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## 2021 July Call for Sea Ice Outlook Contributions

### July Call for Sea Ice Outlook Contributions

#### July Report (Based on May and June data)

**Submission Deadline:** 6:00 p.m. (AKDT) Monday, 12 July 2021 (Firm)

*Dear Sea Ice Prediction Community Members,*

*Your participation in the Sea Ice Outlook (SIO) is always much appreciated and is especially valued during the continued COVID-19-related disruptions to our personal and professional lives. The SIPN leadership team extends our wishes for your good health and well-being.*

*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.*

**Please follow the new submission process guidelines detailed below.**

**Questions can be directed to: Betsy Turner-Bogren, ARCUS ([betsy@arcus.org](mailto:betsy@arcus.org) (mailto:betsy@arcus.org)).**

## Overview

The Sea Ice Prediction Network–Phase 2 (SIPN2) (<https://www.arcus.org/sipn>) announces the call for contributions for the 2021 Sea Ice Outlook July report. The Sea Ice Outlook provides an open process for those interested in Arctic sea ice to share ideas. The monthly reports contain a variety of perspectives—from advanced numerical models to qualitative perspectives from citizen scientists. Post-Season reports will focus on performance of the Outlooks, analysis and discussion of factors driving sea-ice extent, and scientific methods for predicting seasonal conditions.

We are again accepting outlooks for pan-Arctic, pan-Antarctic, and Alaskan regional September monthly mean sea-ice extent. We particularly encourage submissions for the Alaska region (i.e., Bering, Chukchi, and Beaufort seas). Submissions that include spatial forecast maps are particularly encouraged. Estimates of Ice-Free Dates (IFD), as well as any additional figures and gridded fields, will be accepted for the 2021 July Outlook via the SIPN Data Portal (<https://atmos.uw.edu/sipn>). Outlooks for sea-ice advance dates will be invited for the August and September SIO reports and submitted via the SIPN Data Portal (<https://atmos.uw.edu/sipn>).

We strongly encourage all participants whose methods provide information at the local scale to provide full spatial fields via the SIPN Data Portal (<https://atmos.uw.edu/sipn>). These submissions will allow us to compute metrics such as sea-ice probability and first ice-free day for you, as well as additional regional analysis for the Sea Ice Outlook.

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

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

### New to the 2021 SIO:

(See detailed guidelines for contributions under "Submission Process" below.)

- 1. New 2021 SIO Submission Form and Process** for contributions of 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.
- 2. New Solicitation of Pan-Arctic Sea-ice Extent Anomalies (this is an optional submission).**
- 3. New Monthly SIO Report for September (based on data through end-of-August).**
- 4. Solicitation of Sea-ice Advance Dates (IAD) Forecast Contributions to the SIO August and September Monthly Reports.**

**SUBMISSION DEADLINE:** 6:00 p.m. (AKDT) Monday, 12 July 2021 (Firm)

Contributions received after the deadline may not be fully incorporated into the Outlook report or discussion.

Questions, including how to submit contributions that may not fit into the monthly report format, may be directed to Betsy Turner-Bogren, ARCUS ([betsy@arcus.org](mailto:betsy@arcus.org) (<mailto:betsy@arcus.org>))

Tentative Schedule For 2021 SIO Monthly And Post-Season Reports (PDF - 35 KB)  
([/files/page/documents/32200/2021\\_sio\\_tentative\\_schedule\\_june\\_2021.pdf](/files/page/documents/32200/2021_sio_tentative_schedule_june_2021.pdf))

## Submission Process

### 1. New 2021 SIO Submission Form and Process

Use the new Google-based SIO July Submission form (<https://forms.gle/H5Asm1y25vdLdvfj7>) to submit 2021 July Outlook contributions of 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. (*Please note: You may edit any field before submitting by simply clicking back to the appropriate page.*)

- An alternative submission form is available to contributors who do not have access to the Google-based form. *Please contact Betsy Turner-Bogren, ARCUS ([betsy@arcus.org](mailto:betsy@arcus.org) (<mailto:betsy@arcus.org>)) to receive the alternative form via email.*
- Separate links to the August and September submission form will be provided in each of the subsequent monthly calls for contributions.
- Contributors have the option to indicate they want to use the same Outlook for multiple months.

