#5—Hajo Eicken (Regional Outlook)

Sea Ice Outlook 2008: A regional perspective on ice evolution in the Pacific Arctic sector (June update, released 2 July 2008)

Data

Ice extent:

• Passive microwave data (SSM/I) distributed by the National Snow and Ice Data Center (NSIDC) indicate that rapid ice retreat observed in May has slowed down somewhat in June. In the southern Chukchi and eastern East Siberian Sea, the ice edge is near its normal position in late June, while it is much further north than normal in the Beaufort Sea (slightly further north than its 2007 summer position at the same time of year; see Fig. 1).

Ice thickness and ice characteristics:

• *Eastern Chukchi/Western Beaufort Sea:* The multiyear ice studied off Barrow in April 2008 (5-7 years old, level ice 3.3 m thick; see May Sea Ice Outlook document) continues to linger. While thinner ice found north of Barrow in late spring has melted back substantially, rotten, deformed ice remains in the area. Coastal sea ice:

• At *Wales*, in Bering Strait, the shorefast ice broke up on June 9, over a week later than last year. Local ice observers reported the last ice offshore on June 22, almost two weeks later than in 2007.

• At *Barrow*, level ice thickness at the end of the ice growth season was somewhat below normal with thicknesses between 1.4 and 1.5 m. Surface melt commenced with a major rainfall event on May 24 and then proceeded in leaps and bounds with episodes of snowfall and freeze-back. By June 17, total melt amounted to 18 cm of snow and 32 cm of ice lost. Lack of grounded ridges resulted in sequential loss of landfast ice from at its outer edge, with a significant breakout on June 27. On July 2, level ice had melted all the way through in larger stretches alongshore. Subsistence hunting on the landfast ice ceased by the last week of May, at least in part as a result of lack of stable ice (reported by local ice experts and evident from ice thickness surveys) at the landfast ice edge.

Outlook and potential impacts:

Landfast ice disintegrated somewhat later (about one week) in the region than last year, but was already unstable and unsafe in many areas prior to that. Ice retreat is now lagging behind last year's pace due to surface circulation and lack of warm weather, but is still somewhat more advanced than climatology. First-year ice is expected to melt out further with significant retreat of the ice edge, as currently occurring over the eastern Beaufort shelf, where ice is starting to retreat from the coast of Banks Island. However, complete meltback of multiyear ice advected from the North in late spring (see May Sea Ice Outlook) is increasingly unlikely due to lack of surface warming. This may result in fields of rotten multiyear ice off the northern coast of Alaska for the duration of the summer, with potential impacts on marine mammals (providing a platform for foraging walrus well into the season) and ship traffic.

Information needed to improve outlook:

At the regional level, atmospheric circulation and surface winds are key drivers of seasonal evolution of the ice pack, mid-range forecasts of prevailing wind patterns will improve assessments of potential for multiyear ice incursions and solar heating of surface waters.

Submission information:

Submitted by Hajo Eicken (hajo.eicken@gi.alaska.edu) on behalf of Seasonal Ice Zone Observing Network (SIZONet) project with support from the National Science Foundation's Arctic Observing Network Program and additional support from the Alaska Ocean Observing System.

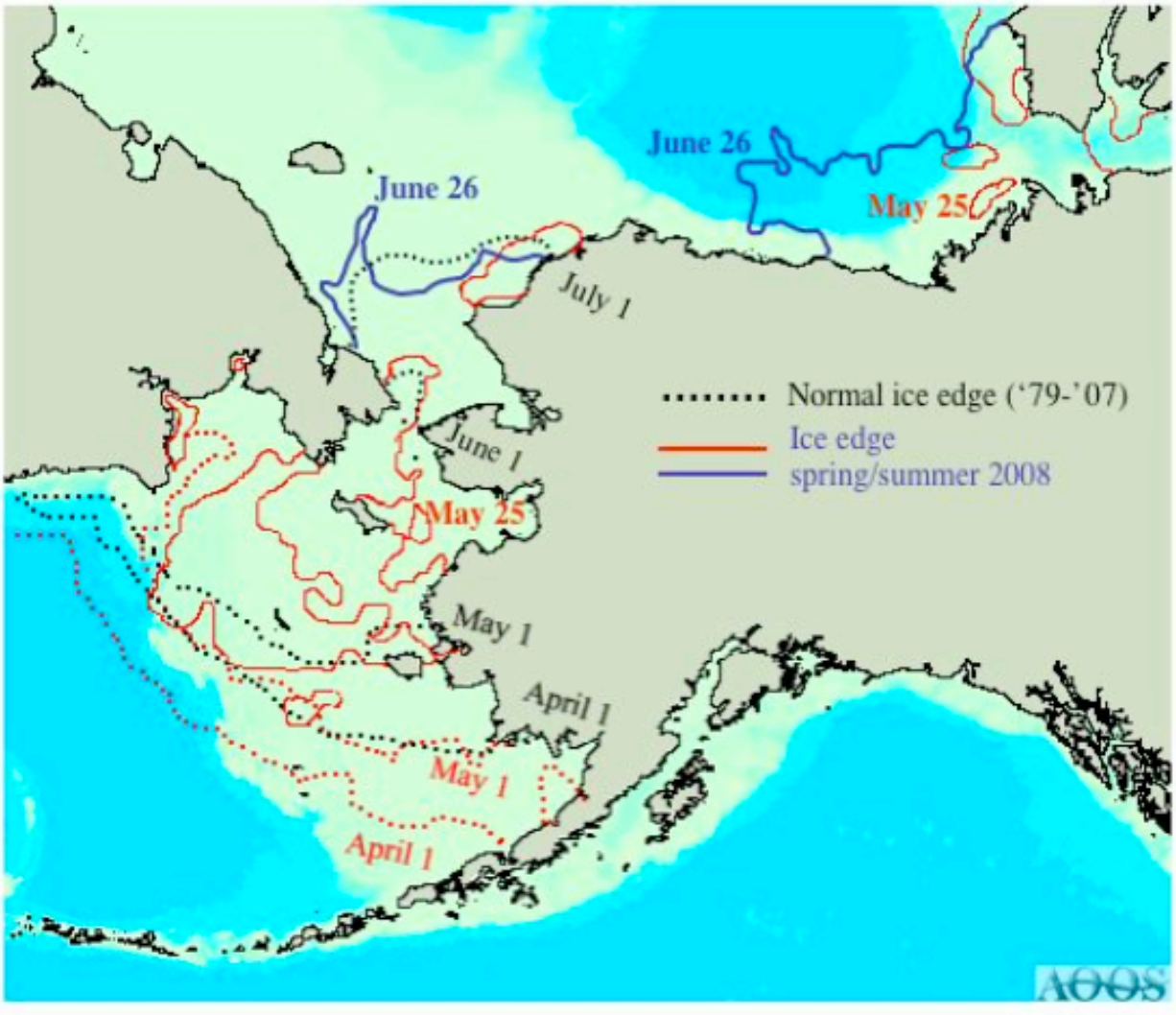

Figure 1: Ice extent derived from passive microwave satellite data (SSM/I, data provided by NSIDC, nsidc.org) for Pacific Arctic sector. Shown are observed ice edges for April, May and June (shown as red dots for April and May 1, or red or blue lines for May 25 and June 26), along with "normal" ice edges (median positions, shown as black dots) from 1979 to 2007.