Sea Ice Outlook
2020 August Report
Individual Outlook

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**Name of contributor or name of contributing organization:**

APPLICATE (UCLouvain)

**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.**

Fran Γ êÜ ├fois Massonnet and Sylvain Marchi (primary contacts)
Thierry Fichefet and Hugues Goosse (other contacts)

**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 both the July and August reports.

**What is the type of your Outlook projection?**

Dynamic Model

**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.**

4.23

**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.**

20.77

**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.**

0.47

**"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.**

Our estimate is based on results from ensemble runs with the global ocean-sea ice coupled model NEMO3.6-LIM3. Each member is initialized from a reference run on Jan 1, 2020, then forced with the JRA-55 atmospheric reanalysis from one year between 2009 and 2019 except 2015, which caused the model to crash. Our final estimate is the ensemble median, and the given range corresponds to the lowest and highest extents in the ensemble.

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

Our estimate is based on results from ensemble runs with the global ocean-sea ice coupled model NEMO3.6-LIM3. The ensemble members are expected to sample the atmospheric variability that may prevail this summer. In practice, the model is forced with JRA-55 atmospheric reanalysis data from 1948 to Dec 31, 2019. No data are assimilated during this simulation. Ten ensemble members are then started from the obtained model state, each using atmospheric forcing from one year between 2009 and 2019 (forcing year 2015 was not used as it caused the model to crash). This choice of 10 members forced by 10 forcings from previous years is a compromise between a sufficiently large ensemble and the rapidly changing Arctic atmospheric conditions in recent decades. The estimate given above corresponds to the ensemble median monthly September extent. No bias-correction is applied.

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

Initial sea ice concentrations come from a model free run on Jan 1, 2020

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

Initial sea ice thicknesses come from a model free run on Jan 1, 2020

**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:**

[DynamicModelType]

**If available from your method.**
**a) Uncertainty/probability estimates:**

**Median**

4.23 million km┬¼ Γ ëñ

**Ranges**

2.73 million km┬¼ Γ ëñ

**Standard Deviations**

0.67 million km┬¼ Γ ëñ

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

The uncertainty is given as the range between minimum and maximum extents in the ensemble.

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

None.