

REGIONAL OUTLOOK 2011 – Petrich, Druckenmiller, Eicken

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JULY REPORT (using data until 4 July).

1. Region of Interest: *Beaufort-Chukchi Seas*

Landfast sea ice at the Chukchi Sea coast at Barrow, Alaska

2. Sea Ice Parameter

Parameter predicted: Date of break-up of landfast sea ice at Barrow, Alaska

Comparison with 2010: Break-up happened on 4 July 2010, and on either 3 or 4 July 2011 (date to be confirmed). Although the dates are the same, the processes controlling break-up differ between the two years. In 2010, ice was weakly grounded and prone to break out in response to mechanical forces. In 2011, the ice was held in place by stabilizing pressure ridges but snow and surface melt set in early (i.e., in May), and a large area of landfast ice was sediment-laden, contributing to ice disintegration and break-up.

3. Outline of Methods/Techniques

An empirical model is used to forecast break-up of landfast sea ice, based on two parameters:

1. Mechanical stability of the landfast ice cover, and
2. Cumulative irradiance.

See contribution by Petrich, Druckenmiller, and Eicken to regional outlook June 2011 and http://seaice.alaska.edu/gi/observatories/barrow_breakup for details.

4. Estimate of Forecast Skill

Complicating factors this year are seemingly larger amounts of sediment entrained into the landfast ice compared to recent years, which affects the absorption of solar heat, and an early onset of surface melt around May 20 which preconditions ice for earlier break-up.