**Contributors should use the Google-based or alternative 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. (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.
- Sea-Ice Extent Anomaly Forecasts (see details below under, "2. New solicitation of pan-Arctic sea-ice extent anomalies")

Be sure to hit SUBMIT at the bottom of the submission page.

You will receive confirmation of your submission to the form via email.

**Supplemental materials** (e.g., relevant figures, imagery, references, or further information about your methods) will be accepted as an e-mail attachment sent to [sio2021@mail.arcus.org](mailto:sio2021@mail.arcus.org) (<mailto:sio2021@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.

**Contributors should use the SIPN Data Portal for:**

- Submissions of full spatial field sea-ice forecasts (full raw fields of sea-ice concentration and/or sea-ice thickness or post-processed fields).

- First Ice-Free Dates (IFD) calculated from the full spatial fields that cover the Alaska region (as described below). IFD is defined as the first days that Sea Ice Concentration (SIC) drops below 80% and then below 15%.  
*Note: A password is required for submission to the SIPN Data Portal—see details below in "Full Field of Sea-Ice Forecasts Submission to SIPN Data Portal"*

## 2. New Solicitation of Pan-Arctic Sea-ice Extent Anomalies (this is an optional submission)

Input received during the SIO Contributors Forum, held in January 2021, motivated the SIPN2 Project Team to invite pan-Arctic sea-ice extent anomaly forecasts for the 2021 SIO. 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.).

The procedure to calculate the anomaly Outlook is:

- Calculate the linear trend (slope) of your September extent mean values from your baseline period. The linear trend will be different for each contributor due to inter-method/model biases.
- Extrapolate the linear trend to calculate an extrapolated September 2021 extent value.
- Calculate the extent anomaly value by subtracting the September 2021 Outlook extent from the extrapolated September 2021 value.

## 3. New Monthly SIO Report for September (based on data through end-of-August)

Input received during the SIO Contributors Forum, held in January 2021, motivated the SIPN2 Project Team to invite outlook contributions to a new SIO monthly report for September (based on May, June, July, and August data). Submissions will follow the same processes described above. This will be an abbreviated report that will include figures and PDFs of contributed outlooks and very limited discussion.

## 4. Solicitation of Sea-ice Advance Dates (IAD) Forecast Contributions to the SIO August and September Monthly Reports

Forecasts for IAD will be calculated from the full spatial fields of sea-ice concentration that extend through the ice-advance seasons as submitted via the SIPN Data Portal (<https://atmos.uw.edu/sipn/>), or contributors can submit the IAD fields directly.

### 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. For questions about the format of this request, please contact Julienne Stroeve (Julienne.stroeve@colorado.edu (mailto:Julienne.stroeve@colorado.edu)).

The mask is provided as a netcdf file here: NSIDC Regional Mask (NC - 2 MB) ([https://www.arcus.org/files/page/documents/28201/sio\\_mask.nc](https://www.arcus.org/files/page/documents/28201/sio_mask.nc)).

Please enter your Alaskan Regional Outlook submission via the Google-based submission form under the "Outlook Prediction" header.

Also tell us the maximum possible ice extent if every ocean cell in your region were ice covered. For example, if your model uses exactly the same grid as the satellite data, the area would be  $4.00 \times 10^6$  km<sup>2</sup>. 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. If you skip this step but provide full fields to the SIPN Data Portal (<https://atmos.uw.edu/sipn/>) (see next section), we'll compute an Alaskan regional outlook for you.

### Full Field of Sea Ice Forecasts Submission to SIPN Data Portal

We strongly encourage all participants whose methods provide information at the local scale to provide full spatial fields via the SIPN Data Portal (<https://atmos.uw.edu/sipn/>). We are requesting full raw fields of sea-ice concentration (you may additionally submit post processed fields and/or sea-ice thickness) so we can compute these metrics for you, as well as additional regional analysis for the Sea Ice Outlook. The data portal will allow the SIPN community to access the data portal to conduct their own analysis of data that are deemed sharable by the participant who contributed the data.

