

2010 Regional Sea Ice Outlook

July Report

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Lincoln Sea and Nares Strait

Figure 1 is an Envisat ASAR scene acquired on 30 June 2010 16:40 showing the ice conditions in the Lincoln Sea and the Nares Strait with few vectors representing floe movements during the 48.7-hour interval between two acquisitions. Movements range from 10 – 45 km in the Lincoln Sea to 120 km in the Kennedy Channel. [The figure illustrates the difficulty in safely recognising 'markers' in the two scenes applied due to melting surfaces]. The relative fast movements of 2.5 km/hour (65 cm/s) in Kennedy Channel is the result of strong northern winds during the preceding days increasing from 8 to 11 m/s to reach 15 m/s during the first 20 hours of the period. Temperatures were at 2°C to 3°C.

Studies of the winter 2009-10 showed moderate in-flux of multiyear ice from the Arctic Ocean from northwest and northeast as well as from north in periods. Furthermore, an ice barrier formed twice near the entrance to the Nares Strait, once in January and later in March with durations of 6 days and 55 days, respectively. With monthly average temperatures ranging from -20°C to -13°C in March and April thickening of the residing ice has taken place at an unknown amount.

The ice concentration in Lincoln Sea is close to 100% with a concentration of multiyear ice at 45%, see Figure 1. With temperatures at about +5°C increasing with time substantial surface melt and disintegration will take place during the drift through the Nares Strait. Observations of winds in 2008 and 2009 show generally low winds at 10 m/s and lower during the month of July but with southern winds in about 70% of the month at monthly average air temperatures of 3.4°C and 5.4°C, respectively. With similar conditions this year the flow rate will be low and if air temperatures increase as before the overall judgement tells that the amount of ice – multiyear and new ice – from the Lincoln Sea that enters North Water south of the Nares Strait in July will be small, somewhat compensated by the first-year ice that has been in the process of breaking off in the Kane Basin during the past June, see Figure 1.

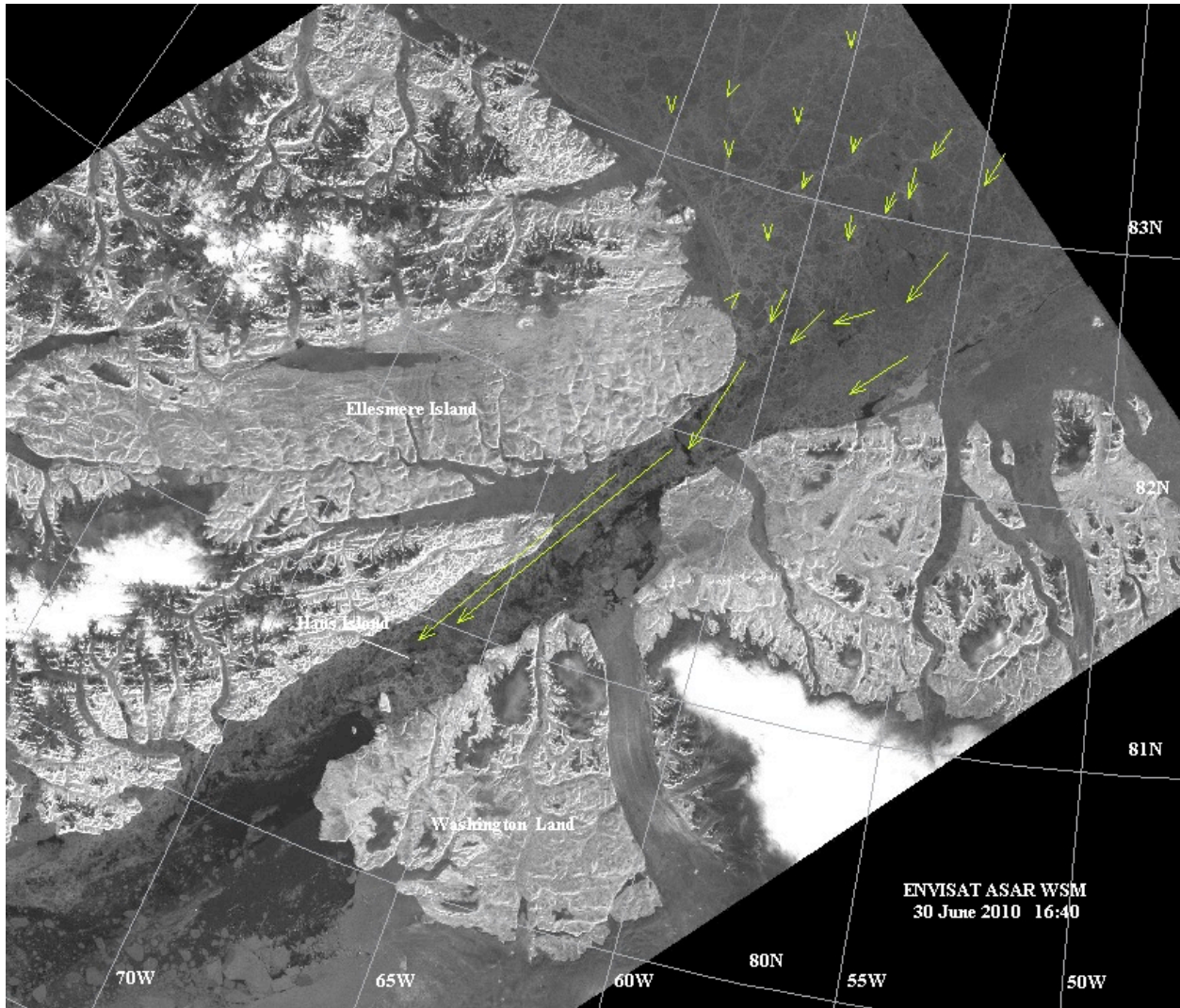


Figure 1

Winds and temperatures are measured at 177 m a.s.l. by an Automatic Weather Station installed on Hans Island in the centre of Kennedy Channel on 4 May 2008. The data are half-hour averages. The average monthly temperature in July 2009 was 1.8°C higher than in July 2008.