Name of contributor or name of contributing organization:

Navy ESPC (Metzger and Barton)

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.

E. Joseph Metzger[1], Neil Barton[2], Michael Phelps[3] and David Hebert[1]
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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.)

Include this submission in the June report only.

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.

6.2

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.

21.3

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.

1.03

"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.

The projected Arctic 2020 September mean sea ice extent from the Navy Earth System Prediction Capability (ESPC) is 6.2 million km2. This forecast is the average of a 16 member ensemble using initial conditions on 1 May 2020 from a pre-operational Navy ESPC ensemble with perturbed observations. The range of the ensemble is 5.5 to 6.9 million km2.

The projected Antarctic 2020 September mean sea ice extent is 21.3 million km2 with an ensemble range from 20.3 to 22.4 million km2.

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

We performed a 16 member ensemble forecast with Navy ESPC using initial conditions on 1 May 2020 from the pre-operational system using perturbed observations and run by FNMOC. The pre-operational cycling system assimilates atmospheric observations using the Naval Research Laboratory Atmospheric Variational Data Assimilation System (NAVDAS-AR) (Xu et al., 2005) and the ocean/sea ice assimilate observations using Navy Coupled Ocean Data Assimilation (NCODA) (Cummings, 2005). CICE assimilates passive microwave satellite sea ice concentration observations such as SSMI/S and AMSR2, but does not assimilate sea ice thickness. There was no bias correction performed on the results.

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

We performed a 16 member ensemble forecast with Navy ESPC using initial conditions on 1 May 2020 from the pre-operational system using perturbed observations and run by FNMOC. SIC initials conditions came from CICE.

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

We performed a 16 member ensemble forecast with Navy ESPC using initial conditions on 1 May 2020 from the pre-operational system using perturbed observations and run by FNMOC. SIT initials conditions came from CICE.

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:

[DynamicModelType]

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

Median

6.2

Ranges

5.5 to 6.9 Mkm2

Standard Deviations

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

The uncertainty estimate is the range of the 16 member ensemble.

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

The Sea Ice Probability (SIP) and Ice-Free Day (IFD) were computed from the Navy ESPC sea ice output forwarded to the SIPN Data