

SEA ICE PREDICTION NETWORK (SIPN)
Template for Pan-Arctic Sea Ice Outlook Core Contributions
August 2015 Report

*REQUIRED

1. *Contributor Name(s)/Group – how you would like your contribution to be labeled in the report (e.g., Wiggins et al.)
Wanqiu Wang

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

2. * Individuals submitting "public" contributions should self-identify here:
 Yes, this is a "public" contribution.

3. *"Executive summary" about your Outlook contribution (max 300 words)
Say in a few sentences what your Outlook contribution is and why. To the extent possible, use non-technical language.
The contribution here includes (1) September sea ice extent, and (2) error estimate.

4. *Type of Outlook projection
 dynamic model statistical heuristic mixed or other: (specify)

If you use a model, please specify:

Model Name CFSv2

Components of the model: Atmosphere , Ocean , Ice , Land ,

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

5. *September monthly average projection (extent in million square kilometers. To be consistent with the validating sea ice extent index from NSIDC, if possible please first compute the average concentration for the month and then compute the extent as the sum of area of all cells > 15%.)

Ensemble mean September extent is $5.0 \times 10^6 \text{ km}^2$

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

The predicted Arctic sea ice extent is based on NCEP ensemble mean CFSv2 forecast initialized from the NCEP Climate Forecast System Reanalysis (CFSR) that assimilate observed sea ice concentration and other atmospheric and oceanic observations. Raw forecast output is bias-corrected based on the systematic of the forecast for the recent years.

7. If this is a model contribution, please include method of method of initialization and variable used.

The forecast was initialized from the NCEP CFSR. The sea ice extent was computed using bias-corrected sea ice concentration.

8. Projection uncertainty/probability estimate for September extent (only required if available with the method you are using)

Estimated error is $\pm 0.27 \times 10^6 \text{ km}^2$. This estimate is based on ensemble mean errors of the retrospective and real-time forecast for 1982-2014.

9. Short explanation/assessment of basis for the uncertainty estimate in #6 (1-2 sentences)

Mea bias is computed as the mean ensemble mean errors of hindcast and forecast for 2008-2014 relative to NASA Team observational analysis. The calculated mean bias in CFSv2 for 2008-2014 is $2.12 \times 10^6 \text{ km}^2$. This mean bias includes model errors due to inaccurate physics and initial conditions, as well as differences due to grid mismatch between NASA Team data and model output.