

SIPN²



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2024 June Call for Sea Ice Outlook Contributions

EXTENDED DEADLINE!!

June 2024 Call for Sea Ice Outlook Contributions

June Report (Based on May data)

Extended submission Deadline: 6:00 p.m. AKDT, Monday, 24 June 2024 (Firm)

Dear Community Members,

Your participation in the Sea Ice Outlook (SIO) is always much appreciated. We encourage all past contributors to submit Outlooks this year and we also hope to see new participants. Please feel free to distribute this call to others who might be interested in participating in the SIO.

Questions can be directed to the SIO team at sio2024@mail.arcus.org (<mailto:sio2024@mail.arcus.org>).

Overview

Sea Ice Prediction Network (SIPN) team members announce the call for contributions for the 2024 Sea Ice Outlook (SIO) June report. The SIO provides an open process for those interested in Arctic sea ice to share ideas.

Due to limited funding, there will be no monthly reports during the season. However, each month, the team will produce the three figures typically included in the monthly report's Pan-Arctic Sea-Ice Forecasts section and those will be posted on the Sea Ice Outlook webpage. Plans for a Post-Season Report, with a focus on performance of Outlooks as compared to the observed sea ice minimum, will be developed at the end of the retreat season. A 2024 Sea Ice Outlook is being funded by in-kind support from UW, NSIDC, UAF, and ARCUS.

The 2024 SIO solicitation is the same as 2023—contributors are asked to submit new outlooks for each month. No outlooks will be automatically carried forward from one month to subsequent monthly reports. For

example, please do not submit outlooks developed in June (based on May data only) to the July SIO. (See the tentative schedule linked below.)

Additionally, we encourage submissions to the associated effort of the Sea Ice Drift Forecast Experiment (SIDFEx); see details below under "Associated Effort – Sea Ice Drift Forecast Experiment."

EXTENDED JUNE SUBMISSION DEADLINE: 6:00 p.m. AKDT, Monday, 24 June 2024 (Firm)

- Contributions received after the deadline may not be fully incorporated into the Outlook figures.
- Questions, including how to submit contributions that may not fit into the monthly report format, may be directed to the SIO team at sio2024@mail.arcus.org (<mailto:sio2024@mail.arcus.org>).

Sea Ice Outlook data resources are available via the National Snow and Ice Data Center (NSIDC) SIPN Data Set webpage (<https://nsidc.org/sipn/data>).

The 2024 SIO Solicitation Includes:

- Outlooks for pan-Arctic, pan-Antarctic, and Alaskan regional September monthly mean sea-ice extent, related uncertainty/probability estimates, and the optional submissions of sea-ice extent anomaly forecasts. We particularly encourage submissions for the Alaska region (i.e., Bering, Chukchi, and Beaufort seas).
- Estimates of Sea Ice Probability (SIP), defined as the fraction of ensemble members in an ensemble forecast with September ice concentration in excess of 15%.
- Estimates of Ice-Free Dates (IFD), defined as the first day that Sea Ice Concentration (SIC) drops below 15% ('IFD15'). A second metric we invite is the IFD calculated for an 80% SIC threshold ('IFD80').
- For August and September only: estimates of Ice Advance Dates (IAD), defined as the first date (quantified as day of year) in the freeze up season (i.e., after the summer minimum) at which ice concentration first increases over 15% ('IAD15') and over 80% ('IAD80').
- Spatial fields of forecast's initial conditions, particularly sea ice concentration and sea ice thickness or ice thickness distribution, with the date of initialization documented. If forecasts are produced

from multiple initializations, these could be the mean fields across your initializations or you can include each single initialization.

- **Supplemental materials**, including PDFs of any additional figures and/or text files,

Note: All participants whose methods provide information at the regional scale are again encouraged to provide full spatial fields. These submissions will allow organizers to compute metrics such as sea ice probability and first ice-free day for contributors, as well as additional regional analysis for the Sea Ice Outlook. (See submission instructions below.)

