



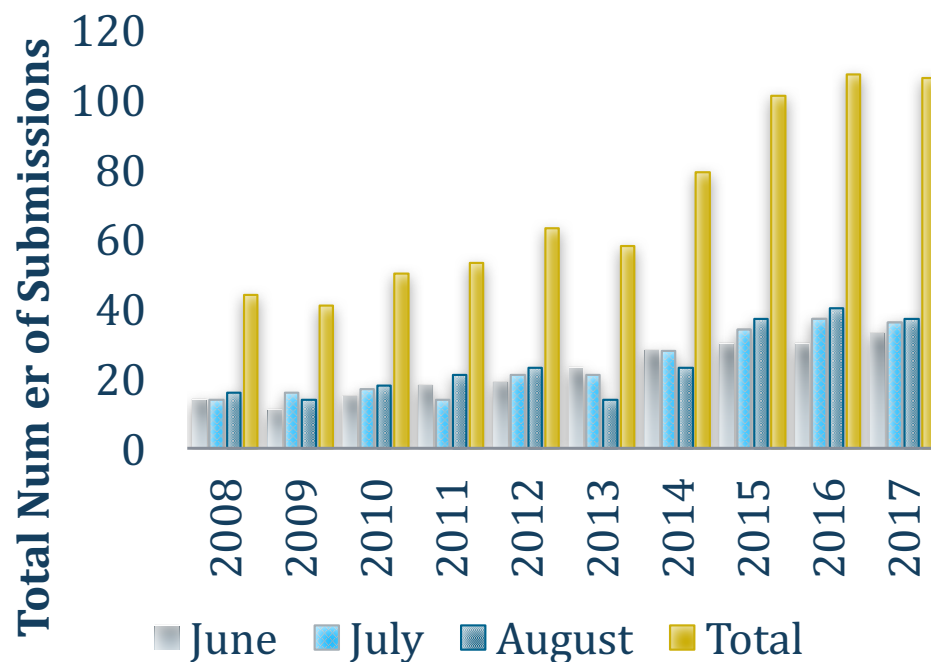
# Performance of the 2017 SIO

Julienne Stroeve and the SIPN team

# The Sea Ice Prediction Network

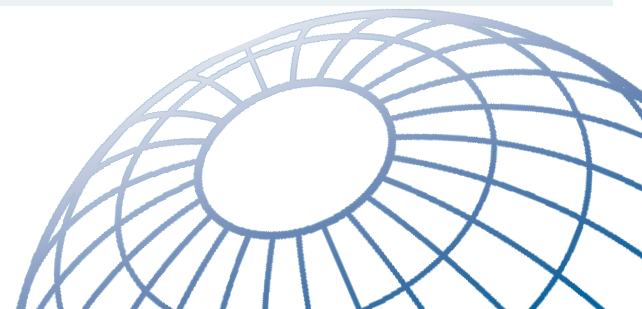
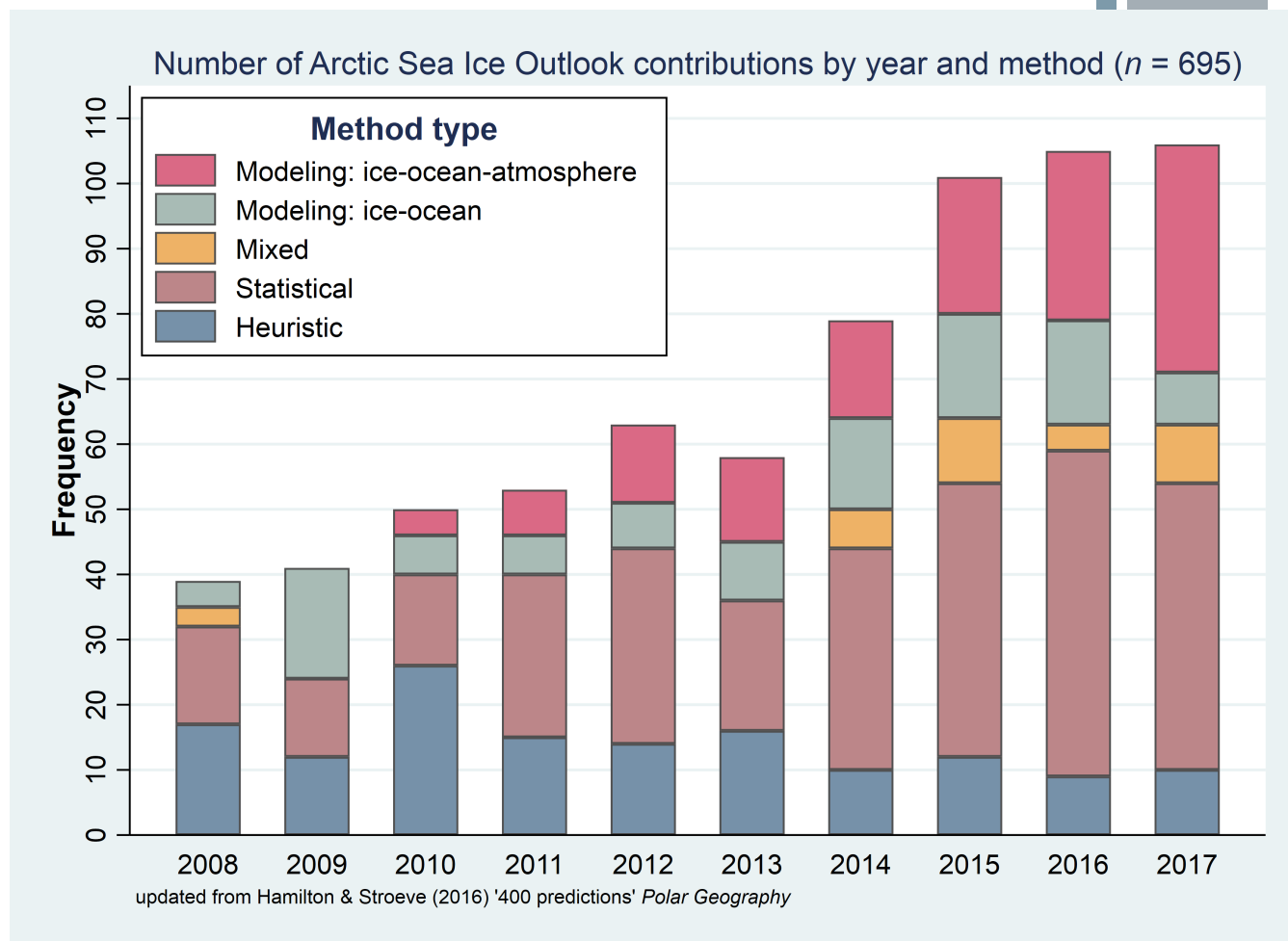
- The number of contributions for the September sea ice extent was similar to last year.
- Since 2016 SIPN has also requested Alaska regional forecasts.
- New this year were requests for Antarctic maximum extent.

