Sea Ice Outlook
2018 August Report
Individual Outlook

Name of contributor or name of contributing organization:

Robert Grimm

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

false

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.

Robert Grimm, NCEP-EMC Student Internship Program, [Northern Vermont University - Lyndon]

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.)

true

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.

4.3

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.

An update to the method used within the June 2018 Individual outlook. The method compares three regression techniques:
(1.) A linear regression of the long-term, 1979-2017 September monthly average Arctic sea ice extents. For linear regression, a September 2018 extent value is predicted to be 4.48 (+/- 0.54)* million square kilometers;
(2.) A quadratic regression of, 1979-2017 September Arctic sea ice extent. For long-term quadratic regression, a September 2018 value is found to be 4.04 (+/- 0.51)* million square kilometers;
and, (3.) A short-term, quadratic regression of daily-observed Arctic sea ice extent values from April 1, 2018 - July 10 2018**. The short-term, quadratic regression is used to estimate a newly determined September 2018 extent of 4.38 (+/- 0.11) million square kilometers.

*residual standard deviations, [updated: Jul2018].
**short-term time series data, [updated: Jul2018].

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

Similar to findings from June 2017, Figure 6 from June 2018's report--(https://www.arcus.org/files/resize/sio/28244/2018_sio_june_report_fig6_nsidc_extent-700x560.png) suggests inherent, quadratic regression characteristics within shorter-term, time series analysis for Arctic sea ice extent.

The Individual outlook I submitted in June, ignored this short-term prediction. However, with the addition of daily-observations for sea ice extent, the April to July time series produced a September 2018 extrapolation that is in agreement with the longer-term regressions. Ultimately,

the average of all regression methods (1., 2., and 3.) was used, and a predicted value of 4.30 (+/- 0.54) million square kilometers was determined.

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

ftp://sidads.colorado.edu/DATASETS/NOAA/G02135/

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

+/- 0.54

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

Expected skill is still low at this point, as ocean temperature and ice thickness are large influencing factors 2 months out.

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