2024 Submission Instructions

Instructions for Submitting Pan-Arctic, Pan-Antarctic, and Alaska Regional Outlooks

Contributors should use the June Online Submission Form (https://docs.google.com/forms/d/e/1FAIpQLScKvidEt1JHUb99-lr4T1POMDMNJPNChm5OAeRmMbJG0_aORg/viewform?usp=sf_link), or alternative SIO form, to submit:

Contributors should use the Google-based or alternative SIO form to submit:

- Required core information for pan-Arctic Outlook projections using dynamical model, statistical, heuristic, and mixed methods. To be consistent with observations from the NSIDC Sea Ice Index extent, compute the total extent (sum of cell areas >15%) for each day and then average the extents from each of the days in the month into a monthly average extent.
- Information for pan-Antarctic and/or Alaska regional sea ice extent projections using dynamical model, statistical, heuristic, and mixed methods. (Please see details below under "Instructions for Submitting an Alaskan Regional Outlook").
- Additional Outlook report details, including discussions and details related to uncertainties/probabilities. (Uncertainty values are solicited for the pan-Arctic only).
- Executive summaries describing in plain words your Outlook,

contributing factors, and your methodology.

- Pan-Arctic sea-ice extent anomaly forecasts (See details below under "Instruction for Submitting Pan-Arctic Sea-Ice Extent Anomalies")
- Contributors who do not have access to the Google-based form or a Google account should request access to an alternative form and/or a PDF of the submission form, via email to sio2024@mail.arcus.org (<mailto:sio2024@mail.arcus.org>).

Instructions for Submitting Supplemental Material

- Send supplemental material as an e-mail attachment sent to sio2024@mail.arcus.org (<mailto:sio2024@mail.arcus.org>).
- Please provide supplemental material as a single PDF (less than 20 MB).
- Clearly identify your contribution by using the same email address and group name as provided on the submission form so we can link it to your submission.
- Examples of supplement materials include: relevant figures, imagery, references, or further information about your methods.

Instructions for Submitting Full Field of Sea Ice Forecasts

- To contribute fields of SIP, IAD, IFD (or the daily sea ice concentration fields, from which we will calculate the SIP, IAD and IFD for you) and initial conditions, please upload to the SIPN data server using the same username and password of past years. If you are a new contributor of these fields and need to set up a new username and password, or have any queries on how to upload the data, please contact Ed Blanchard at edwardbw@uw.edu (<mailto:edwardbw@uw.edu>).
- For examples and further information on the SIP, IAD, and IFD metrics, see Metrics for the Sea Ice Outlook.

Instructions for Submitting an Alaskan Regional Outlook

- Please submit a total extent for the Alaskan region, defined here as the combination of the Bering, Chukchi, and Beaufort seas. If

possible, use the definition from the NSIDC Arctic sea ice regional graphs and time series from the mask below, which is on the 25 km by 25 km polar stereographic projection used for the passive microwave satellite data.

- The mask is provided as a NetCDF file here: NSIDC Regional Mask (NC - 2 MB).
- Also tell us the maximum possible ice extent if every ocean cell in your Alaska region were ice covered. For example, if your model uses exactly the same grid as the satellite data, the area would be $4.00 \times 10^6 \text{ km}^2$. The maximum possible extent is probably much larger than your actual Alaskan Regional Outlook. Be sure to exclude land and islands.
- Finally, with your entry, please include how you defined the Alaskan region: either say NSIDC definition, or if you must use your own definition, describe it.
- Enter your submission via the Google-based submission form under the "Outlook Prediction" header.
- For questions about the format of this request, please contact the SIO team (sio2024@mail.arcus.org (<mailto:sio2024@mail.arcus.org>)).

Note: If you skip this step but provide full fields, we'll compute an Alaskan regional outlook for you.

Instructions for Submitting Pan-Arctic Sea Ice Extent Anomalies (Optional Submission)

This is an optional submission and it is recognized that not all SIO contributors will be able to provide anomaly forecasts. The request is motivated by the large spread in SIO predictions of mean September sea-ice extent. Some of this spread likely reflects inter-model biases, i.e., some models consistently overestimate ice extent while others underestimate it (relative to observations). The goal of this activity is to eliminate this source of inter-model prediction spread. The long-term mean is not a well-defined concept in a rapidly changing Arctic.