**Number of SIO Submissions**



# Contributions by Method

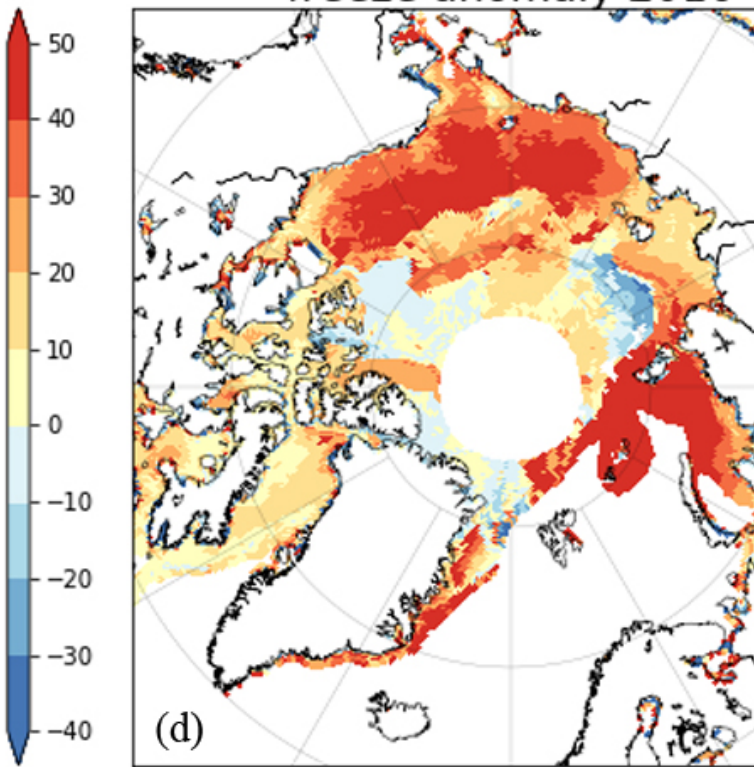
- This year we had a record number of dynamical model contributions (43), with 35 from coupled ice-ocean atmosphere models



# Lead-up to summer 2017

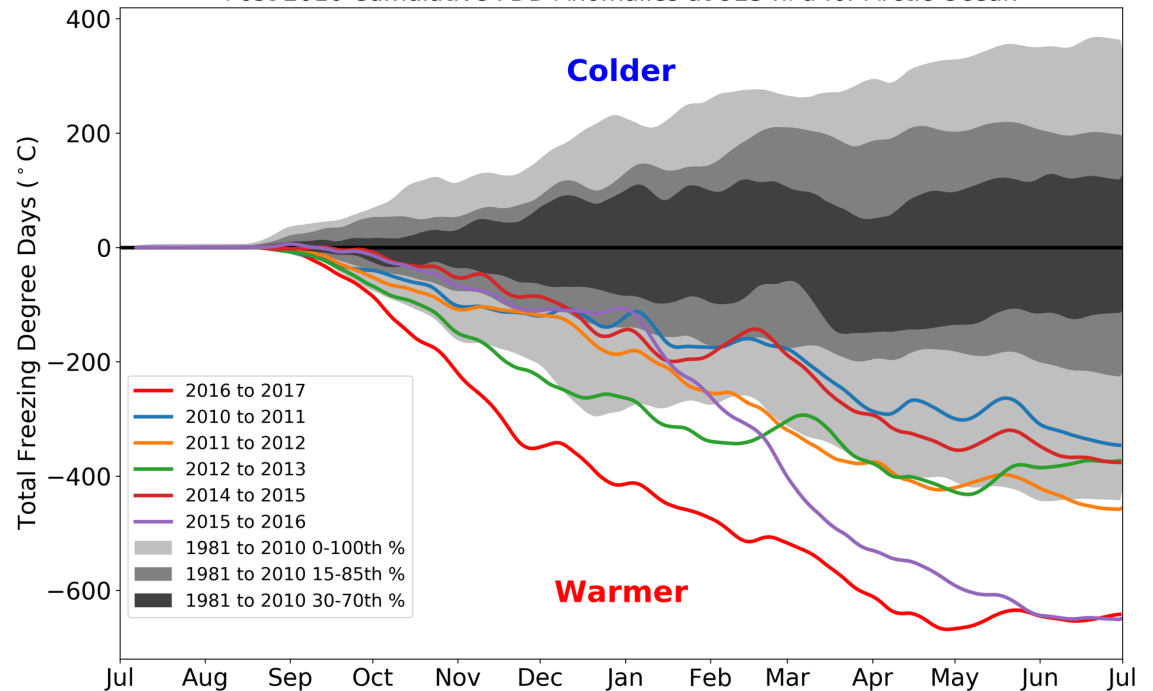
## Delay in Autumn Freeze-up

freeze anomaly 2016

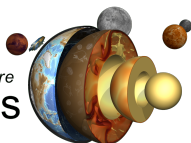


## Least number of FDDs

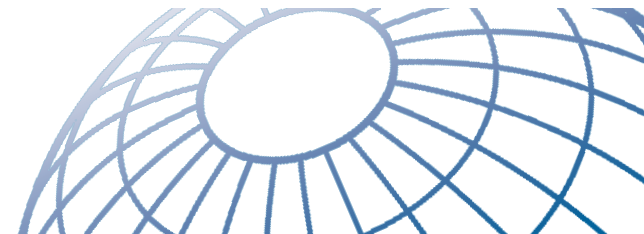
Post 2010 Cumulative FDD Anomalies at 925 hPa for Arctic Ocean



