Sea Ice Outlook
2023 September Report
Individual Outlook

Name of contributor or name of contributing organization:

ANSO-IAP

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

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.

ANSO-IAP

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.)

[Do you want your contribution for this month to automatically be included in subsequent reports?]

What is the type of your Outlook projection?

Dynamic Model

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.

4.25

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.

The prediction for the sea ice outlook in August 2023 was carried out with a dynamic model prediction system FGOALS-f2. The dynamic prediction system, named FGOALS-f2 (ice-ocean-atmosphere-land model), provides real-time predictions in the subseasonal to decadal (S2D) timescales. The FGOALS-f2 S2D system was established in 2020 by the Institute of Atmospheric Physics Chinese Academy of Sciences, and PAEKL Chengdu University of Information Technology. Based on the prediction on Sep 15th, the outlook predictions of Sea Ice Extent are 4.25 million square kilometers for the pan-Arctic in September 2023.

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

The FGOALS-f2 is a sub-seasonal to decadal (S2D) dynamic prediction system that utilizes the FGOALS-f2 model to provide Arctic sea ice predictions. This system was developed by the Institute of Atmospheric Physics Chinese Academy of Sciences, Chengdu University of Information Technology, and Beijing Normal University. According to FGOALS-f2's latest prediction, the Sea Ice Extent for the pan-Arctic in September 2023 is expected to be 4.25 million square kilometers.

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

NSIDC

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

None

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:

FGOALS-f2 V1.3 (Atmospheric component: FAMIL2 ; Ocean component: POP; Sea ice component: CICE4; Land component: CLM4, horizontal resolutions: Approximately 1°) is a global prediction system that employs an advanced nudging technology with a time-varying weighting factor scheme to deliver highly accurate forecasts. By assimilating crucial atmospheric variables such as wind components (U and V), temperature (T), humidity (Q), and potential temperature in the ocean, and also the sea ice concentration over the Arctic region, this system generates 48 ensemble members using a time-lag method, ensuring consistently reliable and precise outcomes.

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).