

Sea Ice Outlook
2018 June Report
Individual Outlook

Name of contributor or name of contributing organization:

McGill (Tremblay et al.)

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

No

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.

Bruno Tremblay (1), Erik Johnson (1), Charles Brunette* (1)

1 McGill University, Montreal, Canada

*primary contact

**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.)**

Yes

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.

4.31

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.

We are studying seasonal predictability of sea ice in the Arctic Ocean, taking an approach based on observations. The DovekSIE model (a combination of the words sea ice extent 'SIE' and 'dovekie', a small bird native to the Fram Strait), developed at McGill University, is a seasonal forecasting tool for the minimum sea ice extent in the Arctic Ocean based on the concept of late winter preconditioning and sea ice export through Fram Strait presented in Williams et al. (2016). The DovekSIE forecasts are issued daily from November 1 to May 31 for monitoring the evolution of the seasonal forecast through the winter season (<https://twitter.com/dovekSIE>; <https://brunotremblayseaice.jimdo.com/sea-ice-forecast-doveksie/>). This is our second participation in the Sea Ice Outlook exercise.

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

Our prediction for the monthly mean Arctic sea ice extent of September 2018 is 4.31 million square kilometers. We produce the prediction as a sum of the linear trend (climatology) and departure from the trend (interannual variability). We take the long-term linear trend for the 1993-2017 period. A positive departure from the trend is projected for the 2018 September mean sea ice extent. We use the integrated sea level pressure difference across Fram Strait from Nov 1 to May 31 in a linear least squares fit model as a predictor for the anomaly of monthly mean September sea ice extent over the same period. Sea level pressure difference is a proxy for Fram Strait Ice Export, which is in turn a proxy for coastal divergence. This builds on the idea of winter dynamic preconditioning - see Williams et al. (2016).

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:

If available from your method.

a) Uncertainty/probability estimates:

Median

Ranges

Standard Deviations

0.48 million square kilometers

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

We produce and compare hindcasts to the observed September SIE for the 1993-2017 period.
We take the std of the error.

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