## SEA ICE PREDICTION NETWORK (SIPN)

## Template for Pan-Arctic Sea Ice Outlook Core Contributions
### August 2016 Report (Using July Data)

1. *Contributor Name(s)/Group

Mr. Persistence (Andrew Slater)

2. *Type of Outlook projection
   ____model  _**X**__statistical  ____heuristic

If you use a model, please specify:
Model Name Multi-Persistence
Components of the model: Atmosphere__, Ocean__, Ice__, Land__, Coupler____
For non-coupled model: Ice _**X**_, Ocean____, Forcing____

3. *September monthly average projection (in million square kilometers)

**4.86  or  4.86  or  4.48  x 10$^6$ km$^2$**


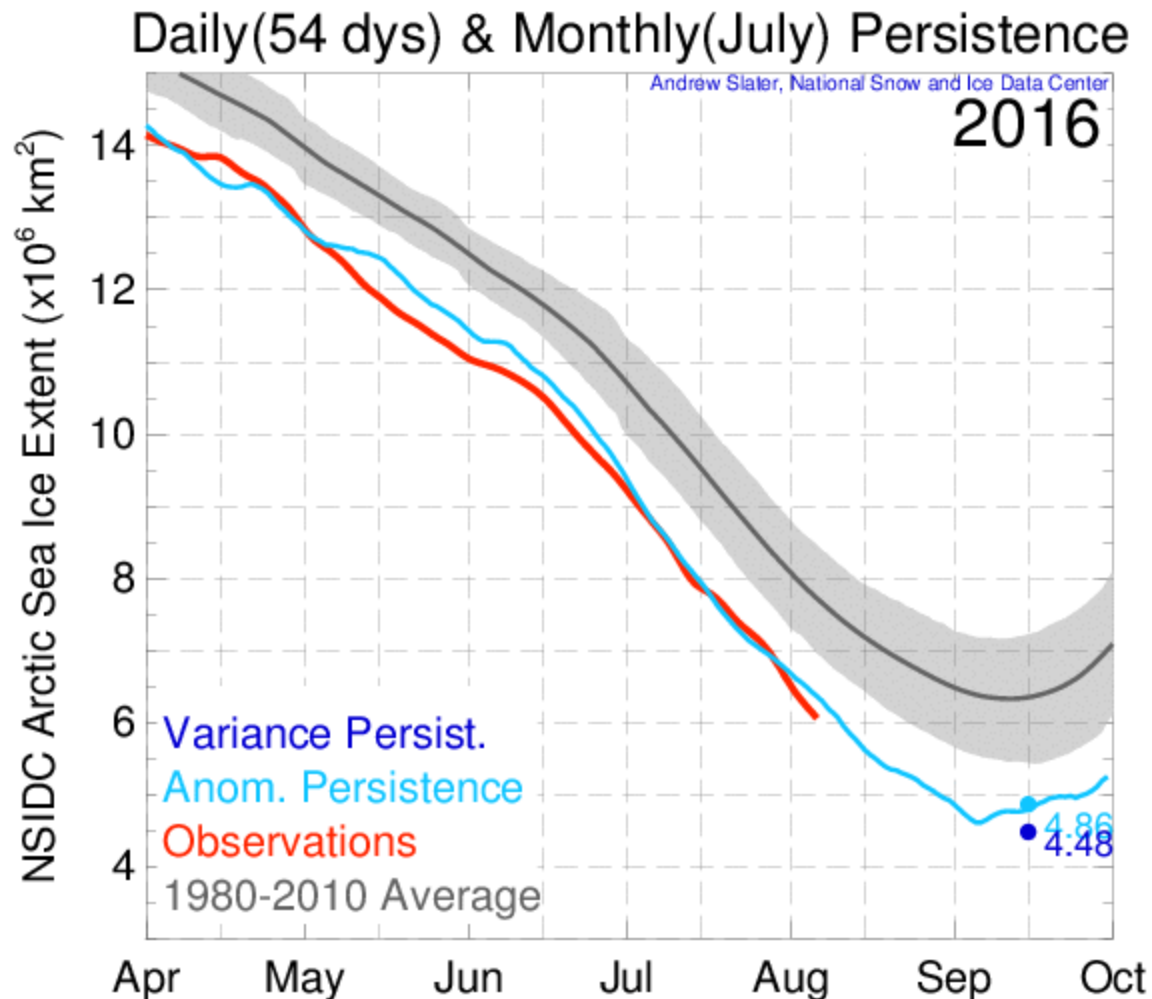4. *Short explanation of Outlook method (1-3 sentences)

Persistence can be computed in several ways. I have looked out to Sept. for the sake of comparison and as a very basic benchmark.

1) Daily anomaly persistence at 54 days lead time (so that I can go all the way to Sep 30th), then compute mean for Sept = 4.86

2) Persist the absolute anomaly from July to Sept (using NSIDC monthly value, not mean of daily). Sept = 4.86

3) Persist the standard normal deviate from July to Sept (using NSIDC monthly). Labeled as "Variance Persistence". Sept = 4.48


Remarkably, the daily and monthly absolute persistence results are the same! There is better agreement among the various method this month, particularly compared to the June prediction.

## Daily(54 dys) & Monthly(July) Persistence

Andrew Slater, National Snow and Ice Data Center

2016

NSIDC Arctic Sea Ice Extent (x10$^6$ km$^2$)

Variance Persist.
Anom. Persistence
Observations
1980-2010 Average

4.86
4.48

Apr May Jun Jul Aug Sep Oct

(Note: this plot includes a longer smoothing window than my operational 50-day forecast and the observed data sets are different)

5. Projection uncertainty/probability estimate (only required if available with the method you are using)

At 54 days, persistence is not a bad predictor. It consistently does better than some more sophisticated models.

7. * "Executive summary" about your Outlook contribution
1-3 sentences, to be used in Outlook summary: say in a few sentences what your Outlook contribution is and why. To the extent possible, use non-technical language.

Three different types of persistence forecasting at 54-day or 2 month lead time. The methods contain quite reasonable skill at this timescale. Both monthly and daily absolute anomaly persistence give 4.86x10$^6$ km$^2$.

Sea Ice Prediction Network                                            August 2016