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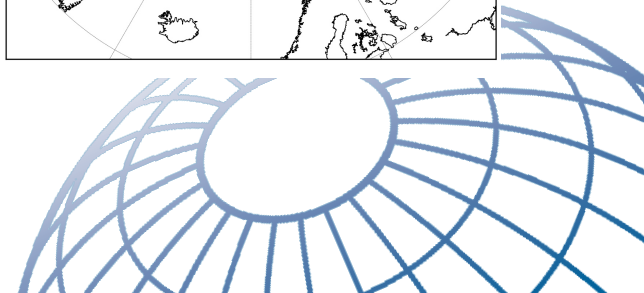
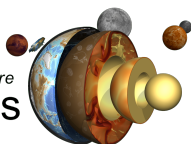
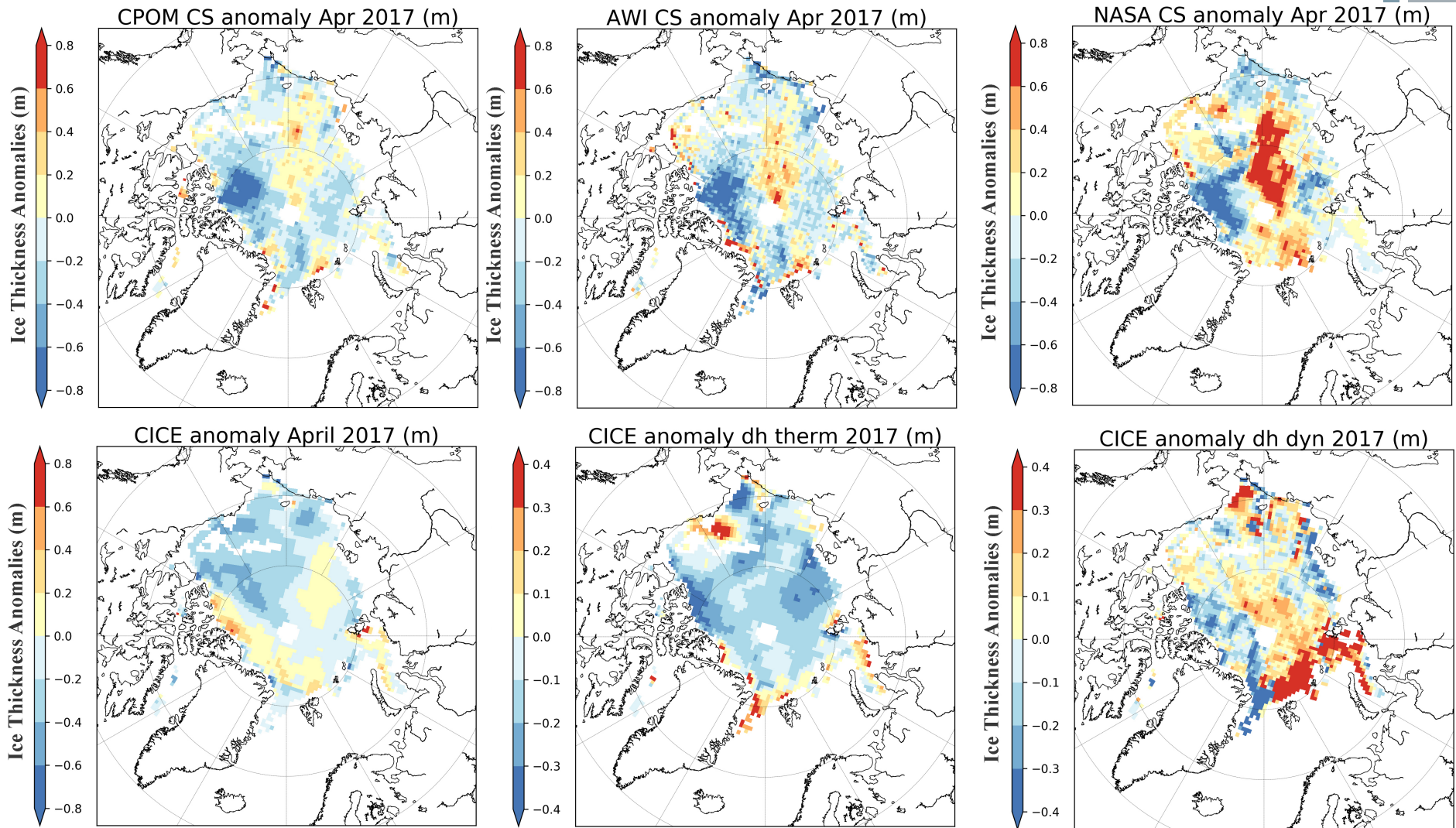


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# Thin ice in many regions

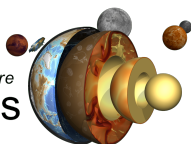


# How did the SIO perform?

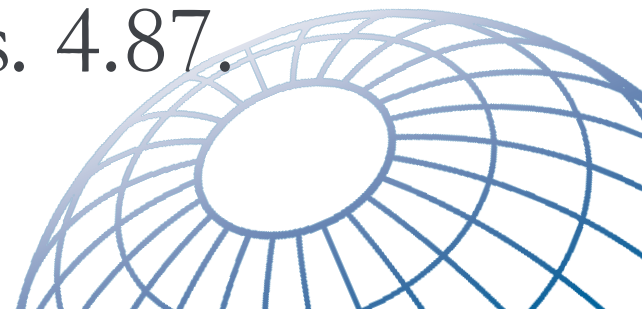
- Note: NSIDC changed their averaging method this year.
  - ❄️ Now the method is based on averaging daily sea ice extents rather than using the monthly mean sea ice concentration.
- The impact is that the overall September sea ice extent is slightly reduced
  - ❄️ September 2017 is now 4.80 vs. 4.87.



