

Sea Ice Outlook
2019 July Report
Individual Outlook

Name of contributor or name of contributing organization:

UTokyo (Kimura et al.)

Is this contribution from a person or group not affiliated with a research organization?

Name and organization for all contributors. Indicate primary contact and total number of people who may have contributed to your Outlook, even if not included on the author list.

Noriaki Kimura (The University of Tokyo, Japan) contact: kimura_n@aori.u-tokyo.ac.jp

Hiroyasu Hasumi (The University of Tokyo, Japan)

**Do you want your June contribution to automatically be included in subsequent reports?
(If yes, you may still update your contribution via the submission form.)**

This is a new submission. (Please use our submission from the July report.)

What is the type of your Outlook projection?

Statistical

Starting in 2017 we are accepting both pan-Arctic and pan-Antarctic sea ice extent (either one or both) of the September monthly mean. As in 2016, we are also collecting Alaskan regional sea ice extent. To be consistent with the validating sea ice extent index from NSIDC, if possible, please first compute the average sea ice concentration for the month and then compute the extent as the sum of cell areas > 15%.

a) Pan-Arctic September extent prediction in million square kilometers.

b) same as in (a) but for pan-Antarctic. If your method differs substantially from that for the Arctic, please enter it as a separate submission.

c) same as in (b) but for the Alaskan region. Please also tell us maximum possible extent if every ocean cell in your region were ice covered.

"Executive summary" of your Outlook contribution (using 300 words or less) describe how and why your contribution was formulated. To the extent possible, use non-technical language.

Monthly mean ice extent in September will be about 4.70 million square kilometers. Our estimate is based on a statistical way using data from satellite microwave sensor. We used the ice thickness in December and ice movement from December to June. Predicted ice concentration map from July to September is available in our website:

http://ccsr.aori.u-tokyo.ac.jp/~kimura_n/arctic/2019-2e.html

Ice retreat in the Beaufort Sea will be faster than a normal year. Though ice cover in the East Siberian Sea will retreat with nearly same speed as a normal year, ice retreat around the New Siberian Islands will be faster than a normal year. On the other hand, the retreat speed around Severnaya Zemlya will be slower than a normal year.

Brief explanation of Outlook method (using 300 words or less).

We predicted the Arctic sea-ice cover from coming July 1 to November 1, using the data from satellite microwave sensors, AMSR-E (2002/03-2010/11) and AMSR2 (2012/13-2018/19). The analysis method is based on our recent research (Kimura et al., 2013). First, we expect the ice thickness distribution in June 15 from redistribution (divergence/convergence) of sea ice during December and June, based on the daily ice velocity data. Then, we predict the summer ice area depending on the assumption that thick ice remains later and thin ice melts sooner than the average.

Tell us the dataset used for your initial Sea Ice Concentration (SIC).

Tell us the dataset used for your initial Sea Ice Thickness (SIT) used. Include name and date.

If you use a dynamic model, please specify the name of the model as a whole and each component including version numbers and how the component is initialized:

Not Specified

If available from your method.

a) Uncertainty/probability estimates:

Median

Ranges

Standard Deviations

b) Brief explanation/assessment of basis for the uncertainty estimate (1-2 sentences).

c) Brief description of any post processing you have done (1-2 sentences).