The pan-Arctic sea ice extent anomaly is the departure of the contributors' September extent Outlook relative to the contributors' baseline trend, e.g., the trend in historical observations, model hindcasts, etc.

To calculate a pan-Arctic sea ice extent anomaly:

1. Calculate the multi-year linear trend (slope) of September-mean extent from your baseline period. The linear trend will be different for each contributor due to inter-method/model biases.
2. Extrapolate the linear trend to calculate an extrapolated September 2024 extent value.
3. Calculate the extent anomaly value by subtracting the September 2024 Outlook extent from the extrapolated trend September 2024 value.

Associated Effort – Sea Ice Drift Forecast Experiment

Contributions are again also invited to the Sea Ice Drift Forecast Experiment (SIDFEx), a community effort to collect and analyze sea ice drift forecasts at lead times from days to a year. The forecasts target drifting sea-ice buoys. SIDFEx is aligned with the Sea Ice Outlook such that modeling groups contributing to the Sea Ice Outlook can contribute to SIDFEx relatively easily by computing trajectories for Lagrangian tracers. Results from the last years have been described briefly in the 2017-2022 Sea Ice Outlook Post-Season Reports. This time, we also invite suggestions for buoys or other easily tracked targets such as ships or field experiment sites to be added to the list of SIDFEx targets.

For further Information, see the SIDFEx Homepage (<https://www.polarprediction.net/key-yopp-activities/sea-ice-prediction-and-verification/sea-ice-drift-forecast-experiment/>) or email the SIDFEx team (sidfex@polarprediction.net (<mailto:sidfex@polarprediction.net>)). For details on the design of SIDFEx and how to contribute drift forecasts, please download the following document.

Background and Guidelines for SIDFEx Contributions (https://www.polarprediction.net/fileadmin/user_upload/www.polarprediction.net/Home/YOPP/SIDFEx/SIDFEx_background_and_guidelines_20211207.pdf).

TENTATIVE 2024 SIO SCHEDULE

JUNE: (Based on May data)

- 4 June 2024 (Tuesday): Call for Contributions to June Report
- 24 June 2024 (Monday): Extended Deadline for June Contributions

JULY: (Based on May and June data)

- 1 July 2024 (Monday): Call for Contributions to July Report
- 15 July 2024 (Monday): Deadline for July Contributions

AUGUST: (Based on May, June, and July data)

- 1 August 2024 (Thursday): Call for Contributions to August Report
- 15 August 2024 (Thursday): Deadline for August Contributions

SEPTEMBER: (Based on May, June, July, and August data)

- 3 September 2024 (Tuesday): Call for Contributions to September Report
- 17 September 2024 (Tuesday): Deadline for September Contributions

POST-SEASON REPORT

- Focus will be on the performance of Outlooks as compared to sea-ice minimum.
- Additional discussion and analysis of factors driving sea-ice extent during the 2024 melt season
- Developed following the conclusion of the retreat season.

SIPN

2025 Call for Contributions (</sipn/sea-ice-outlook/2025/call>)

2024: September Report (</sipn/sea-ice-outlook/2024/september>)

2024: August Report (</sipn/sea-ice-outlook/2024/august>)

2024: July Report (</sipn/sea-ice-outlook/2024/july>)

2024: June Report (</sipn/sea-ice-outlook/2024/june>)

2023: Post-Season Report (</sipn/sea-ice-outlook/2023/post-season>)

Sea Ice Outlook Archive (</sipn/sea-ice-outlook/archive>)



(<http://www.nsf.gov/div/index.jsp?div=PLR>)



(<https://www.onr.navy.mil/>)



(<http://www.noaa.gov>)



(<http://www.doe.gov>)



(<https://nerc.ukri.org>)



(<http://www.polarprediction.net/yopp-activities/>)

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