

SEA ICE PREDICTION NETWORK (SIPN)
Template for Pan-Arctic Sea Ice Outlook Core Contributions
July 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.)

Gavin Cawley

2. *"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.

This is a purely statistical method (related to Krigging) to estimate the long term trend from previous observations of September Arctic sea ice extent. As this uses only September observations, the prediction is not altered by observations made during the Summer of 2015.

3. *Type of Outlook projection
___dynamic model statistical ___heuristic ___mixed or other: (specify)

If you use a model, please specify:

Model Name _____

Components of the model: Atmosphere___, Ocean___, Ice___, Land___,

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

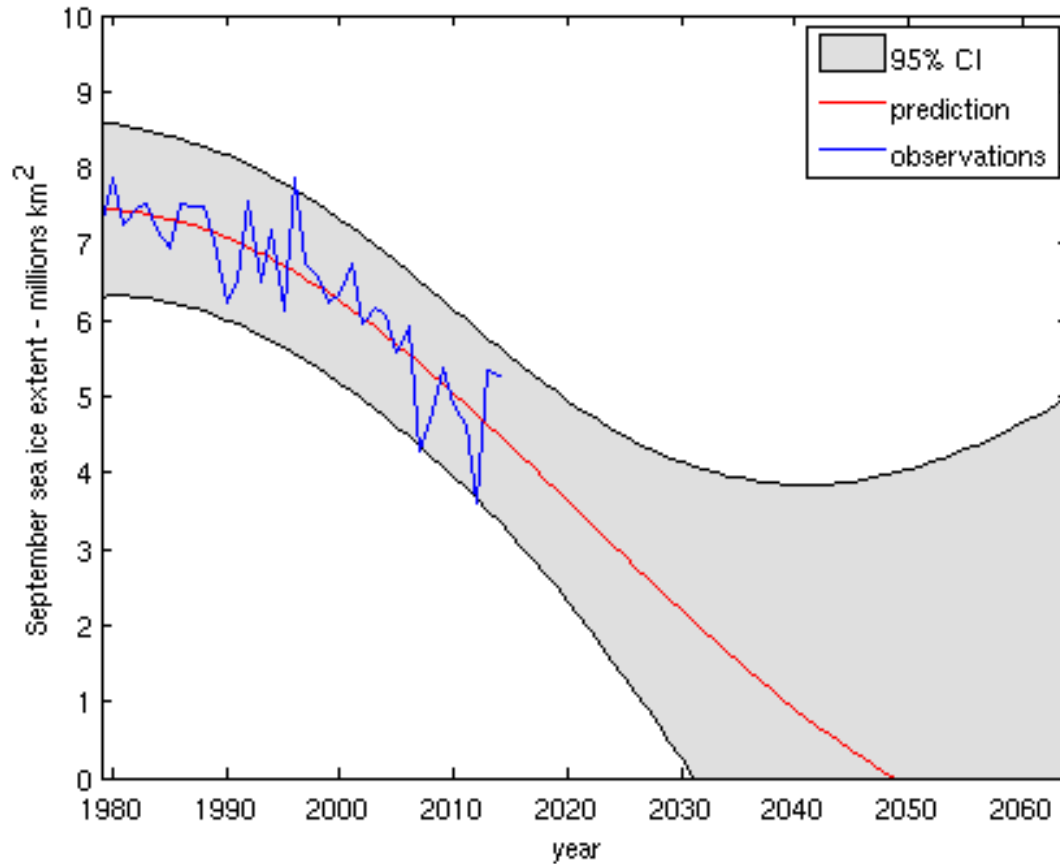
4. *September monthly average projection (extent in million square kilometers. To be consistent with the validating sea ice extent index from NSIDC, if possible please first compute the average concentration for the month and then compute the extent as the sum of area of all cells > 15%.)

4.351010 (+/- 1.163341)

5. *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.
If this is a model contribution, please include method of initialization and variable used.

This is a purely statistical method, which uses a Gaussian process regression (c.f. Krigging) model to estimate the (non-linear) long term trend from previous observed September Arctic sea ice extent. The model uses a radial basis

covariance function and tunes the parameters via marginal likelihood maximisation (using the GPML toolbox for MATLAB). As this uses only September observations, the prediction is not altered by observations made during the Summer of 2015.



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

95% Bayesian credible interval 4.351010 +/- 1.163341

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