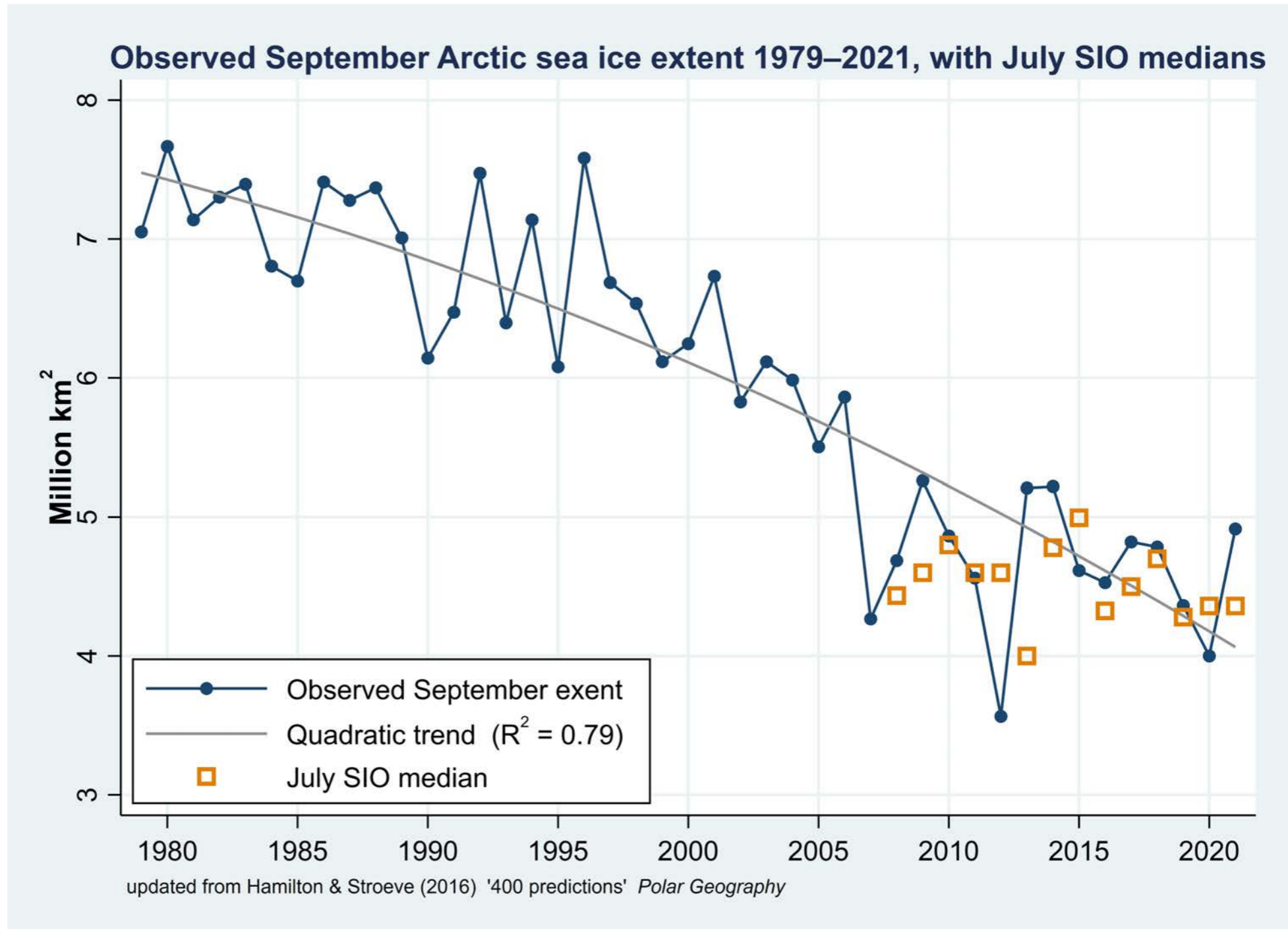


SIPN2 (SIO) Lessons Learned

Via Zoom, Monday Oct 11, 2021

Uma Bhatt, U. Alaska Fairbanks



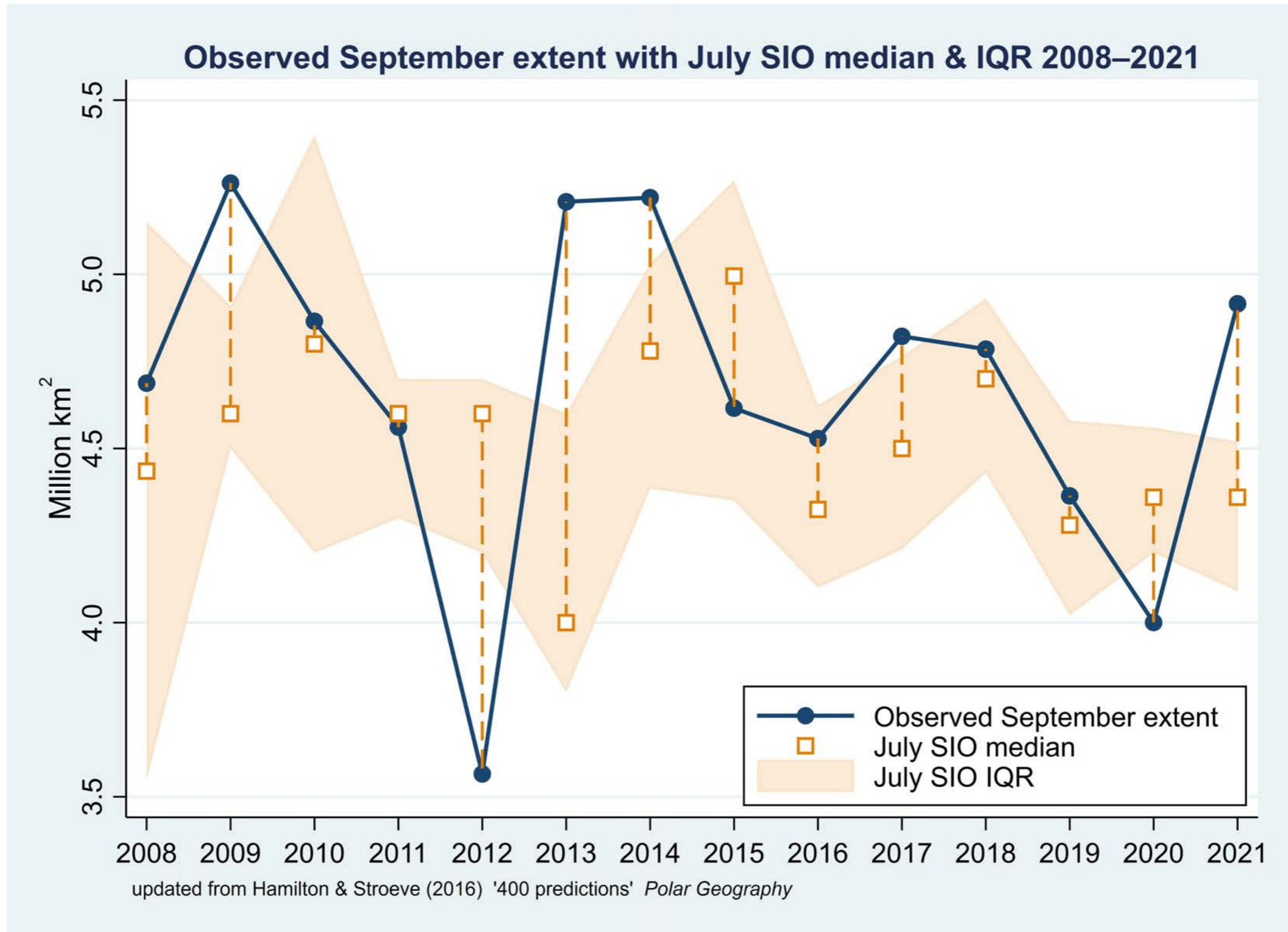
Graphic: Larry Hamilton

SIPN Phase 2 - Goals

- (1) Evaluate SIO forecast methods
- (2) Evaluate the socio-economic value of sea-ice predictions based on stakeholder product needs
- (3) Evolve network SIO forecasts and further develop network activities.
- (4) Develop new observation-based products to improve sea-ice predictions
- (5) Dynamical & Statistical methods, oceanic heat & Pacific sector climate variability

