

SEA ICE OUTLOOK
2016 Report

**Template with Core Requirements
for Pan-Arctic Contributions
and
Guidelines for Submitting Optional
Alaskan Regional Outlook, Figures, and Gridded Data**

Submission Guidelines:

The submission deadline is 6:00 pm (AKDT) Monday, 13 June 2016 (firm) and all submissions should be sent to sio2016@arcus.org. Contributions received after the deadline will be posted to the website but not incorporated into the Outlook report or discussion.

Questions may be directed to Betsy Turner-Bogren, ARCUS (betsy@arcus.org)

Core Requirements for Pan-Arctic Contributions:

* REQUIRED

1. *Name of Contributor or name of Contributing Organization and associated contributors as you would like your contribution to be labeled in the report (e.g., Smith, or ARCUS (Wiggins et al.)).

University of Alaska Fairbanks, IARC (Brettschneider/Walsh/Thoman)

1b. (Optional but helpful for us): Primary contact if other than lead author; name and organization for all contributors; total number of people who may have contributed to your Outlook, even if not included on the author list.

Primary contact: Brian Brettschneider, UAF/IARC, bbrettschneider@outlook.com

Other contacts: John Walsh, UAF/IARC, jwalsh@iarc.uaf.edu
Richard Thoman, NWS Fairbanks Office, Richard.thoman@noaa.gov

2. * Contributions submitted by a person or group not affiliated with a research organization, please self-identify here:
 N.A. Yes, this contribution is from "Citizen Scientists."
3. * Do you want your contribution to be included in subsequent reports in the 2016 season?
 X Yes, use this contribution for all of the 2016 SIO reports (this contribution will be superseded if you submit a later one).
 No, I/we plan to submit separate contributions for subsequent reports.
 No, I only want to participate this time.

4. *"Executive summary" of your Outlook contribution: in a few sentences (using 300 words or less) describe how and why your contribution was formulated. To the extent possible, use non-technical language.

The outlook is based on an objective analog methodology designed to predict the summer atmospheric fields that drive sea ice variations. The analogs years are the ones in which atmospheric circulation and temperature fields best match those of 2016 through May. The actual forecast ice extent is the mean of the September ice extent in the five best analog years of the past (from 1979-2015).

5. *Type of Outlook method:
 ___dynamic model Xstatistical ___heuristic ___mixed or other (specify)
6. *Dataset of initial Sea Ice Concentration (SIC) used (include name and date; e.g., "NASA Team, May 2016"):

NSIDC

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

None

8. If you use a dynamical model, please specify:

a) Model name:

b) Information about components, for example:

Component	Name	Initialization (e.g., describe Data Assimilation)
Atmosphere	CAM5	2016 RCP8.5 integration
Ocean	NEMO2	DA - NCODA system
Ice	TED	DA - EnKF SIC only

c) Number of ensemble members and how they are generated:

d) For models lacking an atmosphere or ocean component, please describe the forcing:

Method is based on historical atmospheric analogs determined from NCEP/NCAR reanalysis

8. *Prediction of September pan-Arctic extent as monthly average in million square kilometers. (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%.)

4.17 million km²

10. Prediction of the week that the minimum daily extent will occur (expressed in date format for the first day of week, taking Sunday as the start of the week (e.g., week of 4 September).

11. *Short explanation of Outlook method (using 300 words or less). In addition, we encourage you to submit a more detailed Outlook, including discussions of uncertainties/probabilities, including any relevant figures, imagery, and references.

The outlook is based on an objective analog methodology designed to predict the summer atmospheric fields that drive sea ice variations. The analogs years are the ones in which atmospheric circulation and temperature fields best match those of 2016 through May. A weighting scheme is applied to different predictor variables based on how well they have performed as predictors in the past. The actual forecast ice extent is the mean of the September ice extent in the five best analog years of the past (from 1979-2015).

12. 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).

+/-0.8 million km² (September ice extent in five best analog years ranges from 0.8 million km² below, to 0.8 million km² above, the five-analog mean)

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

Uncertainty is defined here as the range of ice extent in the five best analog years

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

d) Raw (and/or post processed) forecasts for this year and retrospective forecasts in an excel spreadsheet with one year on each row and ensemble member number on columns (specifying whether raw or post processed).