

September 2009 Sea Ice Outlook: August Report
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Region: Nares Strait, an outlet of the Arctic Ocean

The ice barrier that formed in Lincoln Sea by 16 January 2009 began a slow disintegration by 6–7 July and advection of ice into Robeson Channel resumed in the following weeks. During the previous five months the inactive ice canopy in Lincoln Sea grew in thickness subject to air temperatures at about -25 C. It was not until 17 June that radar scenes showed signatures of wet snow surfaces. Without being able to estimate the thickness it is worth mentioning that the very first large floe (11 km by 6 km) that drifted into the Strait by 9 July continued unchanged in shape to North Water south of Nares Strait in 19 days—a tour of 540 km at an average velocity of 28 km/day (3.3 cm/s)—in ice-free waters.

Since the first break-offs, the ice canopy in Lincoln Sea has been subject to a slow disintegration. The interest has been concentrated on a large floe with the dimensions 60 km by 50 km about 30 km north of the entrance to Nares Strait as a likely candidate for a renewed blockage of ice drift. By 3 August, however, it began breaking into smaller floes that may be able to pass the 30-km wide entrance to the Strait. We may therefore see an appreciable ice drift in August creating difficulties for the Canadian icebreaker CCGS Henry Larsen in recovering moorings in southern Kennedy Channel and refitting automatic weather stations including that on Hans Island in the middle of Kennedy Channel (Wilkinson et al. 2009, Hans Island: Meteorological Data From an International Borderline, EOS Trans, A.G.U., 90, 2 June 2009, 190-191).

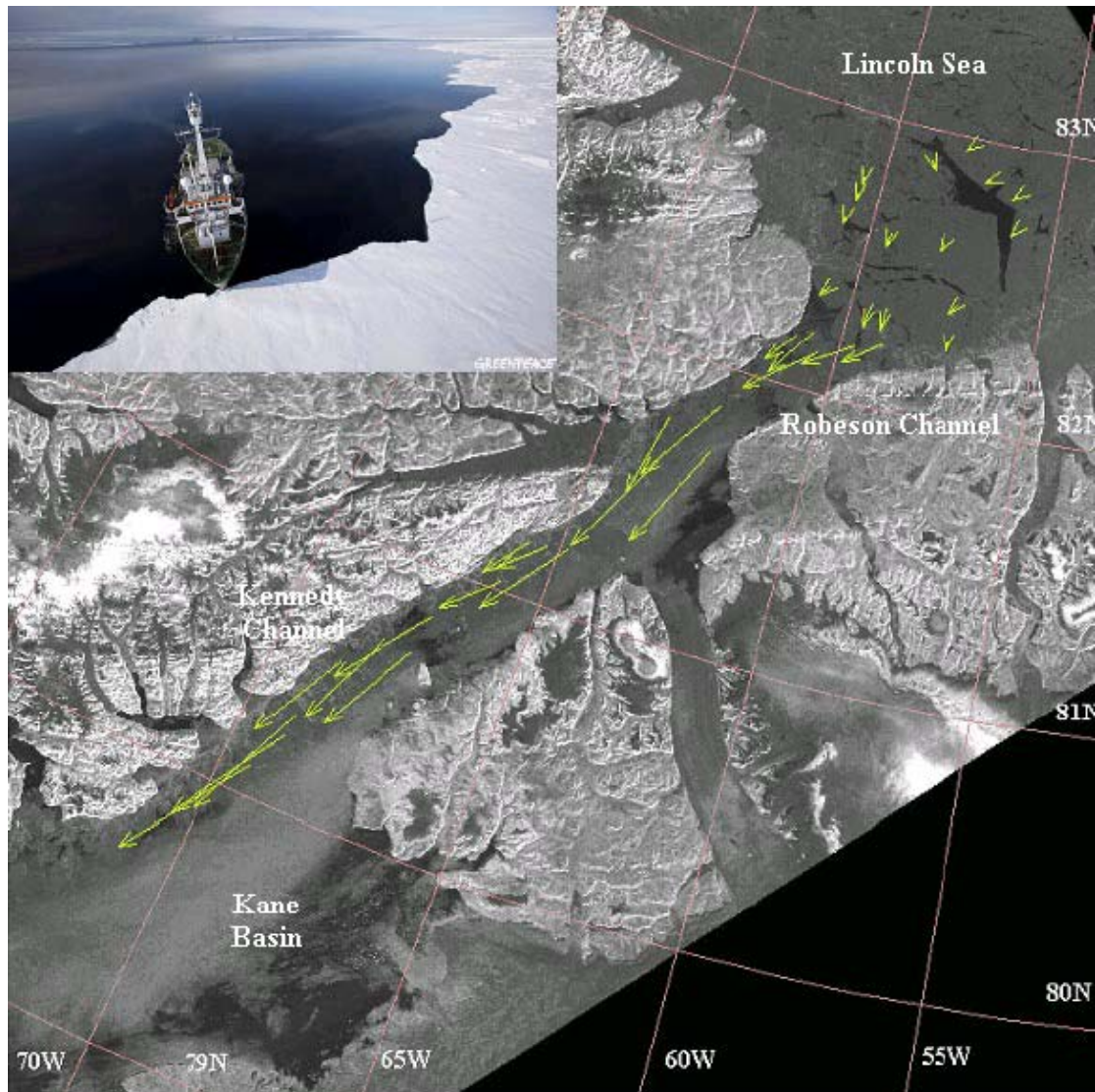


Figure 1. Radar scene of Nares Strait acquired by ENVISAT advance synthetic aperture radar on 3 August 2009, 16:52, showing the break-up of the ice in Lincoln Sea and the drift of ice through Nares Strait. The vectors show the drift through 17 hours (2–3 August) at 4–9 km in southern Lincoln Sea and 40–60 km in southern Kennedy Channel and Kane Basin.

The inset shows the ice barrier in Lincoln Sea observed from a helicopter at the end of June. The Greenpeace ship *Arctic Sunrise* that anchored at the ice edge took advantage of the very special situation in Nares Strait where no ice was present all along the Strait due to the ice barrier and the above-freezing temperatures in the greater part of June. The ship position is at 82.58°N, 61.22°W. Ellesmere Island is seen in the horizon.