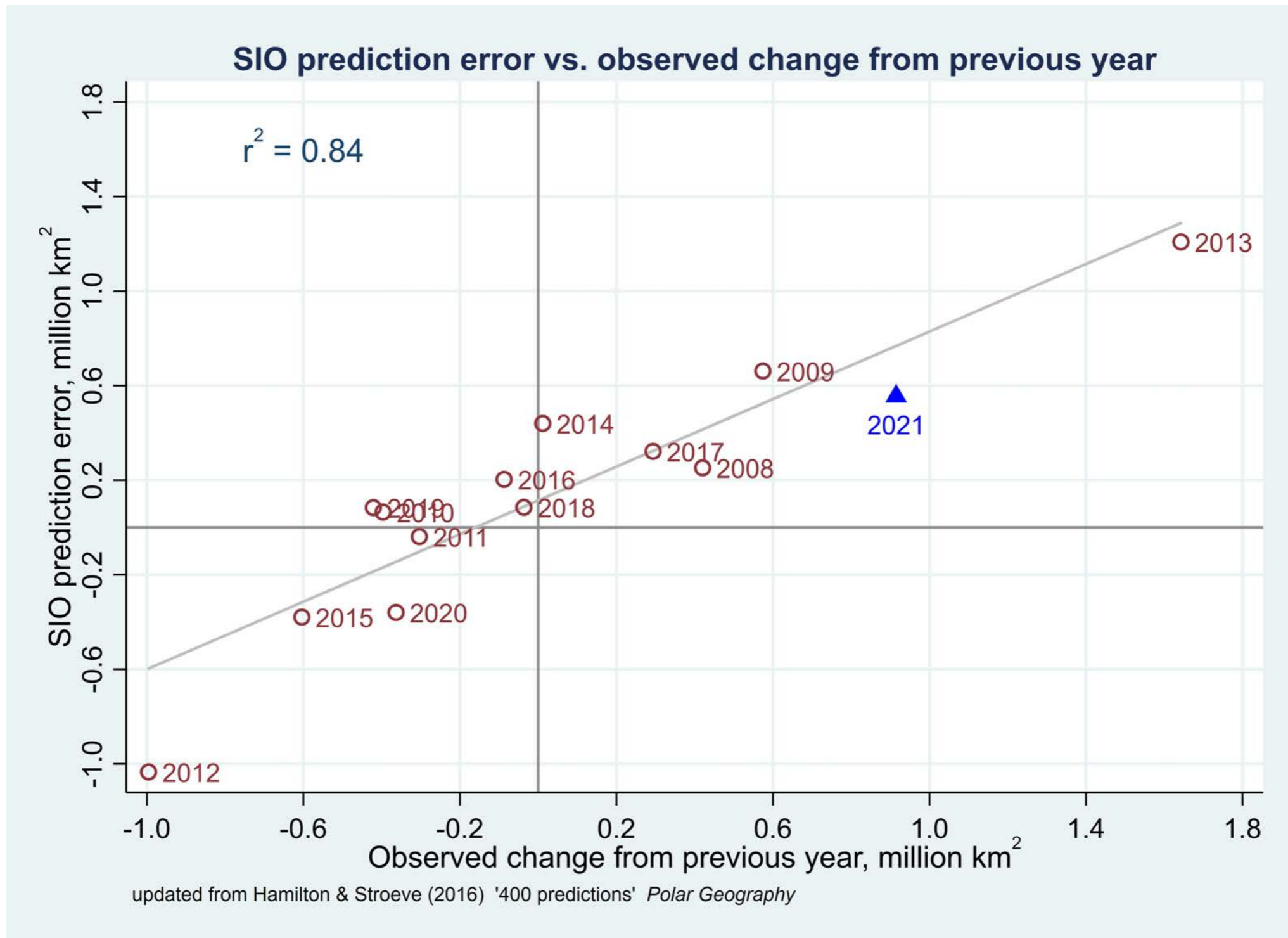
Evaluate SIO forecast methods

SIO does better when Sept SIE close to trend



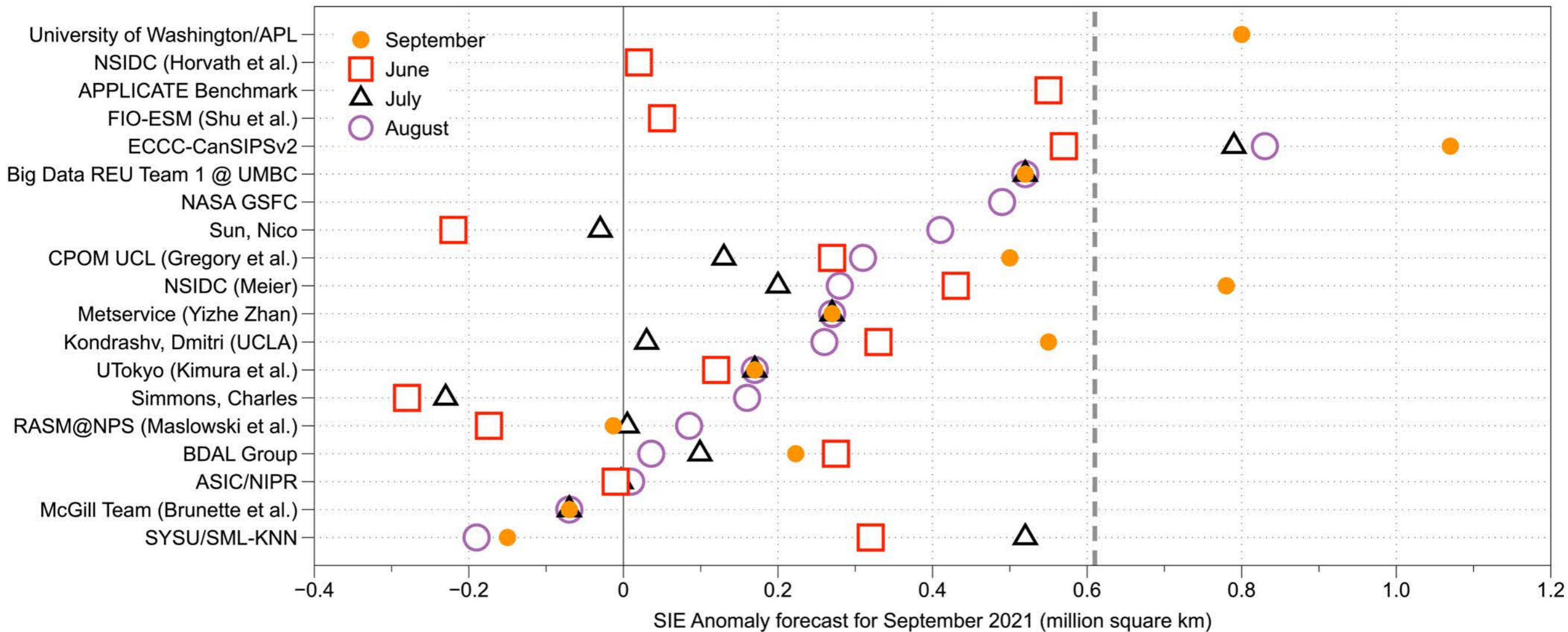
Evaluate SIO forecast methods

SIO most correlated with observed Sept SIE from previous year (method doesn't matter)



Evaluate SIO forecast methods

Anomaly forecasts showed more variability than expected but RMSE decreased over SIO



