Sea Ice Outlook
2018 August Report
Individual Outlook

Name of contributor or name of contributing organization:

Met Office

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.

Ed Blockley, Met Office
Craig MacLachlan, Met Office
Adam A. Scaife, Met Office

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?

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.

4.9

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.

Using the Met Office GloSea5 seasonal forecast system we are issuing a model based mean Northern Hemisphere September sea ice extent outlook of 4.9 +/- 0.4 million sq. km.
This has been assembled using start dates between 22nd July and 6th August to generate an ensemble of 42 members.

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

Ensemble coupled model seasonal forecast from the GloSea5 seasonal prediction system (MacLachlan et. al, 2015), using the Global Coupled 2 (GC2) version (Williams et. al, 2015) of the HadGEM3 coupled model (Hewitt et. al, 2011).
Forecast compiled together from forecasts initialised between 22nd July and 6th August (2 per day) from an ocean and sea ice analysis (FOAM/NEMOVAR) (Blockley et. al, 2014; Peterson et. al. 2014) and an atmospheric analysis (MO-NWP/4DVar) (Rawlins et. al, 2007) using observations from the previous day.

Special Sensor Microwave Imager Sensor (SSMIS) ice concentration observations, OSI-401-b, from EUMETSAF OSI-SAF (Sea ice concentration product of the EUMETSAT Ocean and Sea Ice Satellite Application Facility; OSI SAF, www.osi-saf.org, available from http://osisaf.met.no) were assimilated in the ocean and sea ice analysis, along with satellite and in-situ SST (GHRSST), subsurface temperature and salinity profiles (ENACT), and sea level anomalies from altimeter data (AVISOv4). No assimilation of ice thickness was performed.

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

Initial sea ice concentration from FOAM ocean and sea ice analysis version 12 (Blockley et. al, 2014) using Special Sensor Microwave Imager Sensor (SSMIS) ice concentration observations, OSI-401-b, from EUMETSAF OSI-SAF (Sea ice concentration product of the EUMETSAT Ocean and Sea Ice Satellite Application Facility; OSI SAF, www.osi-saf.org, available from http://osisaf.met.no).

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

Initial sea ice thickness from FOAM ocean and sea ice analysis version 12 (Blockley et. al, 2014) using model dynamics and thermodynamics. No observations of sea ice thickness were assimilated.

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

4.9 million sq. km.

Ranges

Standard Deviations

0.4 million sq. km.

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

Two standard deviations of the 42 member ensemble spread around the ensemble mean.

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

Forecast was adjusted upward by 0.9 mill. sq. km (the mean that the 1993-2015 hindcast underestimates extent).