Sea Ice Outlook
2019 June Report
Individual Outlook

Name of contributor or name of contributing organization:

AWI Consortium (Kauker 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.

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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.

What is the type of your Outlook projection?

Dynamic Model

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.

5.18

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.

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

For the present outlook the coupled sea ice-ocean model NAOSIM has been forced with atmospheric surface data from January 1948 to June 6th 2019 (combination of NCEP/NCAR and NCEP-CFSR and NCEPCFSv2). All ensemble model experiments have been started from the same initial conditions on June 6th 2018. The model setup has not changed with respect to the SIO in 2015. We used atmospheric forcing data from each of the years 2009 to 2018 for the ensemble prediction and thus obtain 10 different realizations of potential sea ice evolution for the summer of 2018. The use of an ensemble allows to estimate probabilities of sea-ice extent predictions for September 2019. A variational assimilation system around NAOSIM has been used to initialize the model using the Alfred Wegener Institute's CryoSat-2 ice thickness product, the University of Bremen's snow depth product, and the OSI SAF ice concentration and sea-surface temperature products. Observations from March and April were used. A bias correction scheme for the CryoSat-2 ice thickness which employs a spatially variable scaling factor could enhance the skill considerably (Kauker et al, 2015, http://www.the-cryosphere-discuss.net/tc-2015-171/).

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

OSI SAF EUMETSAT OSI-401b March and April 2019 (http://osisaf.met.no/docs/osisaf_cdop3_ss2_pum_ice conc_v1p6.pdf.)

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

CryoSat-2 from Alfred Wegener Institute of March and April 2019 (Hendricks, S. and Ricker, R. (2019): Product User Guide & Algorithm Specification: AWI CryoSat-2 Sea Ice Thickness (version 2.1), Technical Report, hdl:10013/epic.7dacf2fe-bead-4a1b-a266-c4fdd022877f, https://epic.awi.de/id/eprint/49542/).

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:

Ocean-sea ice

If available from your method.
a) Uncertainty/probability estimates:

Median

Ranges

Standard Deviations

0.22 mill. km2

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

Ensemble spread

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

Tiny bias correction (0.02 mill. km2) deduced from long-term run