

Report on Ship Observations: June 2010

Compiled by Jennifer Hutchings. Observations provided by Don Perovich on the *Healy*, and the *Polarstern* meteorologist team.

June is not a heavy shipping month in the high Arctic. Two ships reported observations this month, the *Healy* in the western Arctic and the *Polarstern* in the Greenland Sea. The *Xuelong* is on route to the western Arctic, and should arrive at the ice edge by July 25.

Western Chukchi Sea

The *Healy* sailed from Dutch Harbor on June 15th, through the Bering Strait and surveyed in the western Chukchi Sea (Figure 1). The *Healy* did enter the ice pack during this survey and several ice stations were made.

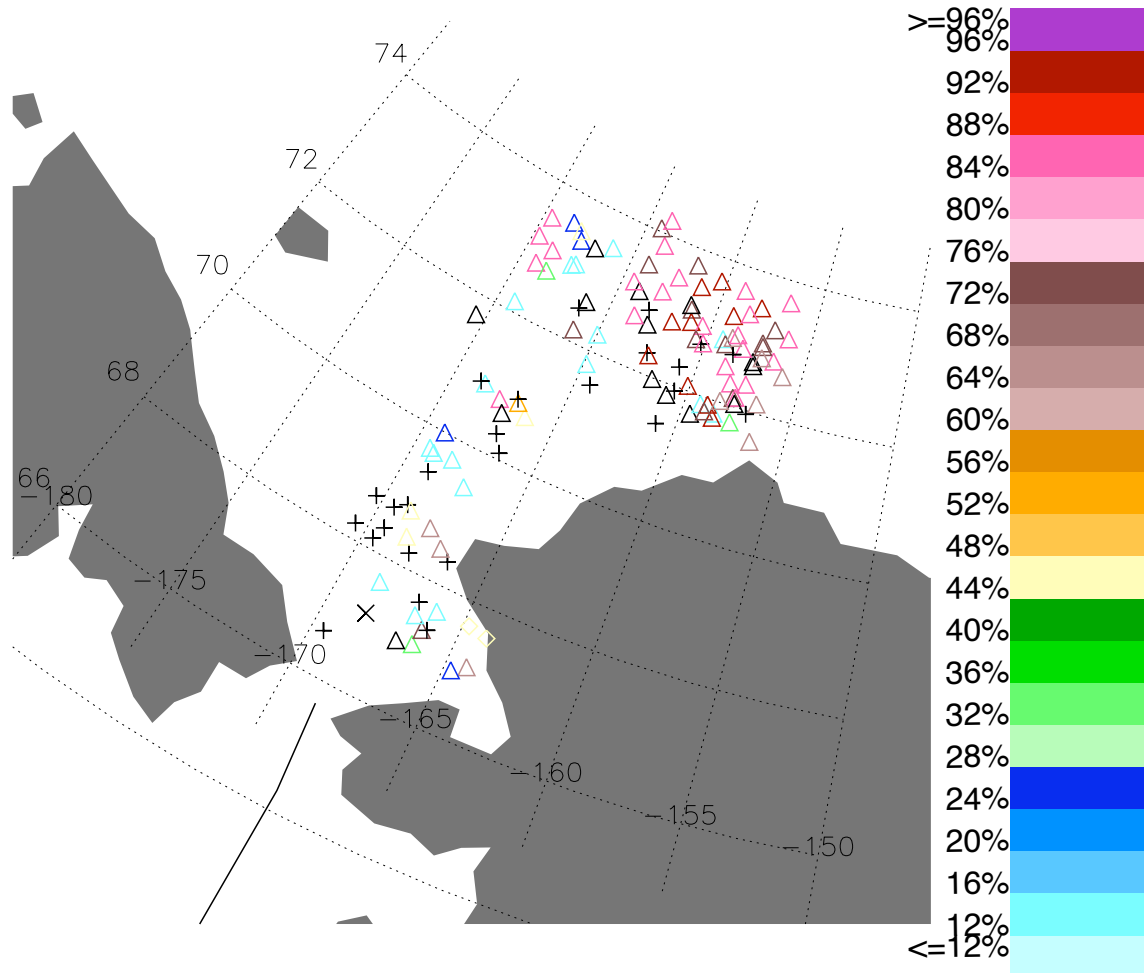


Figure 1: Ice concentration observations (colour scale) from the *Healy*, June and July 2010. When no ice is observed, the track is plotted as black. Symbols show predominant ice type: New ice

(square), First-year ice (triangle), Multi-year ice (diamond), no ice (cross).



