

Regional sea ice outlook for Greenland Sea and Barents Sea June 2012 - based on data until the end of May 2012

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The monthly mean sea ice extent for April and May 2012 based on Norwegian ice charts produced primarily from passive microwave satellite data and supplemented with high resolution SAR imagery since 2007, is compared with the corresponding monthly means for April and May, respectively, for the years 2008-11 (Fig. 1), and with 30, 20, and 10 year averages for monthly means for the periods 79-08, 80-99 and 99-08 (Fig. 2).

The sea ice regimes in the Greenland Sea and in the Barents Sea are substantially different. Sea ice in the Greenland Sea is dominated by ice drifting with the Transpolar Drift and the East Greenland current out of the Arctic Basin southwards (see e.g. Spreen et al. 2009; Vinje et al. 1998), whereas sea ice in the Barents Sea consists to a high degree of seasonal ice formed in the same area during the past winter (see e.g. Vinje and Kvambekk 1991).



Fig. 1: Ice extent (monthly means, April) southern border of 30% ice concentration, in the Greenland Sea / Fram Strait and Barents Sea, based on passive microwave satellite data (red = April 2012, orange = April 2011, green = April 2010, blue = April 2009).

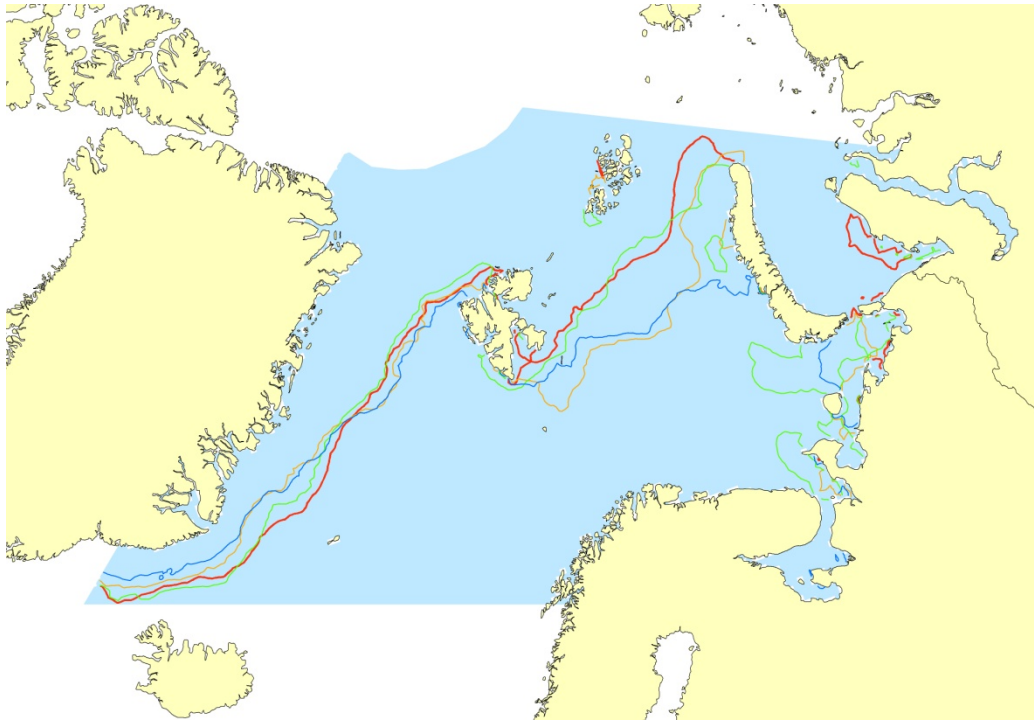


Fig. 2: Ice extent (monthly means, May) southern border of 30% ice concentration, in the Greenland Sea / Fram Strait and Barents Sea, based on passive microwave satellite data (red = May 2012, orange = May 2011, green = May 2010, blue = May 2009).

