

19. September 2013: **Current sea ice development in the Arctic: edge of the pack ice retreats significantly, but the area is greater than in 2012**

Bremerhaven/Hamburg, 19 September 2013. The annual minimum sea ice cover in the Arctic Ocean in September is on average around 5.1 million square kilometres this year, and is thus some 50 percent above the previous negative record of 3.4 million square kilometres recorded in 2012. "This figure does not signal a reversal in the trend, however", is the joint conclusion drawn by sea ice physicist Marcel Nicolaus from the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI), and Lars Kaleschke from the University of Hamburg, KlimaCampus (Climate Campus).

It is rather the case that the ice extent observed is in line with the low readings in recent years, and confirms the long-term reduction in Arctic sea ice. "We did not expect a new negative record for the sea ice extent this year because statistics show that a short-term recovery always follows a record year. For this reason it is only possible to correctly record trends over longer periods of time," says Lars Kaleschke. With the beginning of freezing in the second half of September, the area covered by ice will expand once more and reach its maximum coverage by the end of the winter in March of next year.



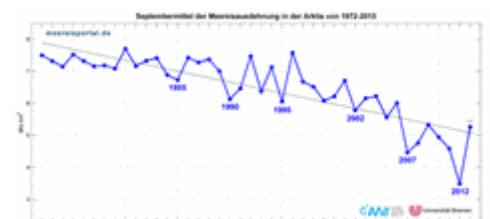
Changes to the summer ice extent from year to year are the result of a complicated interaction: "The ice conditions in the spring, the course of the melting season and the atmospheric conditions in the summer are key factors here. For example the prevailing wind direction has a considerable influence on whether the ice floes are driven apart or pushed together. And only a slight introduction of more heat in the Arctic is enough to enable the ice floes, which are becoming ever thinner, to disappear completely," says Marcel Nicolaus. Bearing this in mind, scientists also anticipate great fluctuations in summer ice cover in the Arctic in coming years.



The melt ponds on the sea ice, which have been appearing in greater number again as in previous years, have been attracting special attention this summer. The photo of large melt ponds close to the North Pole made global headlines, for example. Melt ponds are formed when the snow on the sea ice and then the sea ice itself melt from above. If this melt water cannot run off, it collects in pools on the sea ice. Melt ponds are a normal phenomenon on the Arctic sea ice, but they are now occurring earlier in the year and for a longer period (refer here to the links at the end of this press release). "This has a substantial impact on the sea ice. White ice is transformed to darker ponds which absorb more sunlight and thus reinforce melting," says Marcel Nicolaus.

There is also an unusual situation to report this year: the edge of the compact pack ice – which is the term used to describe areas with more than 90 percent ice coverage – retreated north of the Russian group of islands Franz Josef Land and Severnaya Zemlya to behind the 88th parallel. This is the first time this has been recorded since the start of satellite measurements. Moreover it is possible to see increasing numbers of large areas of open water between 87 and 88 degrees north, i.e. still some 220 kilometres away from the North Pole. In the 1990s the edge of the summer pack ice was still at around 80 to 80 degrees north. "These phenomena demonstrate a fundamental change in the Arctic ice cover. Seasonal ice can now predominantly be found where thick multiyear pack ice once prevailed," Lars Kaleschke explains.

Scientists and other interested parties can follow current developments in the Arctic and Antarctic sea ice on the data and information site www.meereisportal.de (in German language only). Scientists at the Alfred Wegener Institute and the University of Bremen publish up-to-date maps of the sea ice extent in both polar regions as well as articles on the sea ice situation on this online platform. They also contain reports in German on new research results and show impressive images of expeditions to the polar regions.



Notes for Editors

Your scientific contact partners at the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, and at the University of Hamburg are:

- Dr. Marcel Nicolaus, Alfred Wegener Institute (Tel.: +49 471-4831-2905, e-mail: Marcel.Nicolaus@awi.de) –
- Prof. Lars Kaleschke, University of Hamburg, KlimaCampus (Tel.: +49 40-42838-6518, e-mail: lars.kaleschke@zmaw.de)

Your contact partners at the press offices are as follows:

- Alfred Wegener Institute: Sina Löschke, (Tel.: +49 471-4831-2008, e-mail: medien@awi.de)
- University of Hamburg, KlimaCampus: Stephanie Janssen, (Tel.: +49 40- 42838-7596, e-mail: stephanie.janssen@zmaw.de) and Ute Kreis, (Tel.: 040- 42838-4523, e-mail: ute.kreis@zmaw.de)

Further links:

- Alfred Wegener Institute press release about melt ponds on Arctic sea ice
http://www.awi.de/de/aktuelles_und_presse/pressemitteilungen/detail/item/meltponds_accelerate_the_melting_of_the_arctic
- Melt pond cover from satellite data (University of Hamburg) http://icdc.zmaw.de/arctic_meltponds.html?&L=1

Follow the Alfred Wegener Institute on Twitter (https://twitter.com/#!/AWI_de) and Facebook (www.facebook.com/AlfredWegenerInstitut) to obtain all current news and information on everyday stories from the life of the Institute.

The Alfred Wegener Institute conducts research in the Arctic and Antarctic and in the high and mid-latitude oceans. The Institute coordinates German polar research and provides important infrastructure such as the research ice breaker Polarstern and stations in the Arctic and Antarctic to the international scientific world. The Alfred Wegener Institute is one of the 18 research centres of the Helmholtz Association, the largest scientific organisation in Germany.

Printable Images



Melt pond on Arctic sea ice

Melt pond on Arctic sea ice, Photo: Stefan Hendricks, Alfred Wegener Institute

[web](#) [print](#)

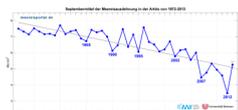


Map of the Arctic sea ice concentration and extent in the first half of September 2013

This map shows the sea ice concentration of the first half of September 2013 (mean of the daily sea ice extent from 1-17 September 2013) The red line marks the record breaking sea ice minimum from September 2012, when its extend was as low as 3.4 million square kilometer. Map:

Alfred-Wegener-Institut/Universität Bremen

[web](#) [print](#)



September mean values of sea ice concentration in the Arctic

Long-term change: This diagram shows the September mean values of Arctic sea ice concentration for the last 41 years. One can easily see the change and long-term decline of the sea-ice extend. Source:

Alfred-Wegener-Institut/University of Bremen

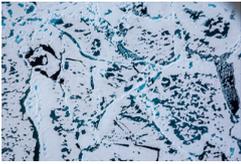
[web](#) [print](#)



AWI sea ice physicist Dr Marcel Nicolaus

AWI sea ice physicist Dr Marcel Nicolaus is measuring the depth of a meltwater pond during an Arctic expedition of the research vessel POLARSTERN (expedition ARK XXVII-3). Photo: Alfred Wegener Institute

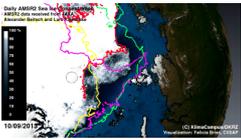
[web](#) [print](#)



Aerial photo of Arctic sea ice

Aerial photo of sea ice covered with high numbers of meltwater ponds. Photo: Stefan Hendricks, Alfred Wegener Institute

[web](#) [print](#)



Retreat of Arctic sea ice cover

Retreat of Arctic sea ice cover, July - September 2013, indicating pack ice edge compared to last year

[web](#) [print](#)

[back to list](#)