

Hajo Eicken
2008 Sea Ice Minimum Summary Report

Alaska regional outlook

In the Alaska Arctic sector (Bering, Chukchi and Beaufort Sea), ice retreat in the summer of 2008 progressed somewhat less rapidly over the months of June and July than in 2007. In the absence of strong southerly flow, both melt and advective transport were not as pronounced, although ice retreat late in the season rivalled or exceeded that of 2007 in the Beaufort Sea. A key difference for local communities and marine mammals was the fact that ice lingered much longer in coastal regions and over the Chukchi shelf, allowing hunters access to walrus and seals, while in turn allowing walrus to feed off the ice platform. In 2007, in contrast, rapid ice retreat made for a very poor hunting season and forced walrus onto shore for lack of ice as the summer progressed.

A key factor in controlling ice retreat in this sector of the Arctic is advection of thick multiyear ice from the high Canadian Arctic into the southern Beaufort and Chukchi Sea. Despite the retreating summer ice edge, multiyear ice still makes it into these regions as a result of higher winter drift velocities. The greater thickness of this ice appears to significantly delay ice retreat relative to first-year ice. While our ice thickness data clearly show the importance of this advection of old ice for the ice mass budget, and while simple models of ice melt indicate its impact on delaying rates of ice retreat, what is needed is a more systematic way of integrating data on the thickness distribution of this ice into models that forecast regional ice conditions and their impact on ice ocean interaction. Certainly 2008 demonstrated that despite the preconditioning of 2007, high rates of advection still allowed for multiyear ice to persist in the Alaskan Arctic in early spring and summer. From a regional perspective, our comparison with ground-based observations by Iñupiat ice experts demonstrates that standard remote-sensing products used to assess ice extent on the pan-Arctic scale (passive microwave data) are not always useful in helping assess or predict the conditions at the local level. Pond formation and small floe sizes in dispersed ice (and coastal effects on the radiometer signal) contribute to substantial biases in the derived ice concentration data.