

## Nares Strait 2018

After more than two months of anomalous winter the 'Ice Bridge' formed again in the southwestern corner of the Kane Basin. That took place on 1 March 2018 after a very short warning on the previous day. It resulted in a complete stop of ice drift in south and a gradually decreasing compression of ice in the northern part of the Nares Strait.

After three additional months of natural adjustments of the border lines of the Bridge we have the final shape as shown in Figure 1 with the Sentinel 1B acquisition of 5 June 2018. The main adjustments occurred along the vertical lines at both sides of the bridge changing the attachments to the coast of Ellesmere Island (Bache Peninsula and Pim Island) and to the stationary ice in the Kane Basin.

### Figure 1

Figure 1 shows a 9-km multiyear ice floe that is stuck in the ice canopy of the Kane Basin. It entered the Nares Strait from the Lincoln Sea by 4 November 2017 to reach the Kane Basin by the beginning of December getting off the normal ice drift southwards to its present 'permanent' position by mid-February.

The winter months referred to were very different from normal years in the way that air temperatures were 10 to 15 degree higher than observed before and that a number of probably wind-driven polynya formed in the course of time mainly along the coast of Greenland to close again and form later another place. A very frequent polynya is the one formed by strong northern winds south of Franklin Island that may extend far beyond Crozier Island to reach the Kane Basin. We include an example of an acquisition by the Advanced Microwave Scanning Radiometer system (AMRS2) in Figure 2. Open water (or less than 15% ice concentration) is shown with the blue color.

### Figure 2

Note that the grid of latitude and longitude is at intervals of one and five degrees, respectively.

In a quiet period with low southern winds ‘an apron’ of new ice forms in front of the Ice Bridge as seen in Figure 1 extending more than 40 km southwards and in this case mostly along the shore of Greenland (Inglefield Land). This apron may be important for the stability of the Ice Bridge in several ways. It prevents erosion of the edge of the Bridge and reduces the influence of the high tides prevalent in the area. Also, it will strengthen the Ice Bridge vis à vis north-coming forces.

Since we are facing a complete different situation we shall refrain from suggesting a life time of the Ice Bridge. We have already pointed at the apron of new ice south of the Bridge. A striking observation is the rather good homogeneity of the pattern of ice the last few kilometers north of the bridge that may assist in distributing any influence from north over the 43-km wide Bridge. We suggest that this pattern of smaller floes stems from the repeated formation and break down of the polynya and associated actions on the way southwards.

We hope that we may enjoy seeing this good example of an Ice Bridge for more than the present month of June.

Figure 1

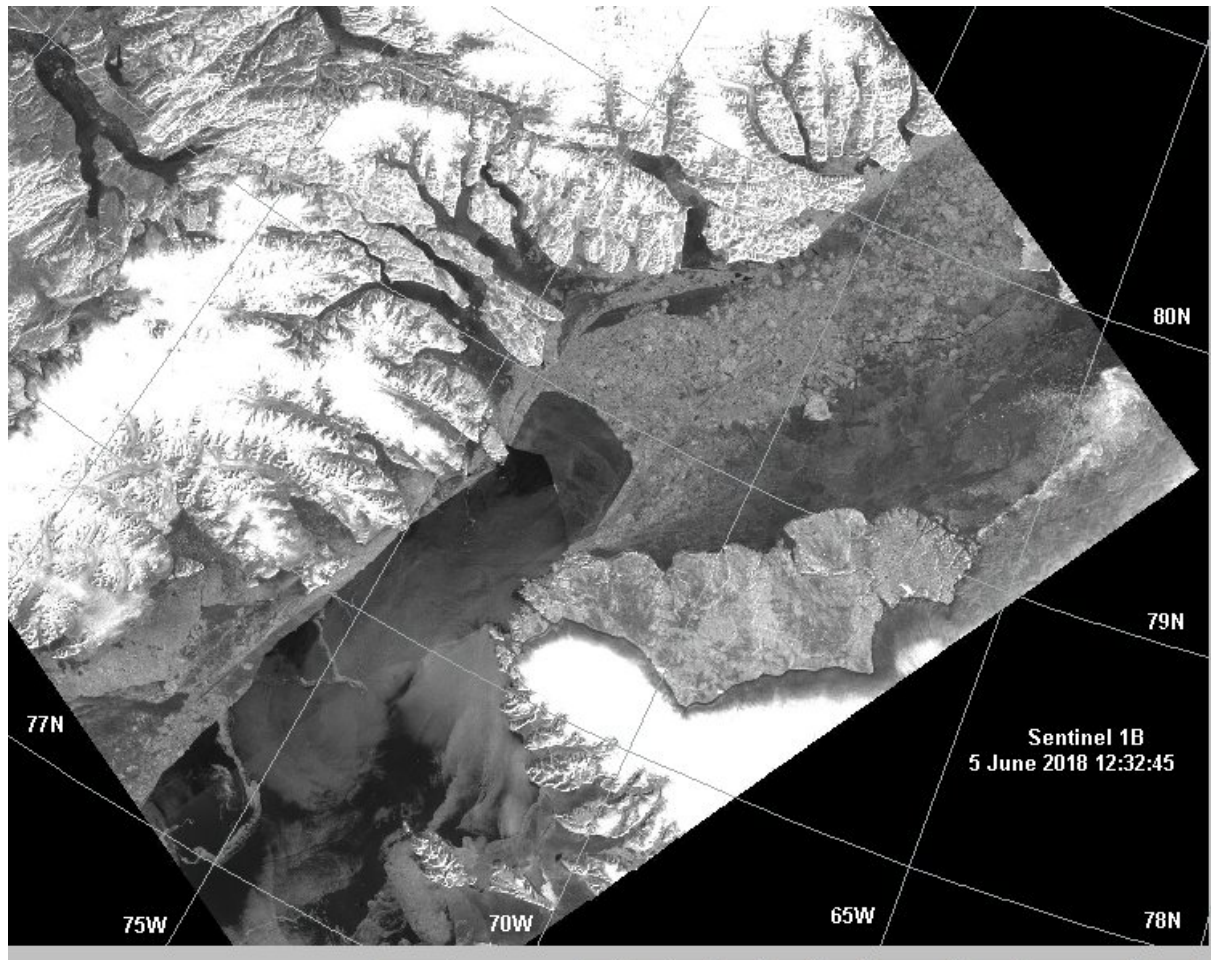


Figure 2