Sea ice extent in Fram Strait was similar to recent years (Figs. 1 & 2). There is little variability in Fram Strait sea ice extent for April and May during the last four years. 2012 had slightly more ice north of Jan Mayen in April (Fig. 1), and north and west of Jan Mayen in May (the latter similar to May 2010, green line in Fig. 2). In the Barents Sea, the most pronounced difference in April sea ice extent between 2012 and 2009-2011 is visible in the east, near the northern tip of Novaja Semlja, where the extent was less in 2012 than in earlier years, resulting in an ice-free western coast of Novaja Semlja for the passive microwave satellite-based April mean (Fig. 1). At the rest of the Barents Sea marginal ice zone, only a small area south of Svalbard had a slightly reduced sea ice extent, otherwise the April ice edge was similar to recent years. In May, the interannual variability of the Barents Sea ice extent is higher than for April, and the extent in 2012 resembles the 2010 ice extent (green line in Fig. 2). In the east, north of Novaja Semlja, the ice extent in May 2012 was lower than for the last four years, similar to what was observed in April.

When comparing the ice extent from this year with decadal and multi-decadal means (Figs. 3 & 4), the Fram Strait exhibits only very little variation. In contrast, changes can be seen around Svalbard and in the Barents Sea. The area northwest of Svalbard had more open water this year than in decadal means, and especially the eastern Barents Sea had significantly more sea ice, with all of Novaja Semlja surrounded by sea ice as in April (Fig. 3), or at least the northern half of that island, as in May (Fig. 4).

The sea ice development this winter in the Svalbard region was later than usual. Many Svalbard fjords that usually have fast ice, had only little fast ice that grew late in the season. The Norwegian Polar Institute could not run its regular fast ice monitoring in Kongsfjorden due to too little fast ice. A planned field campaign to be at Rijpfjorden (Nordaustlandet, Svalbard) was cancelled due to lack of fast ice in March. Measurements from monitoring visits in Inglefieldebukta, western Storfjorden, resulted in mean fast ice thicknesses of slightly over 50 cm for late March, and about 65 cm for early May 2012. These numbers are lower than observed in previous years. Also snow thickness was relatively low with 12 and 20 cm for the two visits, respectively. The observed thicknesses from Storfjorden reflect the late ice formation observed in Svalbard fjords this winter and spring.

