Sea Ice Outlook
2021 June Report
Individual Outlook

Name of contributor or name of contributing organization:

CNRM (Batté et al.)

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.

CNRM (Batté et al.)

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.)

Include this submission in this month's report ONLY

What is the type of your Outlook projection?

Mixed

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.

4.04

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.

This contribution is based on Meteo-France System 7 operational forecasts initialized end of April / 1st of May, accounting for a lack of consistency between the re-forecast period and real time forecasts in the Arctic sea ice concentration and thickness. We therefore empirically corrected our outlook based strictly on the error from last year (only available forecast data for the same start dates).

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

Sea ice concentration daily fields are available for 51 ensemble members; we compute the sea ice extent for each member by using the SIC > 0.15 criteria for each gridpoint and accounting for the gridpoint area. Average over ensemble members is done in the final step, providing information on the spread and uncertainty of the ensemble forecast.

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

Initial conditions for the ocean and sea ice (both concentration and thickness) are provided by Mercator Ocean International. These are based on the Mercator Ocean International operational analysis, run at 1/12° horizontal resolution with NEMO-LIM. This analysis is upscaled to the 1/4° ocean resolution of CNRM-CM6 HR used for Meteo-France system 7, and fields are used to nudge a NEMO-GELATO run (Meteo-France configuration) forced by IFS operational analysis and restoring SST towards Mercator. Sea ice concentration and thickness (and ocean fields) are used to initialize forecasts.

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

Same as for SIC

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

3.95

Lower error bound

3.44

Lower error bound

5.22

Standard Deviation

0.38

b) Brief explanation/assessment of basis for the uncertainty estimate (1-2 sentences).

These estimates are based on the 51 ensemble members of the dynamical system; note that one member gives a very high SIE value, and compared to 2020 the standard deviation is much larger.

c) Brief description of any post-processing you have done (1-2 sentences).

These computations were done after removal of the ensemble mean error for last year (very crude method, since we have inconsistencies between the re-forecast period and real-time forecasts)