Hans Island at 79.2% and 18.3%. However, the average monthly temperatures encountered were lower than expected, +4.9°C and +3.1°C, the latter from Hans Island 2.3°C lower than in July 2009.

Long periods of southern winds reduced the flux of ice southwards and there were periods with a net transport of ice from the Robeson Channel into the Lincoln Sea. For the same reason first-year ice in the Kane Basin and the many icebergs originating from the Humboldt Gletscher had little chance to migrate into the Smith Sound. An appreciable surface melt may have occurred in that Basin due to the high temperatures prevailing. The net result is that very little ice is present in the main flow along the coast of Ellesmere Island, from the Hall Basin and southwards.

In previous years we find for the month of August a more even distribution of northern and southern winds at higher wind speeds so we expect that finally ice from the Lincoln Sea will flow southwards through the Nares Strait to join the remaining first-year ice in the Kane Basin and its icebergs. The volume of first-year and multiyear ice will be modest, however.

An important issue is the calving of the Petermann Gletscher that took place in the period 3 – 5 August 2010 creating a large tabular iceberg with dimensions large enough to block the ice transport at Hans Island, for instance. This happened with the tabular iceberg from the Ward Hunt Ice Shelf on the north coast of Ellesmere Island (WH-5) which broke off in 1962 and blocked the ice transport for about six months at Hans Island in 1963. A calving of Petermann Gletscher in 1991 – half the size of the present one – broke into three pieces that easily drifted past Hans and Franklin Islands into the Kane Basin and southwards into the Baffin Bay.