First Ice-Free Dates (IFD) will be calculated from the full spatial fields that cover this region. (IFD defined as the first days that Sea Ice Concentration (SIC) drops below 80% and then below 15%).

We invite dynamical model contributors to include spatial fields of their 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.

**To submit full spatial fields, contact Cecila Bitz ([bitz@uw.edu](mailto:bitz@uw.edu) (mailto:bitz@uw.edu)) to get the password for ftp.**

To see examples and definitions of the sea-ice probability, first ice-free day, and date of ice advance metrics, see Metrics for the Sea Ice Outlook ([https://www.atmos.washington.edu/~ed/sio\\_metrics/](https://www.atmos.washington.edu/~ed/sio_metrics/)).

For more information, see the SIPN Data Portal (<https://atmos.uw.edu/sipn/>). If you have any questions/comments regarding this request, please contact Betsy Turner-Bogren ([betsy@arcus.org](mailto:betsy@arcus.org) (mailto:betsy@arcus.org)).

## 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 Arctic 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 modelling groups contributing to the Sea Ice Outlook can contribute to SIDFEx relatively easily by

computing trajectories for Lagrangian tracers. Results from the last four years have been described briefly in the 2017–2020 Sea Ice Outlook Post-Season Reports.

For further information, see the SIDFEx Homepage (<https://www.polarprediction.net/key-yopp-activities/sea-ice-prediction-and-verification/sea-ice-drift-forecast-experiment/>).

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.arcus.org/files/page/documents/30675/sidfex\\_background\\_and\\_guidelines\\_20190717.pdf](https://www.arcus.org/files/page/documents/30675/sidfex_background_and_guidelines_20190717.pdf)) (103.5 KB).

## SIPN

2023: September Report (</sipn/sea-ice-outlook/2023/september>)

2023: September Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2023/september/call>)

2023: August Report (</sipn/sea-ice-outlook/2023/august>)

2023: August Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2023/august/call>)

2023: July Report (</sipn/sea-ice-outlook/2023/july>)

2023: July Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2023/july/call>)

2023: June Report (</sipn/sea-ice-outlook/2023/june>)

2023: June Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2023/june/call>)

2022: Post-Season Report (</sipn/sea-ice-outlook/2022/interim-post-season>)

2022: September Report (</sipn/sea-ice-outlook/2022/september>)

2022: August Report (</sipn/sea-ice-outlook/2022/august>)

2022: July Report (</sipn/sea-ice-outlook/2022/july>)

2022: July Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2022/july/call>)

2022: June Report (</sipn/sea-ice-outlook/2022/june>)

2022: June Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2022/june/call>)

2021: Post-Season Report (</sipn/sea-ice-outlook/2021/post-season>)

2021: September Report (</sipn/sea-ice-outlook/2021/september>)

2021: September Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2021/september/call>)

2021: August Report (</sipn/sea-ice-outlook/2021/august>)

2021: August Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2021/august/call>)

2021: July Report (</sipn/sea-ice-outlook/2021/july>)

2021: July Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2021/july/call>)

2021: June Report (</sipn/sea-ice-outlook/2021/june>)

2021: June Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2021/june/call>)

2020: Post-Season Report (</sipn/sea-ice-outlook/2020/post-season>)

2020: Interim Post-Season Report (</sipn/sea-ice-outlook/2020/interim-post-season>)

2020: August Report (</sipn/sea-ice-outlook/2020/august>)

2020: August Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2020/august/call>)

2020: July Report (</sipn/sea-ice-outlook/2020/july>)

2020: July Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2020/july/call>)

2020: June Report (</sipn/sea-ice-outlook/2020/june>)

2020: June Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2020/june/call>)

2019: Post-Season Report (</sipn/sea-ice-outlook/2020/post-season-0>)

2019: Interim Post-Season Report (</sipn/sea-ice-outlook/2019/interim-post-season>)

2019: August Report (</sipn/sea-ice-outlook/2019/august>)

2019: July Report (</sipn/sea-ice-outlook/2019/july>)

2019: June Report (</sipn/sea-ice-outlook/2019/june>)