Figure 2: View from the Healy of first year ice not far from the ice edge.

Ice concentration observations were not surprising, following satellite passive microwave estimates reasonably well. Note however, that the ice extent in the Chukchi is larger than previously at mid-July this century. The main ice pack consisted of consolidated (close to 100%), heavily deformed first-year ice (Figure 2). Almost all the ice encountered has been first-year. Melt ponds were observed on all ice, with large variability in coverage (3-60%). In the northernmost part of the pack traversed ($72^{\circ}51'N$ to $73^{\circ}40'N$) the stage of melt was less advanced than to the south, with some snow cover remaining and melt pond fractions of 20%. Here, the level ice was about 1 – 1.5m thick. Ice south of this region was thinner (and varied in thickness between 0 and 1.8m) and consistently had thaw holes.

During a period of several days in mid-July skies were clear and melt ponds froze over. There was even a centimeter or two of ice growth observed in leads. Surface melt was slowed or stopped during this period.

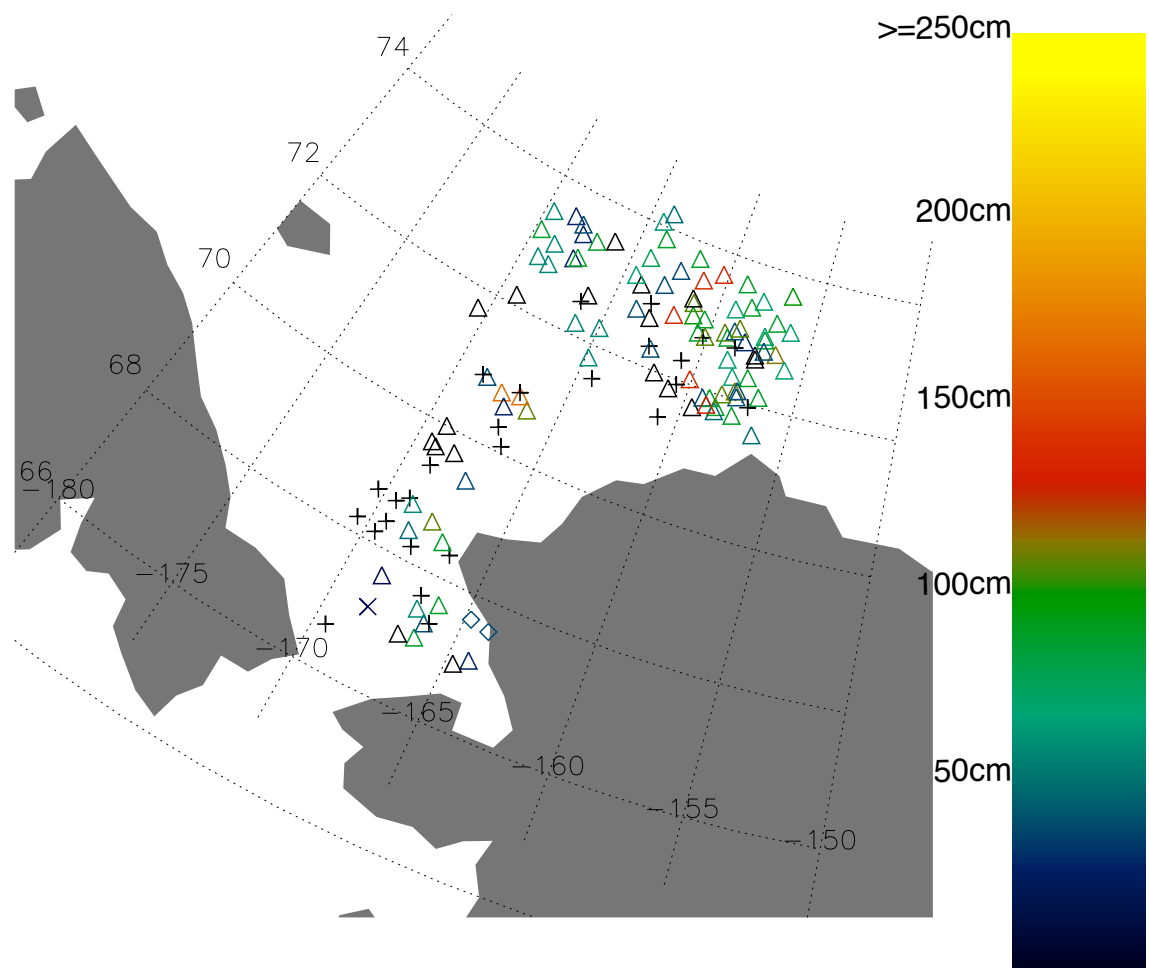


Figure 3: Thickness of predominant ice type, observed from the Healy. Color scale is ice thickness in centimeters. Symbols represent ice type as Figure 1.

