

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

Qiao et al./FIO-ESM

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.

FIO-ESM (First Institute of Oceanography-Earth System Model) is an earth system model. A surface wave model is introduced through including the non-breaking wave-induced vertical mixing, which can improve the performance of climate model especially in the simulation of upper ocean mixed layer depth into the ocean general circulation model.

3. *Type of Outlook projection
FIO-ESM dynamic model

If you use a model, please specify:

Model Name FIO-ESM

Components of the model: Atmosphere CAM3.0, Ocean POP2.0, Ice CICE4, Land CLM3.5, Wave MASNUM wave model

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%.)

5.599 million square kilometers

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 method of initialization and variable used.

This is a model contribution. The initialization is also from the same model (FIO-ESM) but with data assimilation. Assimilation method is Ensemble adjustment Kalman filter (EAKF). The data of SST (sea

surface temperature) and SLA (sea level anomaly) from 1992 to 2015 are assimilated into FIO-ESM model to get the initialization.

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