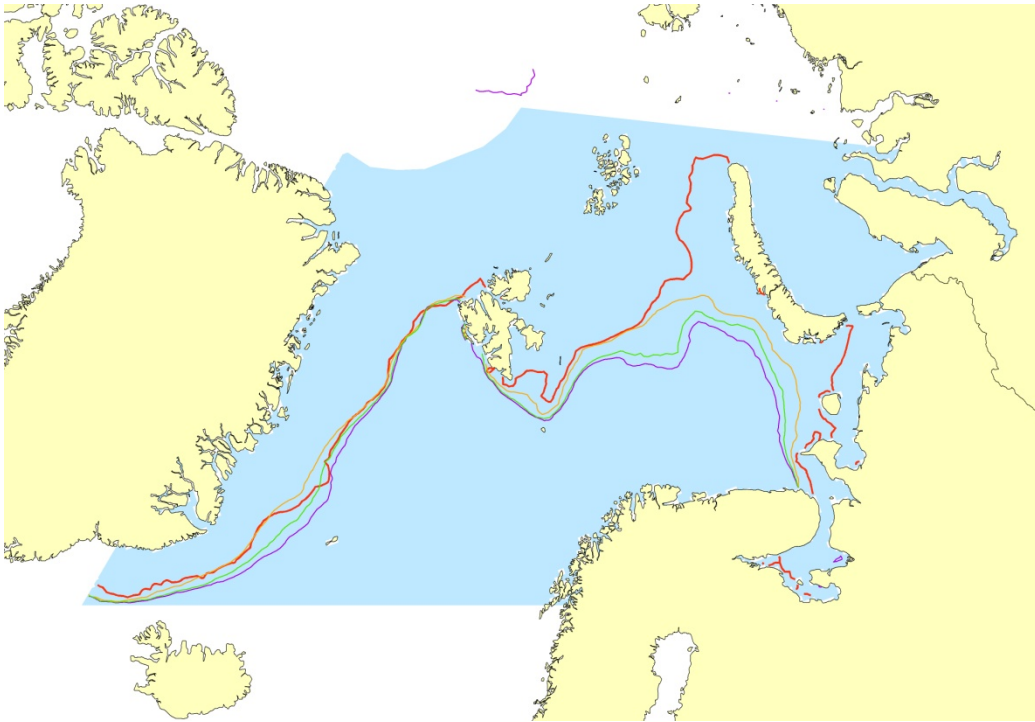


Fig. 3: Ice extent (monthly means, April) southern border of 30% ice concentration, in the Greenland Sea / Fram Strait and Barents Sea, based on passive microwave satellite data (red = April 2012, orange = mean April 1999-2008, purple = mean April 1980-1999, green = mean April 1979-2008).

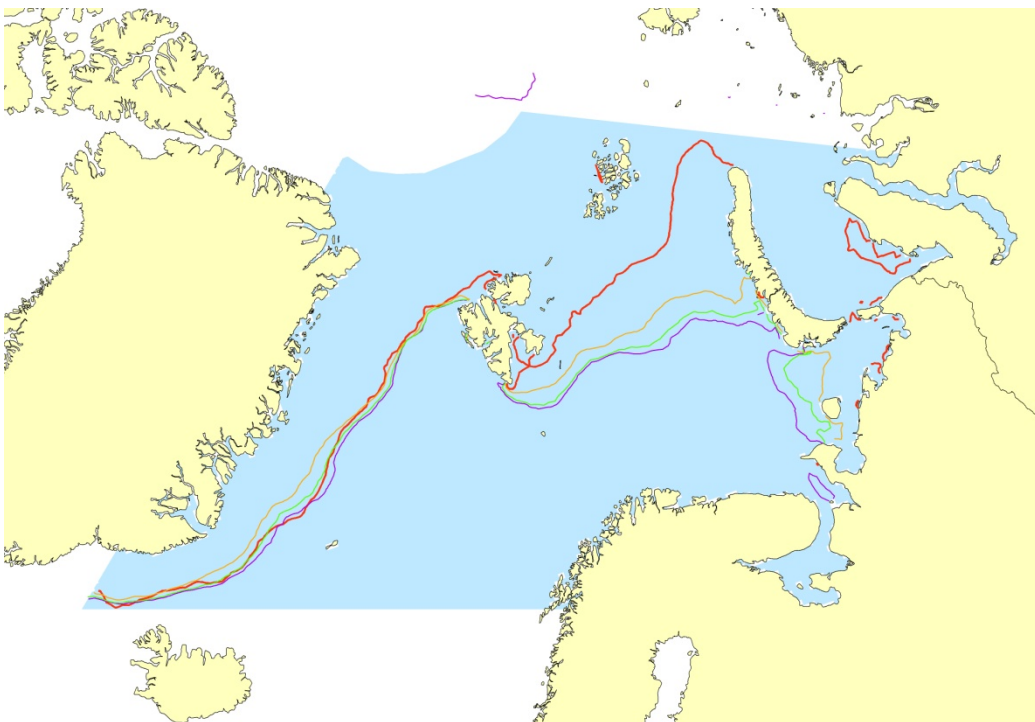


Fig. 4: Ice extent (monthly means, May) southern border of 30% ice concentration, in the Greenland Sea / Fram Strait and Barents Sea, based on passive microwave satellite data (red = May 2012, orange = mean May 1999-2008, purple = mean May 1980-1999, green = mean May 1979-2008).

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