

Sea Ice Outlook
2022 June Report
Individual Outlook

Name of contributor or name of contributing organization:

ArCS II Kids

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.

ArCS II Kids

**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?

Heuristic

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.

3.52

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.

Mean ice extent in this September is expected to be 3.52 million square kilometers. This prediction was made by 22 elementary school children. First, they estimated the sea ice extent for each year from the sea ice distribution map for September 2002-2021. Next, based on the obtained graphs of the interannual changes in the ice extent, each person determined the prediction value for 2022. Finally, the ice extent of the prediction was calculated by averaging the determined values of the 22 individuals.

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

The predictions were made by 22 elementary school students divided into three groups. First, each group was given the ice distribution map for September since 2002. Then the ice extent was estimated by approximating the sea ice distribution as a triangle or trapezoid, or by counting the number of squares on a sheet with squares drawn on it. Obtained graphs of interannual variation of the ice extent were in good agreement with the actual variations. Based on the graphs, each person in each group predicted the sea ice extent for the year 2022.

Predicted values varied widely between individuals: 16 out of 22 predicted a value smaller than 3.60 (million square kilometers), probably as a result of noting the downward trend and expecting that trend to persist this year. On the other hand, three predicted a value greater than 4.60. This is probably a result of the obscuring of the declining trend in recent years, especially in view of the increase in the last year.

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

10km grid data derived from AMSR-E and AMSR2, distributed by Arctic Data Archive System (<https://ads.nipr.ac.jp>)

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

NA

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).