September 2021 Mean SIE anomaly = 0.61 million km²

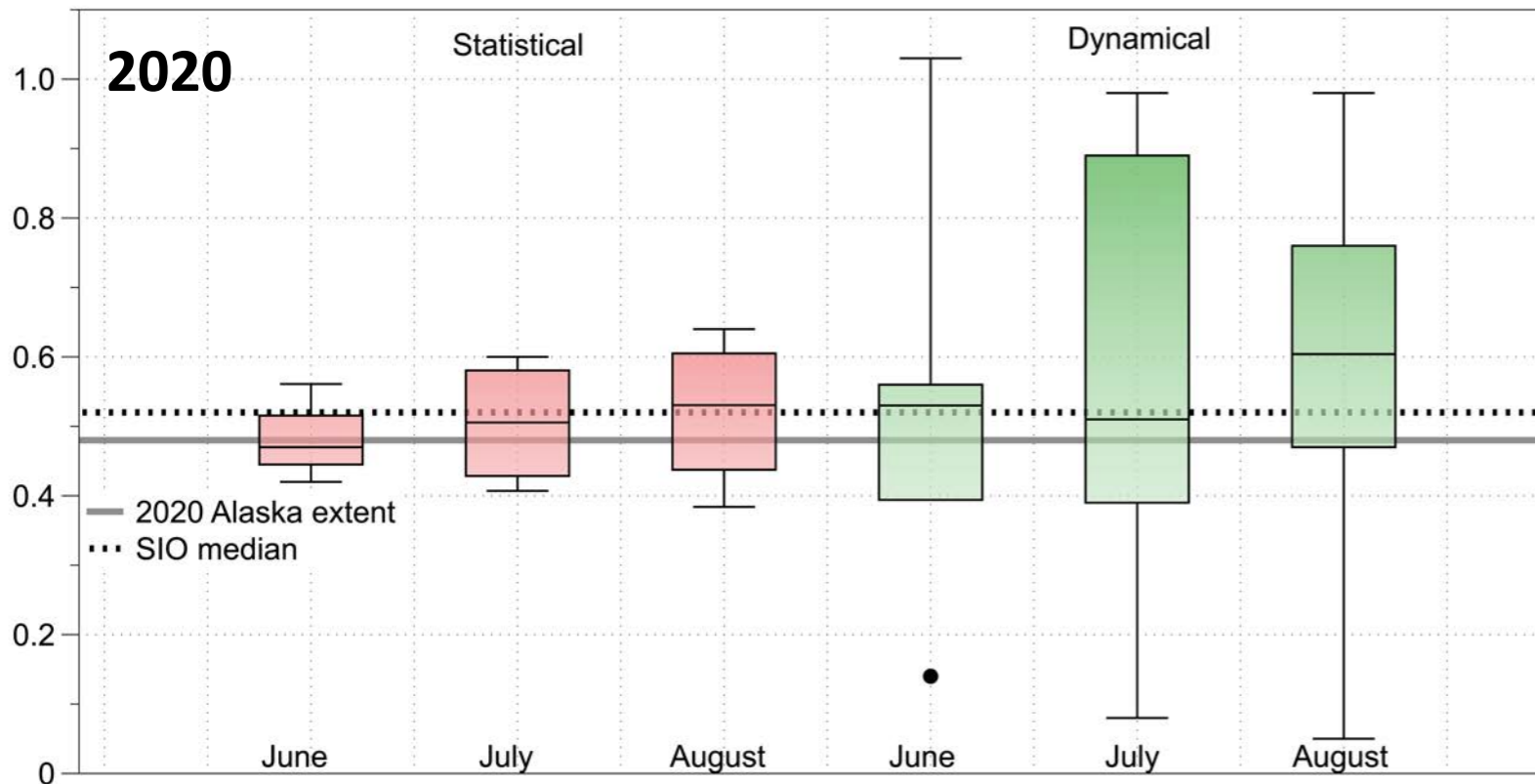
Root Mean Square Error from Observed (0.61)