2018: Post-Season Report (</sipn/sea-ice-outlook/2018/post-season>)

2018: Interim Post-Season Report (</sipn/sea-ice-outlook/2018/interim-post-season>)

2018: August Report (</sipn/sea-ice-outlook/2018/august>)

2018: July Report (</sipn/sea-ice-outlook/2018/july>)

2018: June Report (</sipn/sea-ice-outlook/2018/june>)

2017: Post-Season Report (</sipn/sea-ice-outlook/2017/post-season>)

2017: August Report (</sipn/sea-ice-outlook/2017/august>)

2017: July Report (</sipn/sea-ice-outlook/2017/july>)

2017: June Report (</sipn/sea-ice-outlook/2017/june>)

2016: Post-Season Report (</sipn/sea-ice-outlook/2016/post-season>)

2016: August Report (</sipn/sea-ice-outlook/2016/august>)

2016: July Report (</sipn/sea-ice-outlook/2016/july>)

2016: June Report (</sipn/sea-ice-outlook/2016/june>)

2015: Post-Season Report (</sipn/sea-ice-outlook/2015/post-season>)

2015: DRAFT Post-Season Report (</sipn/sea-ice-outlook/2015/summary-draft>)

2015: August Report (</sipn/sea-ice-outlook/2015/august>)

2015: July Report (</sipn/sea-ice-outlook/2015/july>)

2015: June Report (</sipn/sea-ice-outlook/2015/june>)

2014: Post-Season Report (</sipn/sea-ice-outlook/2014/post-season>)

2014: DRAFT Post-Season Report (</sipn/sea-ice-outlook/2014/summary-draft>)

2014: August Report (</sipn/sea-ice-outlook/2014/august>)

2014: August Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2014/august/call>)

2014: July Report (</sipn/sea-ice-outlook/2014/july>)

2014: July Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2014/july/call>)

2014: June Report (</sipn/sea-ice-outlook/2014/june>)

2014: June Call for Sea Ice Outlook (</sipn/sea-ice-outlook/2014/june/call>)

2013: Post-Season Report (</sipn/sea-ice-outlook/2013/post-season>)

2013: July Report (</sipn/sea-ice-outlook/2013/july>)

2013: June Report (</sipn/sea-ice-outlook/2013/june>)

2012: Post-Season Report (</sipn/sea-ice-outlook/2012/post-season-0>)

2012: August Report (</sipn/sea-ice-outlook/2012/august>)

2012: July Report (</sipn/sea-ice-outlook/2012/july>)

2012: June Report (</sipn/sea-ice-outlook/2012/june>)

2011: Post-Season Report (</sipn/sea-ice-outlook/2012/post-season>)

2011: September Report (</sipn/sea-ice-outlook/2011/september>)

2011: August Report (</sipn/sea-ice-outlook/2011/august>)

2011: July Report (</sipn/sea-ice-outlook/2011/july>)

2011: June Report (</sipn/sea-ice-outlook/2011/june>)

2010: Post-Season Report (</sipn/sea-ice-outlook/2010/post-season>)

2010: August Report (</sipn/sea-ice-outlook/2010/august>)

2010: July Report (</sipn/sea-ice-outlook/2010/july>)

2010: June Report (</sipn/sea-ice-outlook/2010/june>)

2009: Summary Report (</sipn/sea-ice-outlook/2009/post-season>)

2009: Early September Update (</sipn/sea-ice-outlook/2009/september>)

2009: August Report (</sipn/sea-ice-outlook/2009/august>)

2009: July Report (</sipn/sea-ice-outlook/2009/july>)

2009: June Report (</sipn/sea-ice-outlook/2009/june>)

2008: Summary Report (</sipn/sea-ice-outlook/2008/post-season>)

2008: July Report (</sipn/sea-ice-outlook/2008/july>)

2008: June Report (</sipn/sea-ice-outlook/2008/june>)

2008: May Report (</sipn/sea-ice-outlook/2008/may>)

Contact: Betsy Turner-Bogren, [betsy@arcus.org](mailto:betsy@arcus.org)



(<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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