Sea Ice Outlook
2017 August Report
Individual Outlook

Name of contributor or name of contributing organization:

Brettschneider/Walsh/Thoman, UAF

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.

Brian Brettschneider, University of Alaska, Fairbanks
John Walsh, University of Alaska, Fairbanks
Richard Thoman, National Weather Service/NOAA

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.

4.52

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.

Forecast is based on an analog method. The analogs are based on sea level pressure, air temperature, sea surface temperature and upper-air geopotential height over several domains within (and including the entire) Northern Hemisphere. The September sea ice extent, expressed as a departure from the 1979-2016 trend line, is the predicted quantity. The actual prediction is the mean September pan-Arctic ice extent of the five best analog years.

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

The atmospheric analogs for this forecast are based on June data (sea level pressure, air temperature, sea surface temperature, upper-air geopotential height). The best atmospheric analogs were selected based on four domains, and the corresponding predictions obtained using each domain were weighted according to the skill shown by hindcast forecasts based on each domain. In each case the analog years were selected based on closeness-of-match to June 2017, where the closeness was measured by the root-mean-square difference of the respective fields.

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.

Atmospheric data were all from the NCEP/NCAR Reanalysis R1. Ocean temperatures were from ERSST v4. Historical time series of September sea ice extent was from NSIDC.

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).

10% and 90% confidence levels: 3.99 and 5.29 million km2.

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

A set of 5000 random forecasts (each based on five randomly chosen years) provided a distribution from which the 10th- and 90th-percentile values were obtained.

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

Predicted quantity is the departure from the linear trend line (1979-2016) of September sea ice extent.