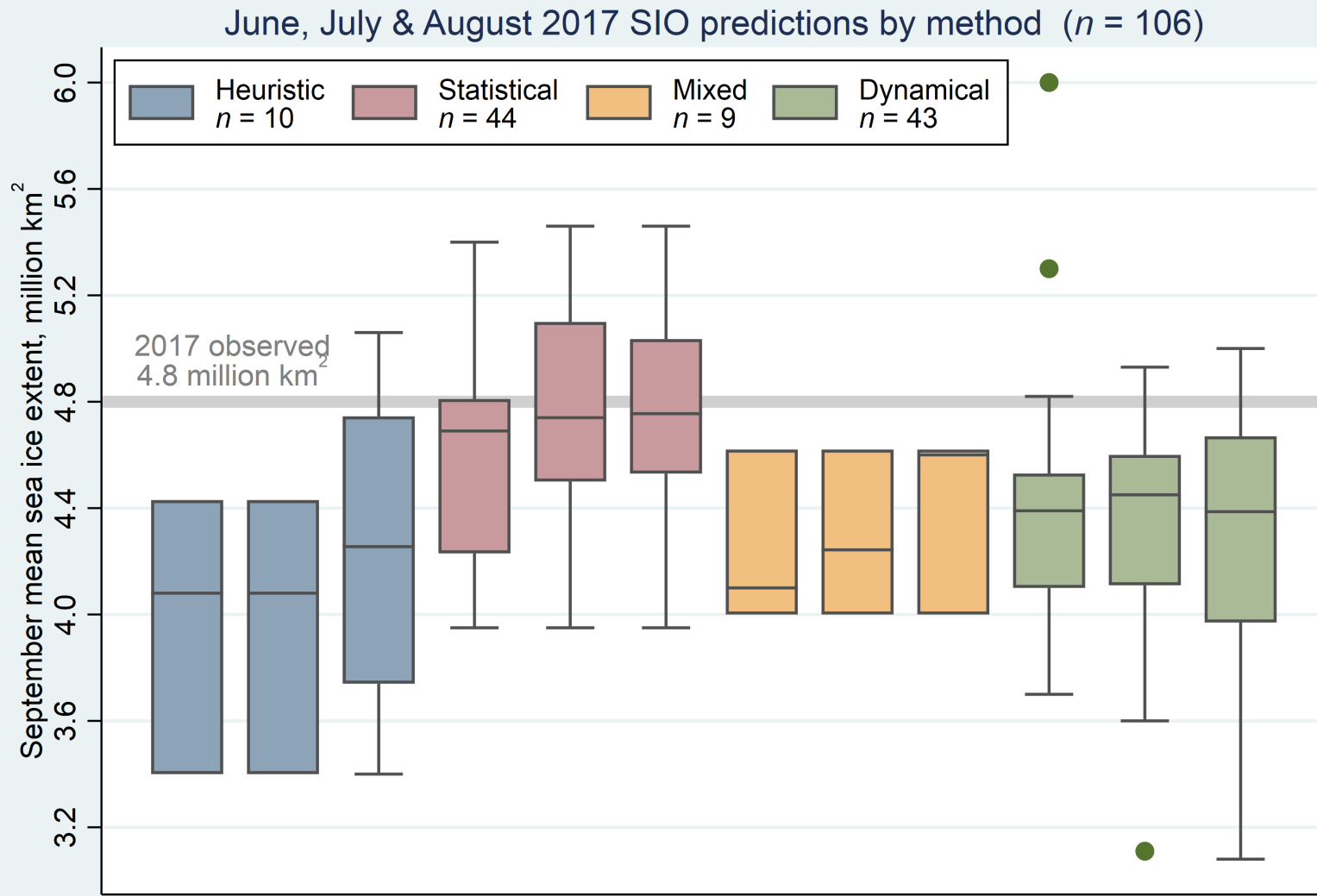
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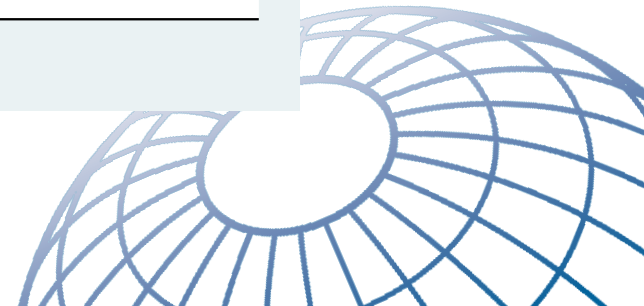
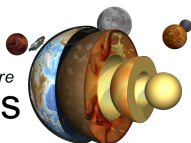
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# Predictions by method

