

Sea Ice Outlook 2008: A regional perspective on ice evolution in the Pacific Arctic sector (July update, released 5 August 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 in June and July. In the southern Chukchi and eastern East Siberian Sea, the ice edge is near its normal position, while it is further north than normal in the Beaufort Sea (and somewhat 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) that was advected from the high Canadian Arctic appears to linger in the northern Chukchi Sea. Thinner ice formed locally in the Beaufort and eastern Chukchi Sea has melted back rapidly, leaving large swaths of open water.

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 and no ice has been observed in the Bering Strait region since.
- At *Barrow*, most of the landfast ice was melted out completely by the first week of July. Both newly grounded and remnant ridges remained offshore along the Barrow stretch of coast through mid-July. These ridges were driven out by surface currents and winds on July 19. Local observers and a coastal radar indicate that ice continues to linger off of town, occasionally grounding off the beach as the wind drives floes inshore. Such conditions are mostly favorable for marine mammals and subsistence hunting but present hazards for shipping.

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 in the Chukchi Sea due to surface circulation and lack of warm weather. Most of the first-year ice formed in the Beaufort and eastern Chukchi Sea during winter has now been removed by melt. However, complete meltback of multiyear ice advected from the North in late spring (see May Sea Ice Outlook) is increasingly unlikely as the melt season enters into its final stages. As indicated in the previous outlook for the region, fields of rotten multiyear ice persist off the northern coast of Alaska, 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 subsequent solar heating of surface waters. Remote sensing satellites cannot distinguish reliably between first- and multiyear ice during melt, but large-scale detection of the thick multiyear ice tracked since April would greatly help in assessing the likelihood of complete ice removal in the northern Chukchi Sea.

Submission information

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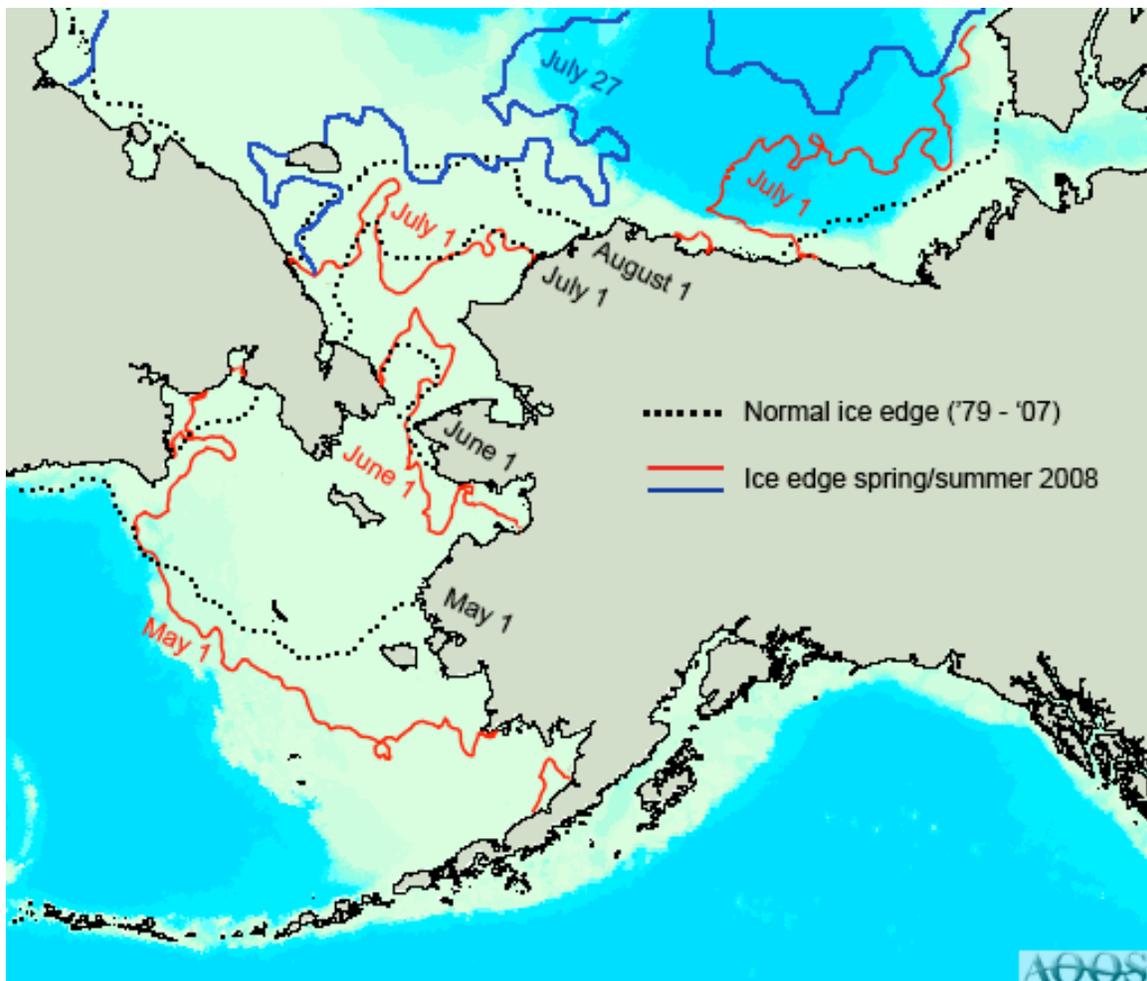


Fig. 1: Ice extent derived from passive microwave satellite data (SSM/I, data provided by NSIDC, nsidc.org) for Pacific Arctic sector. Shown are observed ice edges for May, June and July (shown as red lines for May 1, June 1 and July 1, and blue line for July 27), along with “normal” ice edges (median positions, shown as black dots) from 1979 to 2007.