Greenland Sea

The *Polarstern* only entered ice briefly, on the west Greenland coast, between June 16 and June 19.

The majority of the ice consisted of small first-year floes, though nearer the coast medium to large second-year and multi-year floes were encountered. At 75°N 15°30'W immensely large floes (10nm/5nm/2nm wide) were present.

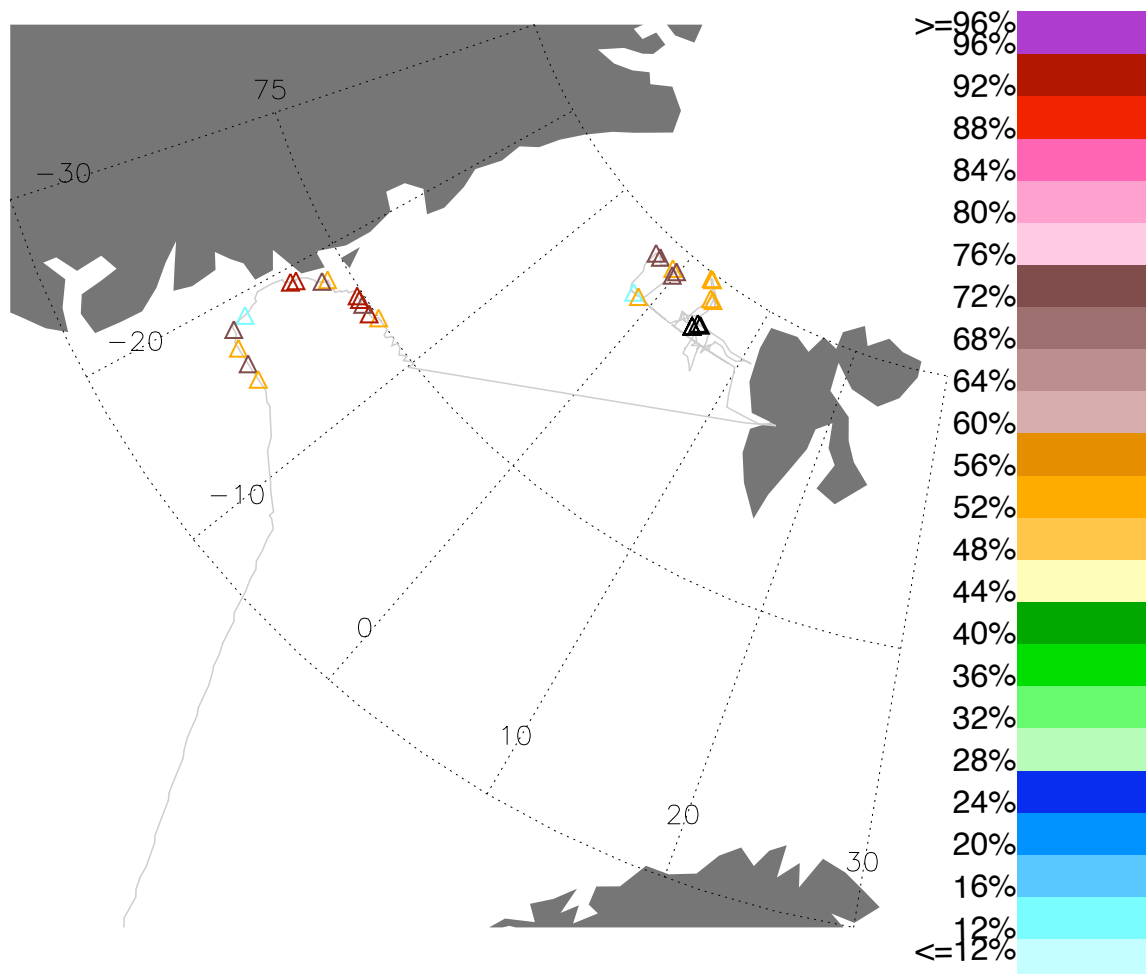


Figure 4: Ice concentration observations (color scale) from the Polarstern, June and July 2010. When no observations were reported, the track is plotted as grey. Symbols show predominant ice type: New ice (square), first-year ice (triangle), multi-year ice (diamond), no ice (cross).