

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.) J. Patrick Malone

- 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:
 ___X___ 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.

Using a mixed statistical-heuristic method, I am predicting final sea ice extent of approximately 2.48038 million km² by approximately 09/18/2015 (September 17th, 2015) with a September monthly average of 2.6917 million km². This estimate was developed initially using a few heuristics. Based on 2013-2014 observations, I believe solar decline in the face of increasing greenhouse forcing is likely to offset one another. 2012 had an El Nino, and once I started to see some signs of a developing system, I used the 2012 curve to account for the additional heat and adjusted the 2012 numbers to start at the end of the final curve from 2014. This model held within standard 95% confidence intervals until about July 5th, when cloud cover significantly reduced solar forcing. Once the heavy cloud systems passed, I realigned the remaining 2012 data from July 5th and the model has held ever since.

4. *Type of Outlook projection
 ___dynamic model ___statistical ___heuristic ___X___mixed or other: (specify)

* statistical and heuristic *

If you use a model, please specify:

Model Name _____

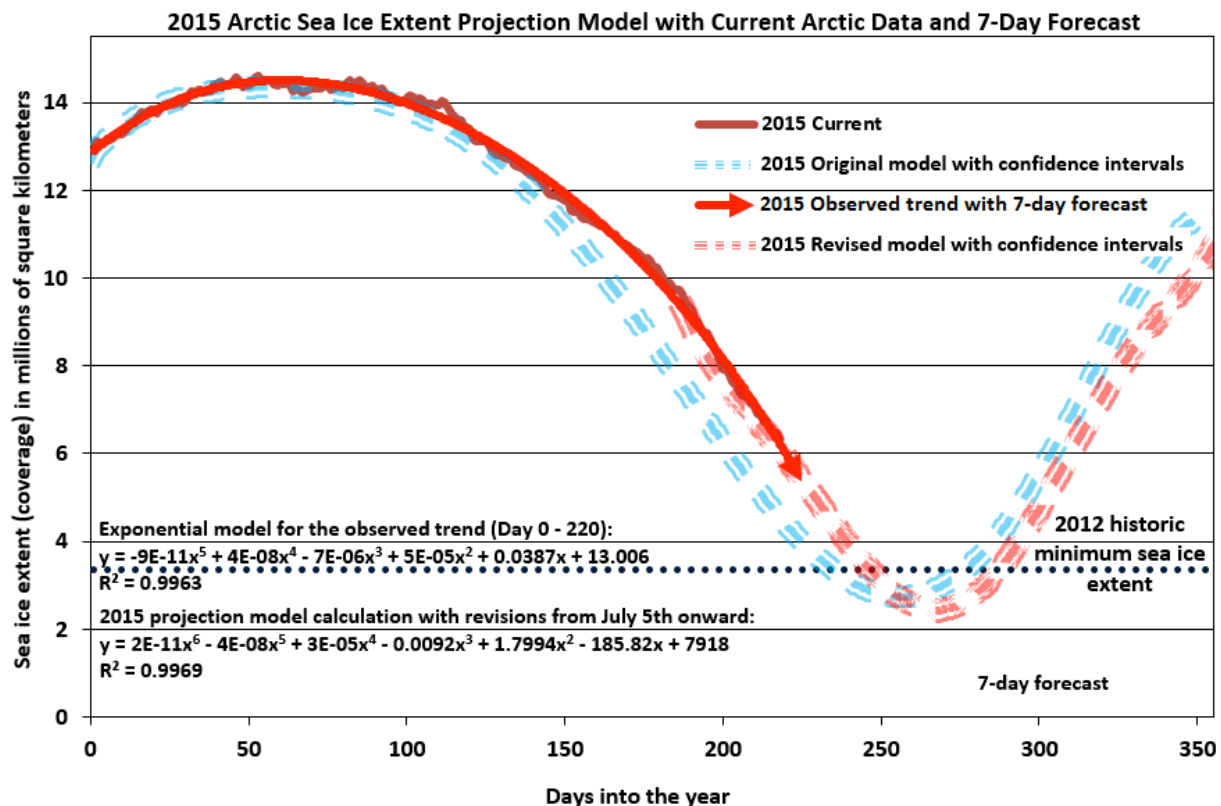
Components of the model: Atmosphere_X_, Ocean_X_, Ice_X_, Land___,

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

- *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%.)

I am predicting final sea ice extent as the sum of all cells > 15% as approximately 2.48038 million km² by approximately 09/18/2015 (September 17th, 2015) with a September monthly average of 2.6917 million km².

- *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.



My original projection model was:

$$y = -6E-13x^6 + 5E-10x^5 - 2E-07x^4 + 2E-05x^3 - 0.0019x^2 + 0.0863x + 12.755$$

This was developed initially using a few heuristics; solar decline in the face of increasing greenhouse forcing likely offset one another, and this seemed to be the case when examining 2013 – 2014, with only slight advance. 2012 had an El Nino, and once I

started to see some signs of a developing system, I used the 2012 curve to account for the additional heat and adjusted the 2012 numbers to start at the end of the final curve from 2014. This model held within standard 95% confidence intervals until about July 5th, when cloud cover significantly reduced solar forcing. Once the heavy cloud systems passed, I realigned the remaining 2012 data from July 5th and the model has held ever since.

7. Projection uncertainty/probability estimate for September extent (only required if available with the method you are using)
8. Short explanation/assessment of basis for the uncertainty estimate in #6 (1-2 sentences)