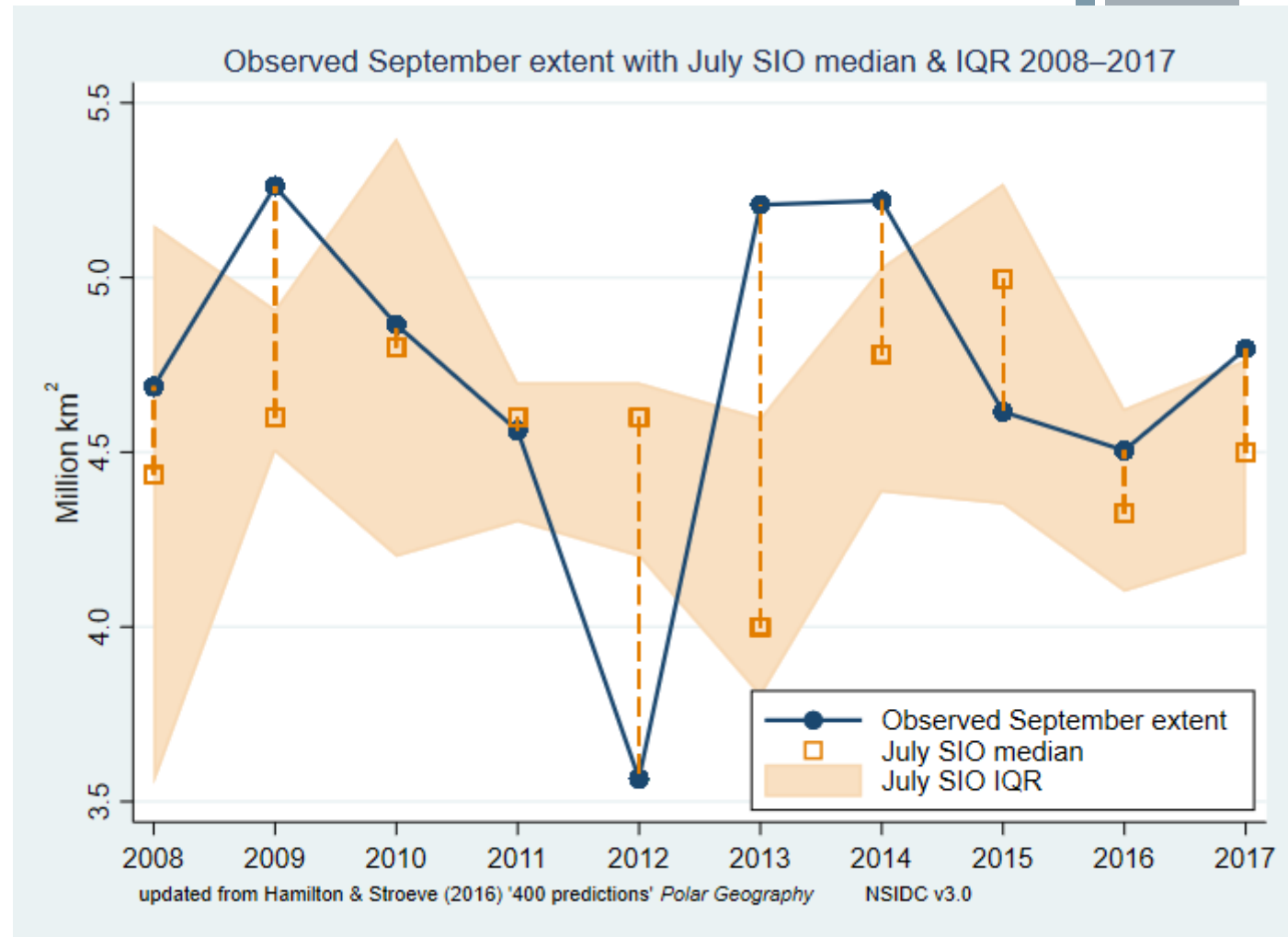


updated from Hamilton & Stroeve (2016) '400 predictions' *Polar Geography* NSIDC v3.0



# How does 2017 compare to previous years?

- Observed September sea ice extent is generally well-captured by the IQR of the SIO.
- Median RMSE of  $0.593 \text{ km}^2$





An aerial photograph of a rugged, rocky coastline. The water is a deep, dark blue, and the sky is a lighter, hazy blue. Numerous icebergs of various sizes are scattered across the water, some appearing as small white specks and others as larger, more distinct shapes. The rocky shore in the foreground is dark and textured, with some small patches of snow or ice. The overall scene suggests a cold, high-latitude environment.

**What about  
Alaska  
forecasts?**

# Alaska regional forecasts

- This year we received 6 regional forecasts in June and July and eight in August.

## Combined Beaufort, Chukchi and Bering Sea Extent

June, July & August 2017 SIO Alaskan predictions by method ( $n = 20$ )

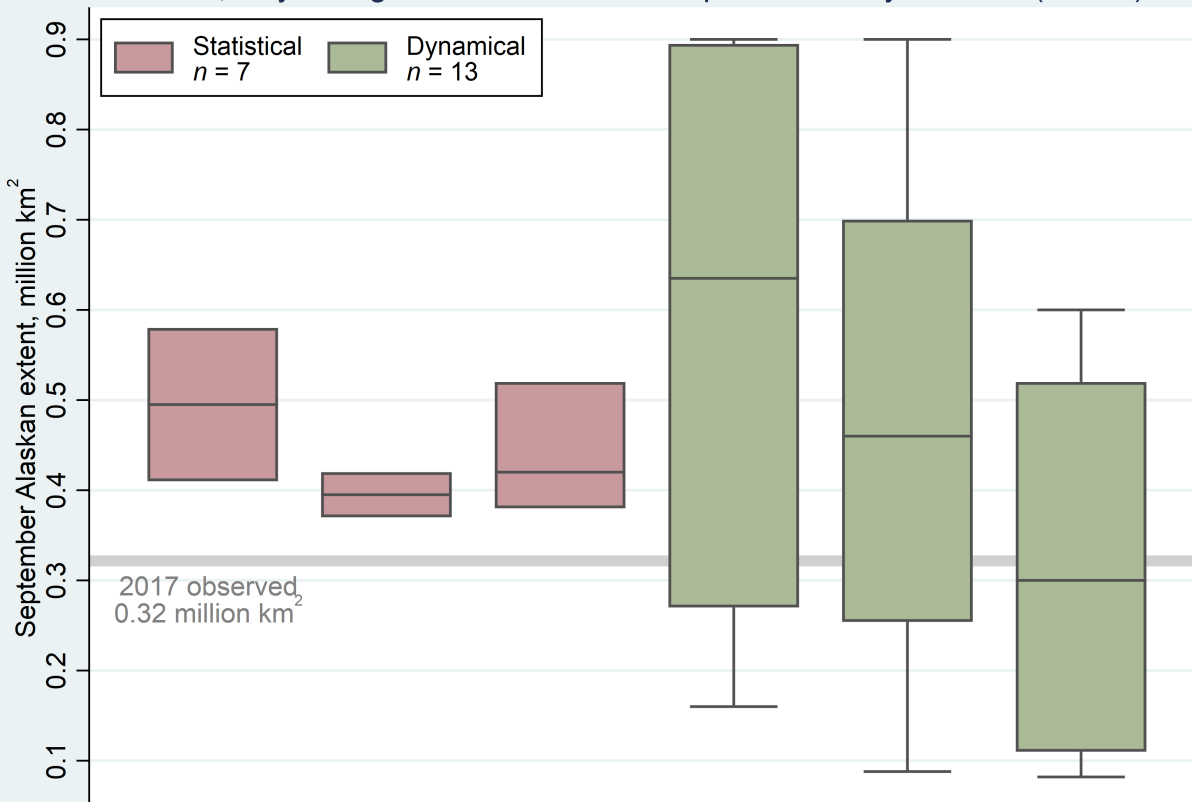
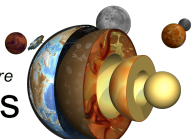


