

Sea Ice Outlook
2021 August Report
Individual Outlook

Name of contributor or name of contributing organization:

Chen, Thomas Y.

Is this contribution from a person or group not affiliated with a research organization?

Yes, this contribution is from a "Citizen Scientist."

Name and organization for all contributors. Indicate primary contact and total number of people who may have contributed to your Outlook, even if not included on the author list.

Chen, Thomas Y.

**Do you want your June contribution to automatically be included in subsequent reports?
(If yes, you may still update your contribution via the submission form.)**

Repeat this submission in all future monthly reports

What is the type of your Outlook projection?

ML/Other

Starting in 2017 we are accepting both pan-Arctic and pan-Antarctic sea ice extent (either one or both) of the September monthly mean. As in 2016, we are also collecting Alaskan regional sea ice extent. To be consistent with the validating sea ice extent index from NSIDC, if possible, please first compute the average sea ice concentration for the month and then compute the extent as the sum of cell areas > 15%.

a) Pan-Arctic September extent prediction in million square kilometers.

4.12

b) same as in (a) but for pan-Antarctic. If your method differs substantially from that for the Arctic, please enter it as a separate submission.

c) same as in (b) but for the Alaskan region. Please also tell us maximum possible extent if every ocean cell in your region were ice covered.

"Executive summary" of your Outlook contribution (using 300 words or less) describe how and why your contribution was formulated. To the extent possible, use non-technical language.

We utilized a random forest model, which is an aggregated ensemble of decision trees.

Brief explanation of Outlook method (using 300 words or less).

We used CPOM UCL data, which is sourced from Cryo-Sat in near real time, for sea ice thickness. Similarly, we used Near-Real-Time DMSP SSMIS Daily Polar Gridded Sea Ice Concentrations from the NSIDC NASA team. We fine tuned model specifications.

Tell us the dataset used for your initial Sea Ice Concentration (SIC).

NSIDC NASA Team, random forest, <https://nsidc.org/data/NSIDC-0081/versions/1>, 2021

Tell us the dataset used for your initial Sea Ice Thickness (SIT) used. Include name and date.

ESA/CPOM, random forest, <http://www.cpom.ucl.ac.uk/csopr/seaice.php>, 2021

If you use a dynamic model, please specify the name of the model as a whole and each component including version numbers and how the component is initialized:

If available from your method.

a) Uncertainty/probability estimates:

Median

Lower error bound

Lower error bound

Standard Deviation

b) Brief explanation/assessment of basis for the uncertainty estimate (1-2 sentences).

c) Brief description of any post-processing you have done (1-2 sentences).