Sea Ice Outlook
2017 August Report
Individual Outlook

Name of contributor or name of contributing organization:

CPOM

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.

CPOM (D. Schroeder, D. Feltham, D. Flocco, M. Tsamados)

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

Yes automatically include my contributions in July and August 2017

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.

5.1

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.

Based on melt pond fraction in May+June we predict a mean 2017 September ice extent of 5.1 (4.6 to 5.6) mill km2 (within the range observed during last 4 years). The likehood for a new record minimum is below 1%. While melt pond fraction has been above 2006-2015 mean values in the western parts of the Arctic, less ponding and melting occurred in the eastern part due to more snow and relatively cold temperatures. In the past the regions - where melt pond fraction is low in 2017 - were more important for September ice extent than e.g. the Beaufort Sea. Consequently, we predict the September ice extent to be quite large in spite of the lowest Arctic ice volume in recent months.

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

This is a statistical prediction based on the correlation between the ice area covered by melt-ponds in May and ice extent in September. The melt pond area is derived from a simulation with the sea ice model CICE in which we incorporated a physically based melt-pond model1. See our publication in Nature Climate Change http://www.nature.com/nclimate/journal/v4/n5/full/nclimate2203.html for details2.

References:
1. Flocco, D., Schröder, D., Feltham, D. L. & Hunke, E. C., 2012: Impact of melt ponds on Arctic sea ice simulations from 1990 to 2007. J. Geophys. Res. 117, C09032.
2. Schröder D., D. L. Feltham, D. Flocco, M. Tsamados, 2014: September Arctic sea-ice minimum predicted by spring melt-pond fraction. Nature Clim. Change 4, 353-357, DOI: 10.1038/NCLIMATE2203.

Tell us the dataset used for your initial Sea Ice Concentration (SIC). Include name and date (e.g., "NASA Team, May 2017"). We also encourage you to submit initial fields to the dropbox, see https://www.arcus.org/sipn/sea-ice-outlook/2017/june/call in the section on "Submitting Figures and Gridded Data of Full Spatial Fields (Optional) of Forecasts and Initial Conditions" for detailed instructions. Required if sea Ice concentration is used.

n/a

Dataset of initial Sea Ice Thickness (SIT) used (include name and date):

n/a

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:

n/a

If available from your method for pan-Arctic extent prediction, please provide

a) Uncertainty/probability estimate such as median, ranges, and/or standard deviations (specify what you are providing).

+/- 0.5 mill. km2 (standard deviation)

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

The given uncertainty is the mean forecast error based on forecasts for the years 1984 to 2016. For all these forecasts only data from previous years were used (forecast mode).

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

n/a