Figure from Larry Hamilton



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# Forecasts of Ice Probability

## Forecasts of **S**ea **I**ce **P**robability

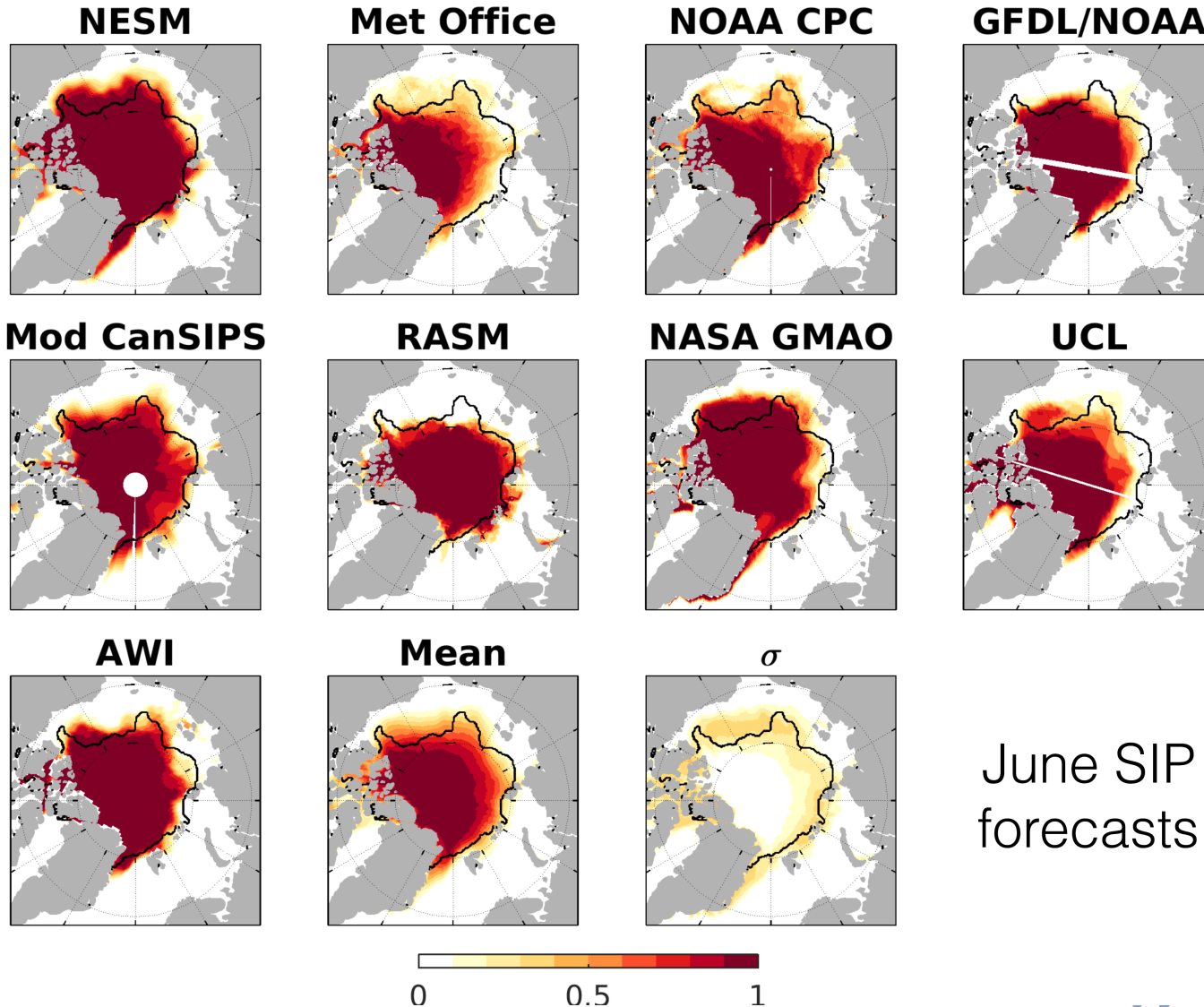


Figure from Ed  
Blanchard-  
Wrigglesworth

June SIP  
forecasts



Brier scores for June 2017 SIPs (measure of SIP accuracy, 0=perfect forecast, 1=erroneous forecast)