September	August	July	June
0.38	0.40	0.51	0.52

Note: Anomaly defined from observed 2005-2020 linear trend

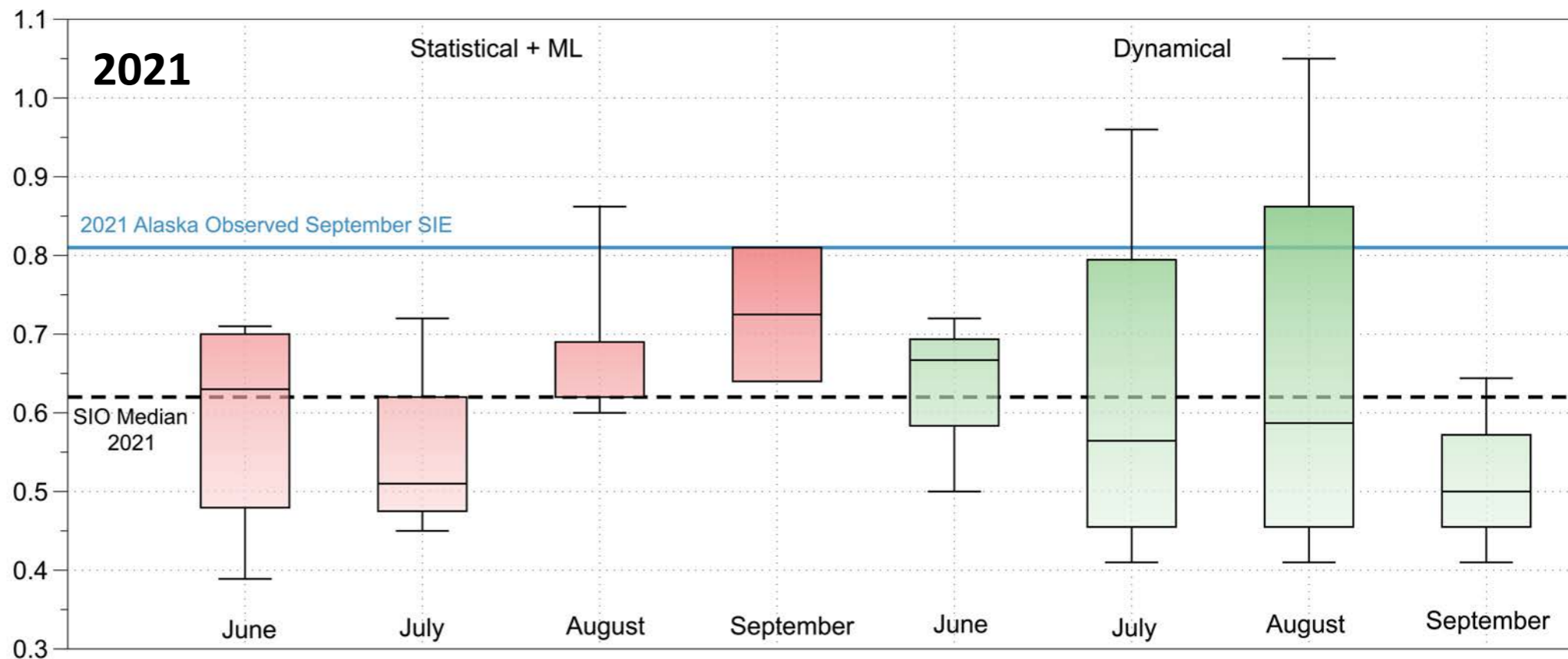
Evaluate SIO forecast methods

Alaska Regional Forecasts



**Statistical over Dynamical
 2020 — too high
 2021 — too low**

**September 2020 Mean SIE
 anomaly = 0.48 million km²**

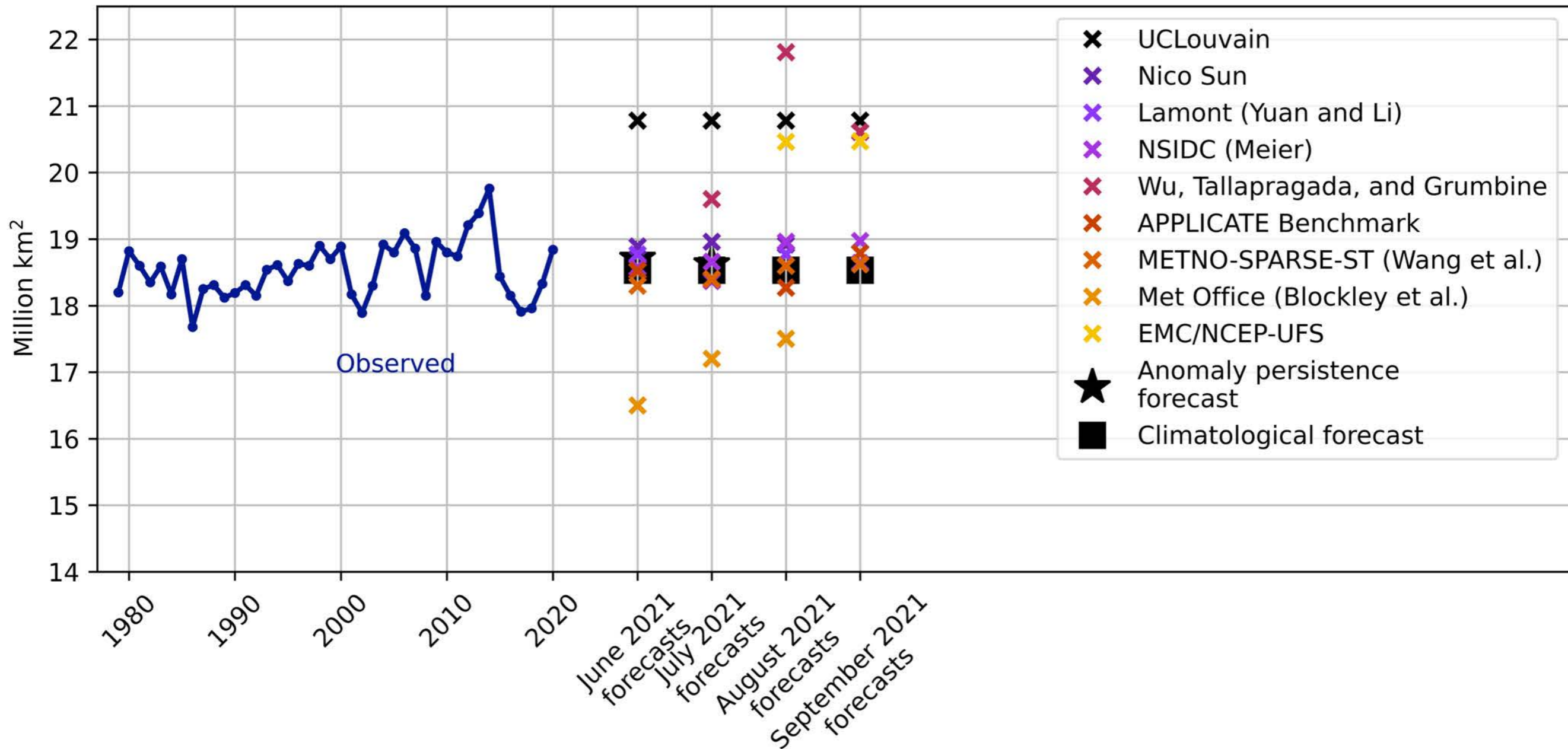


September 2021 Mean SIE anomaly = 0.81 million km²

Evaluate SIO forecast methods

Including SIPN South reminds us of Arctic advances

September Antarctic sea ice extent (1979-2021)
(NSIDC, Data set G02135, v3.0) and the 2021 SIPN forecasts



Evaluate the socio-economic value of sea-ice predictions based on stakeholder product needs

- The interest and need for information is out there but still a gap ... but it is shrinking
- Conversations with Bering Sea Crabbers
 - Crabbers have not considered the S2S time scale in their planning. (Would be useful for Federal regulators of the crabbing industry).
- Examples: Tourism industry, open water season or ice roads for industry, environmental safety, human safety
- Sea ice community ==> Mosaic Fram Strait forecasts, SIDFEx
- Continue conversations with stakeholders so they know what we can deliver and we know what they need.

Evolve network SIO forecasts and further develop network activities.

- SIO Forum in January 2021
- A public meeting report appeared in BAMS.
- Team peer-reviewed article is in progress (Bushak)
- *September SIO* and *Anomaly forecasts* are two ideas that emerged from the Forum that we implemented in 2021.
- A strengthened network of SIO contributors that communicated that the SIO should continue.

Sea Ice Prediction Network - What Next?

- We need to improve sea ice forecasting skill.
 - Portal (updated version) needed to serve as a sandbox
 - More regional focus, additional seasons besides September, and additional metrics with aid of portal.
 - Answer more of the Why? with aid of portal.
- In a future network, we could produce a SIO multi-model forecast (weighted forecast), & additional collaborative activities.
- SIO report will continue for September, with possible brief reports for other seasons.
- Trying to figure out how to manage 2022 SIO since proposal timing will not be resolved in time.