

SEA ICE OUTLOOK
2022 June Report

By ArCS II Kids

Contributor

Label: ArCS II Kids

Contributors

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TANAKA Minamo
WAKUTA Kiri
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YATABE Toma
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(All are Japanese elementary school students)

Leader

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Executive summary

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.

Type of Outlook method:

Heuristic

Dataset

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

Prediction of September pan-Arctic extent as monthly average in million square kilometers.

3.52 million square kilometers

Short explanation of Outlook method.

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.

Pan-Arctic sea ice extent anomaly

-0.55 (3.52-4.07) million square kilometers

Predicted value of each (million square kilometers)

FUKUYOSHI Daiki	3.60
HAYASHI Natsuki	3.54
ISHII Yosuke	3.58
ITO Kotomi	2.69
IWATSUBO Kotaro	3.48
KOMI Hinata	4.00
MATSUDA Yugo	4.66
MIURA Sana	5.00
MIZUSHIMA Karin	3.25
MIZUTANI Fumiaki	2.60
NAKAYAMA Eishin	3.07
OGATA Yukine	3.20
OHFUJI Hikari	2.95
OHNISHI Mayuko	3.00
OKAMOTO Ayaka	3.00
SAKAMOTO Takumi	4.00
SUGIMURA Sion	4.80
TANAKA Minamo	2.99
WAKUTA Kiri	3.35
YAMADA Fuuto	4.00
YATABE Toma	3.56
YOSHIDA Haru	3.05

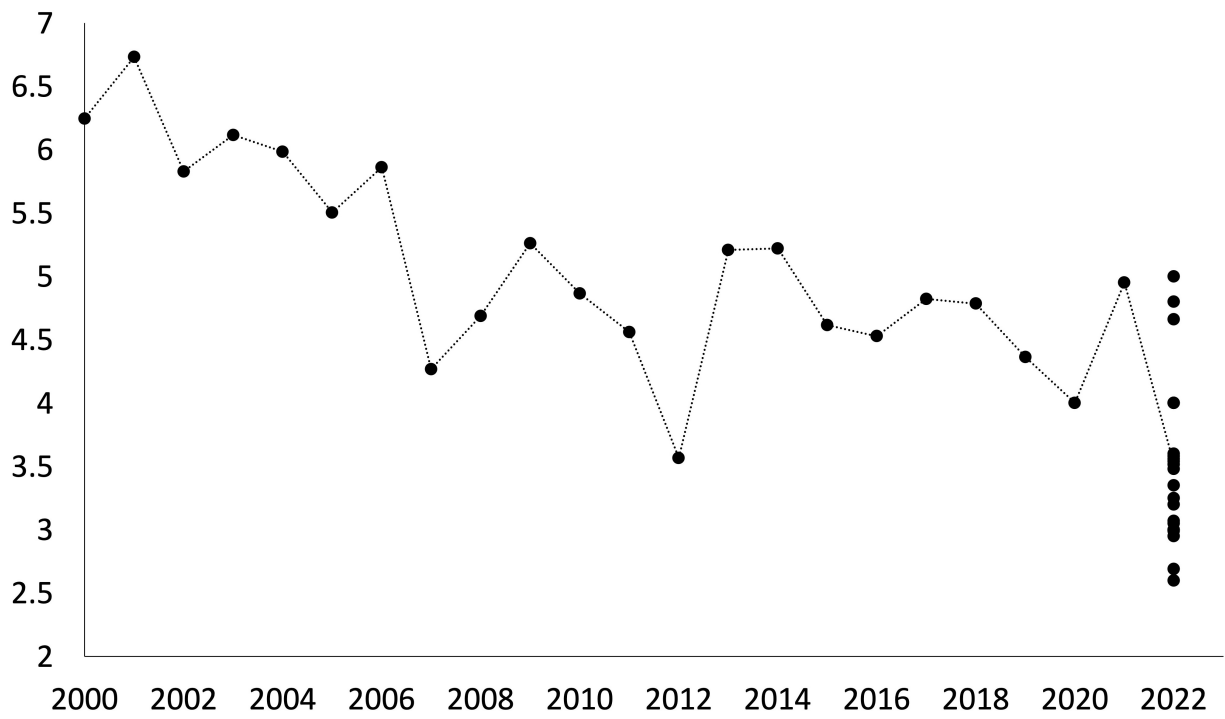


Fig: Interannual change in sea ice extent in September since 2000; value for 2022 is prediction. Dots in 2022 are predicted values for each of the 22 participants.