

2013 REGIONAL OUTLOOK - Nares Strait and the Lincoln Sea

June Report based on May Data

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The situation in the Nares Strait is controlled by the ice bridge that formed in early December 2012 at a place near the coast of Ellesmere Island about 100 km north of the usual position. The top of the barrier is at 79.40N. It stopped effectively the southward ice drift and by the beginning of June 2013 it is still intact with small 'adjustments' of the ice edges along the coast of Ellesmere Island and in the southern part of the Kane Basin. Not having a full understanding of the formation of the ice bridge it is suggested that the present position is caused by the ice islands that calved from Petermann Gletscher in August 2012 and reached the present position by mid-September about 15 km west of the barrier. Comprising ice from the innermost thicker part of the glacier it is grounded on the western slope of the relatively shallow plateau of the Kane Basin. The present area of the iceberg is about 100 km².

In the 25-week period between mid-November 2012 and late April (week Nos. 44 to week NO. 17) weekly temperatures measured at Hans Island were lower than -20°C, so that first-year ice formed between multiyear floes in the channels north of the ice bridge has reached a thickness of at least 1.5 m, solidifying the barrier.

Since the cold period referred to temperatures have increased appreciably reaching an average temperature of 2.2°C in week No. 23 (3-9 June 2013) and there are signs in the form of small polynyas along the south-western coast of Washington Land that a major change of the ice situation will take place shortly. With temperatures at the same level and/or higher we suggest that a break-down of the ice bridge will take place within the next two weeks. Previous observations indicate that the break-down will have an effect on the ice further north of the barrier that begin moving southwards within less than one week – modified by the formation of short-life barriers that result from the ice drift of large floes.

Thus, the ice in the Lincoln Sea will be influenced and perhaps in a different way than before. During the last two months or so (infrequent observations because of clouds) a southward-bending lead has formed from the coast of Ellesmere Island to the shore-fast ice on the north coast of Greenland delimiting an area of dynamic ice. The maximum extent southward is about 100 km from the usual shear zone at the southern edge of the Arctic Ocean limiting the shore-fast ice to about 30 km. This situation is

unusual and is likely to influence the reaction of the ice in the Lincoln Sea in the initial phase of the drift of ice into the Robeson Channel and further down the Nares Strait.

Nature is capricious!