

Sea Ice Outlook  
2017 July Report  
Individual Outlook

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

Petty

**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.**

NASA-GSFC

**Do you want your June contribution to automatically be included in subsequent reports?  
(If yes, you may still update your contribution via the Google form.)**

No do not use my prediction this month in later months

**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.**

4.5

**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.**

18.93

**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.**

0.37

**"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.**

Based on an analysis of June sea ice concentration data provided by the NSIDC (NASA Team), I forecast a 2017 September Arctic sea ice extent of 4.50 +/- 0.35 M km<sup>2</sup>. This is slightly lower than the May forecast, and instead is very similar to the extent expected from persistence of the long-term linear trend. The forecast does not suggest a new record low September extent will be reached in 2017 (lower than the 3.62 M km<sup>2</sup> observed in 2012).

The June forecast appear to be driven primarily by the low SIC in the Beaufort and Laptev seas.

Our June forecast of Alaskan sea ice extent is coming in at 0.37 M km<sup>2</sup>, so slightly lower than the May forecast (0.41).

We also produced, for the first time, an Antarctic September sea ice forecast using the same methodology. This does show some skill, especially in more recent years (since 2008). The forecast is 18.93 Mkm<sup>2</sup>

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

In this forecast we use sea ice concentration (SIC) data (1979-present day), derived from passive microwave brightness temperature using the NASA Team algorithm. The SIC data are detrended spatially using linear trend persistence (from the given forecast year) then averaged, to generate a detrended SIC dataset. A least-squares linear regression model is fit from the mean detrended SIC/SIE data. To produce the SIE forecast, the relevant monthly mean/detrended SIC data are applied to the linear regression model. See my website (<http://alekpetty.com/blog/2017ArcticForecasts>) for more details.

**Tell us the dataset used for your initial Sea Ice Concentration (SIC). Include name and date (e.g., "NASA Team, May 2017"). We also encourage you to submit initial fields to the dropbox, see <https://www.arcus.org/sipn/sea-ice-outlook/2017/june/call> in the section on "Submitting Figures and Gridded Data of Full Spatial Fields (Optional) of Forecasts and Initial Conditions" for detailed instructions. Required if sea Ice concentration is used.**

NASA Team, June 2017

**Dataset of 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:**

**If available from your method for pan-Arctic extent prediction, please provide**

**a) Uncertainty/probability estimate such as median, ranges, and/or standard deviations (specify what you are providing).**

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

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