Sea Ice Outlook
2020 June Report
Individual Outlook

Name of contributor or name of contributing organization:

Kondrashov, Dmitri

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.

Dmitri Kondrashov, University of California Los Angeles (UCLA)

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 the June report only.

What is the type of your Outlook projection?

Statistical

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.

4.47

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.

0.42

"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 statistical model forecast is based on inverse stochastic modeling techniques applied to the regional Arctic Sea Ice Extent (SIE) dataset.

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

Nonlinear inverse stochastic modeling techniques have been applied to the regional Arctic Sea Ice Extent (SIE) from Sea Ice Index Version 3 dataset. The daily SIE data were aggregated to provide weekly-sampled dataset over several Arctic sectors. The predictive model has been derived from SIE anomalies with annual cycle removed, and is initialized from latest SIE conditions (July 2018) by ensemble of stochastic noise realizations to provide probabilistic regional Arctic forecasts in September, as well as pan-Arctic ones.

References:

1. Kondrashov, D., M. D. Chekroun, and M. Ghil, 2018:
Data-adaptive harmonic decomposition and prediction of Arctic sea
ice extent, Dynamics and Statistics of the Climate System, 3(1),
doi:10.1093/climsys/dzy001.

2. Kondrashov, D., M.D. Chekroun, and M. Ghil, 2015:
Data-driven non-Markovian closure models,
Physica D, 297, 33-55, doi:10.1016/j.physd.2014.12.005.

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

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

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

Ranges

Standard Deviations

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

0.15MKm2

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

This uncertainty corresponds to standard deviation of stochastic ensemble spread.