Sea Ice Outlook
2018 June Report
Individual Outlook

Name of contributor or name of contributing organization:

Rob Dekker

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

Yes

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.

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.)

No

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.

4.65

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.

For this projection, I use three variables that affect albedo of the Arctic in May, to predict Sea Ice Extent in September : Land snow cover, sea ice 'area' and sea ice 'extent'. I use Extent-minus-Area as a metric to estimate the presence of open water such as leads and melt ponds.
I regress the combination of these three variables against known September extent data over the 1992-2015 period. This method is based on the physics of albedo amplification during summer, and obtains a 0.47 million km2 standard deviation in the prediction, which is better than most other methods, albeit not that much better than a simple "linear trend" prediction. June prediction will be much better than that.
An important finding is that spring land snow cover signal is clearly present in the September Arctic sea ice extent.

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

For this projection, I use three variables that affect albedo of the Arctic in May, to predict Sea Ice Extent in September. I use land snow cover data from the Rutgers Snow Lab, as well as the NSIDC May sea ice Area, as well as NSIDC Extent-minus-Area as a metric to estimate the presence of open water such as leads and melt ponds.
I regress the combination of these three variables against known September extent data over the 1992-2015 period. This method is based on the physics of albedo amplification during summer, and obtains a 0.47 million km2 standard deviation in the prediction, which is better than most other methods, albeit not that much better than a simple "linear trend" prediction. June prediction will be much better than that.
An important finding is that spring land snow cover signal is clearly present in the September Arctic sea ice extent.

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

Monthly NSIDC sea ice extent and area from :
ftp://sidads.colorado.edu/DATASETS/NOAA/G02135/north/monthly/data/

Monthly Northern Hemisphere land snow cover from Rutgers Snow Lab from here :
https://climate.rutgers.edu/snowcover/table_area.php?ui_set=1&ui_sort=0

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

470 k km^2

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

Standard deviation of the residuals after regression.

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