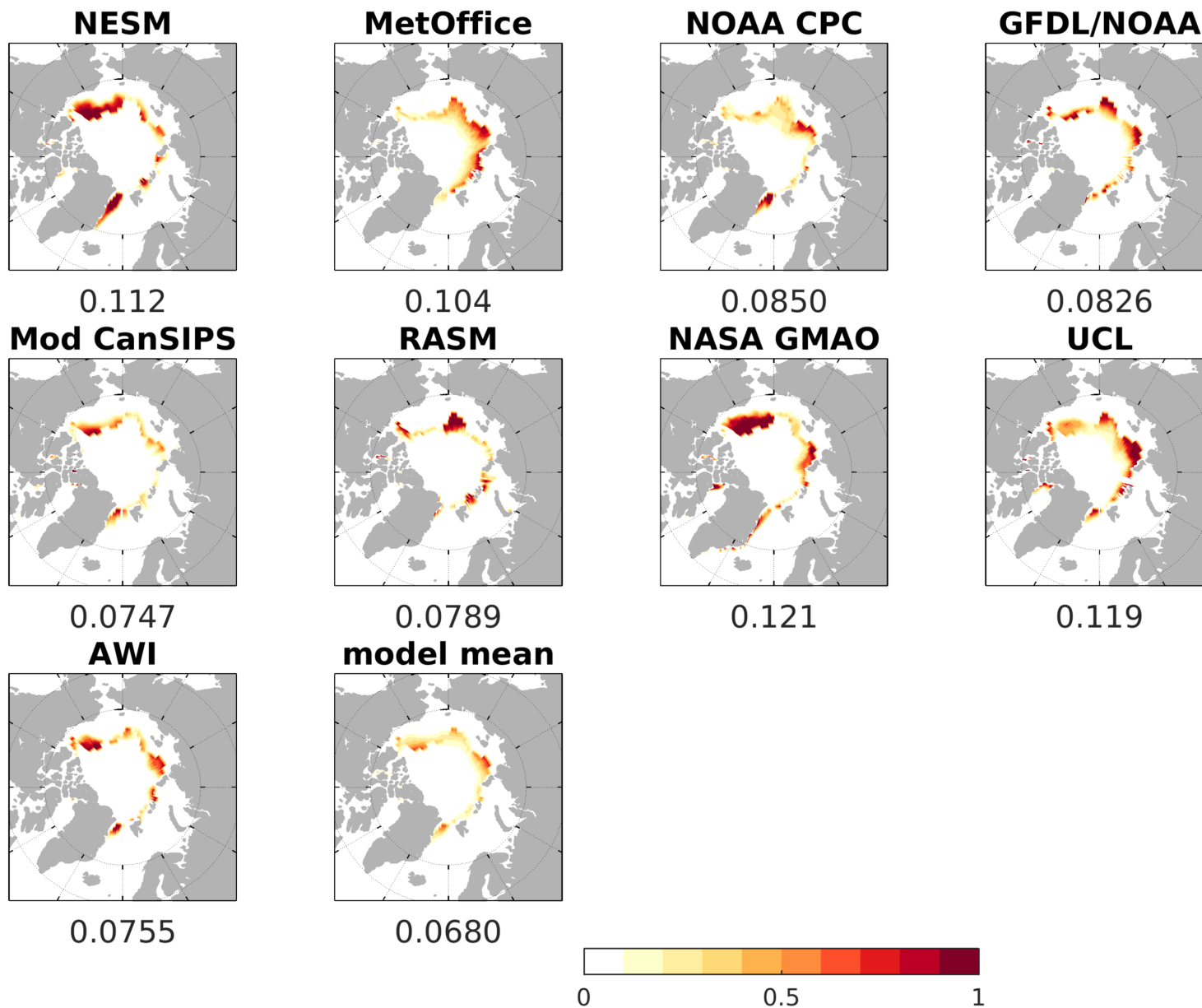


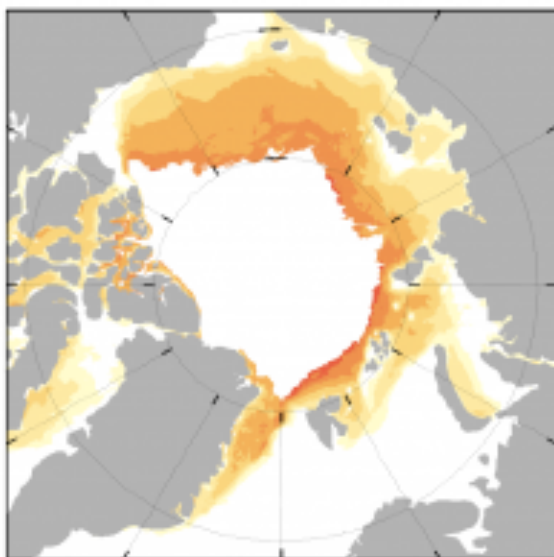
Figure from Ed Blanchard-Wrigglesworth



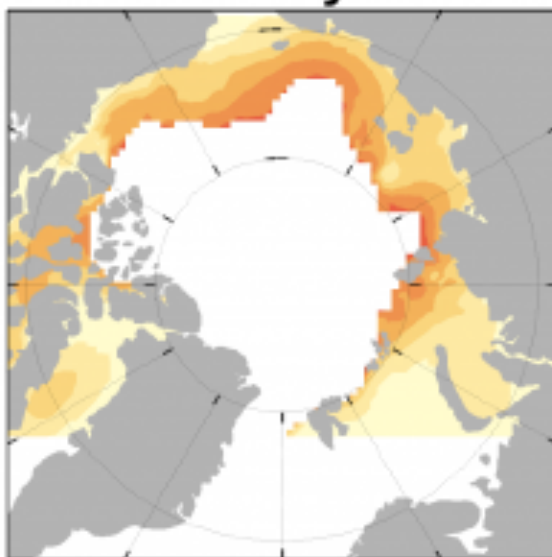
# Forecasts of ice free date



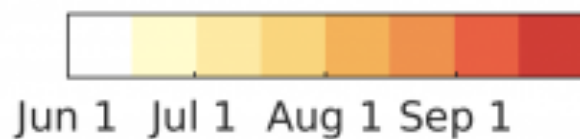
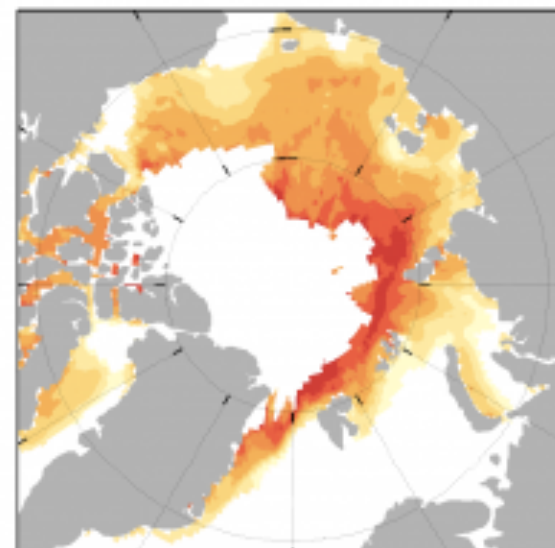
NESM



UTokyo



NOAA CPC



Observed Retreat Date

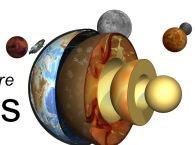


[E Blanchard-Wrigglesworth]

