

2013 REGIONAL OUTLOOK - Nares Strait and Lincoln Sea

July Report based on June Data

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The icebridge of this winter is very different from any previous years. It formed about 100 km north of the usual place and did not take the usual style of an arch. Perhaps more important it is that the formation took place in conjunction with the grounding of the large ice island that calved from the Petermann Gletscher in August 2012. It grounded in September on the western slope of the Kane Basin plateau some forty kilometers from the coast of Ellesmere Island serving as a stronghold for the ice canopy. It is still there.

Based on MODIS observations that indicated a series of openings along the coasts on both sides of the Kennedy Channel that normally takes place at this time of the year we estimated that a break-down of the icebridge would take place in the third or fourth week of June. Weekly average air temperatures measured at Hans Island and Littleton Island were at that time just below freezing. But we were wrong. It is only during the first week of July that a break-down began and again in an unusual way: Ice is breaking off the ice canopy in the Kane Basin south of the still grounded ice island while the bridge to the coast of Ellesmere Island is intact. Clouds indicate an eastern wind that pushes the large floes out in the Nares Strait proper. From week 24 and onwards the air temperatures referred to have been slightly above zero degrees and appreciable surface melting is observed north of the ice bridge and increased opening along the coasts on both sides of the Kennedy Channel. We may therefore expect that the bridge eventually will break down due to melting leaving the ice island alone at the boundary between the Nares Strait and the Kane Basin. We will risk stating that it will take place in week 29.

In the north we have observed a lead formed across the Robeson Channel some time ago defining a southern boundary of the Lincoln Sea subject to tidal variations where the ice south of the lead seems frozen to the coast on both sides of the Channel. This phenomenon has been observed before and based on experiences we estimate that it will last until a week or so after the break-down of the icebridge.

Further south appreciably surface melt is observed wherefore we estimate that transport of ice through the straits will take place shortly after the icebridge has collapsed.

Due to almost permanent cloud cover over the Lincoln Sea we are unable to ascertain whether the lead observations observed previously will have any consequences for the ice situation there.