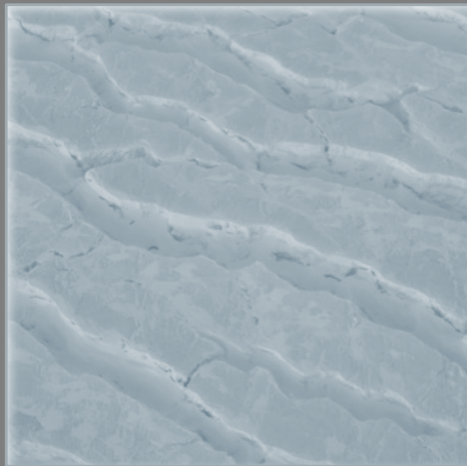


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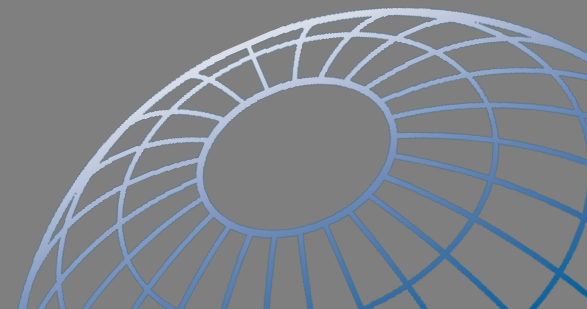
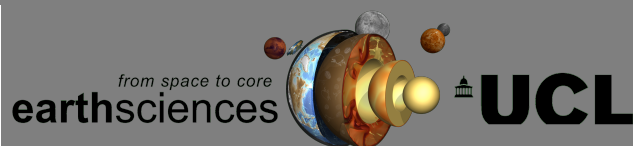
from space to core



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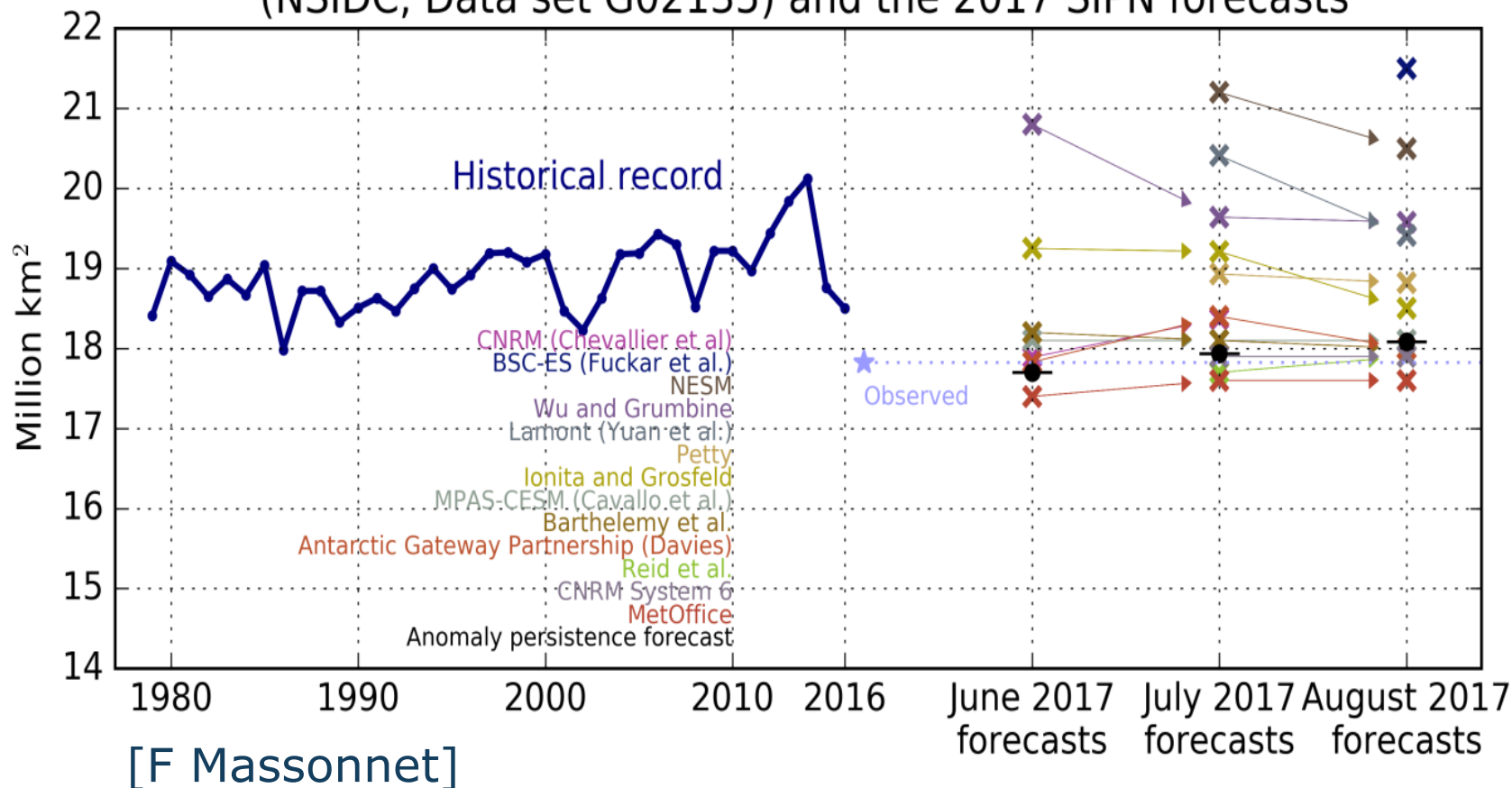


# Performance of the 2017 Antarctic maximum forecasts

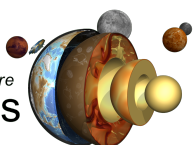


# Antarctic Maximum Outlooks

September Antarctic sea ice extent (1979-2016)  
(NSIDC, Data set G02135) and the 2017 SIPN forecasts



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