

<http://www.arcus.org/sipn>

Our goals are to
Improve sea ice forecasts
Advance the Sea Ice Outlook
Improve sea ice models



Cecilia Bitz
University of
Washington



Network Leadership Team



*Julienne Stroeve,
NSIDC (Project
PI/NSF PI)*



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Washington (ONR PI)*



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Wrigglesworth, U.
Washington*



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(Co-PI)*



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*Muyin Wang,
NOAA/University of
Washington*



*Hajo Eicken, UAF
(Co-PI)*



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Oregon State
University*



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New Hampshire (Co-
PI)*



*Helen Wiggins,
ARCUS (ARCUS PI)*



*Adrienne Tivy,
National Research
Council of Canada*



*Philip Jones, Los
Alamos National
Laboratory (DOE PI)*



*Elizabeth Hunke, Los
Alamos National
Laboratory*

Funding



*National Science
Foundation Arctic
Sciences Section*



*Office of Naval
Research, Office of
Naval Research-
Global*



*National Oceanic and
Atmospheric
Administration
(NOAA)*



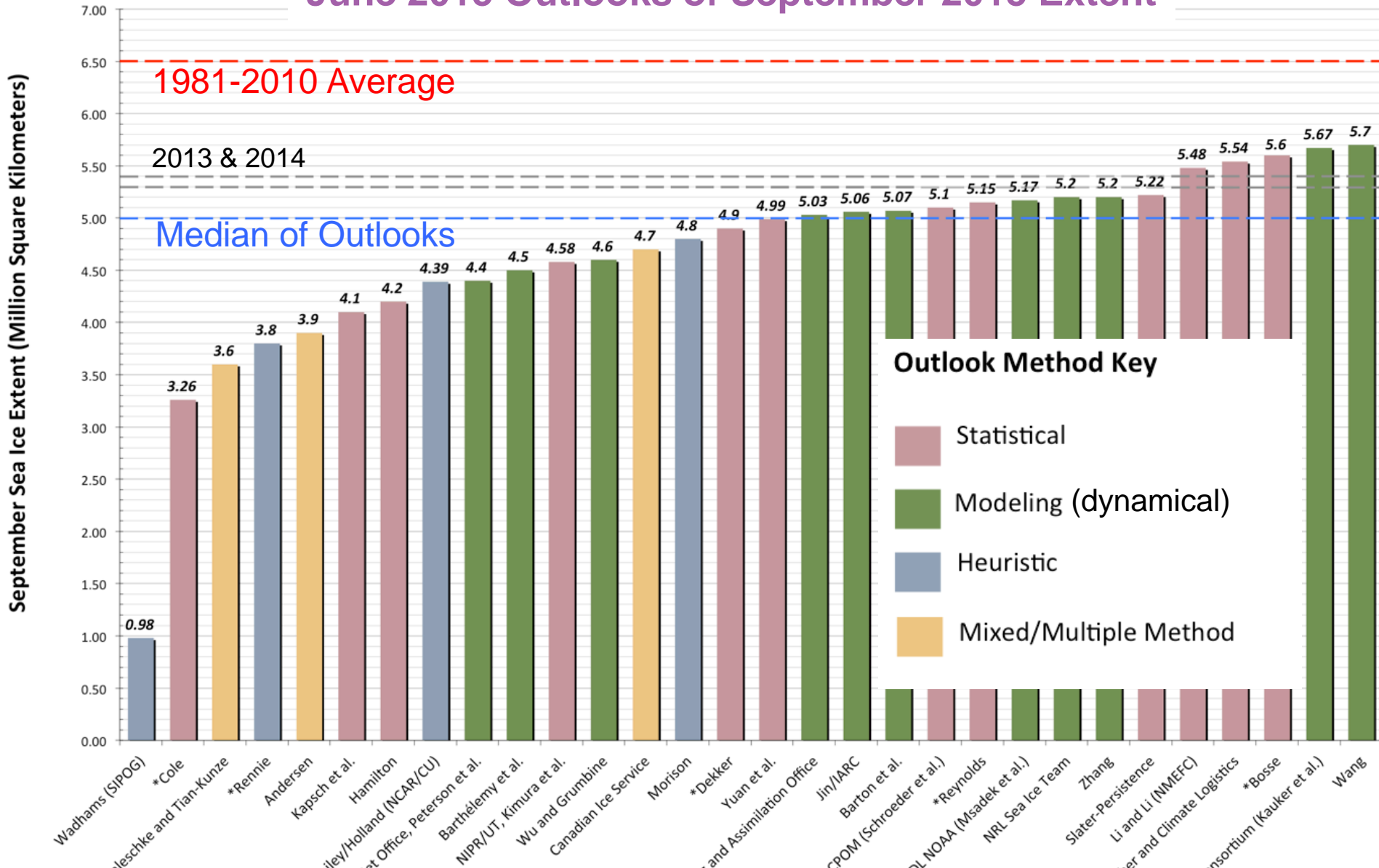
*National Aeronautics
and Space
Administration
(NASA)*



*Department of Energy
(DOE)*

Sea Ice Outlook and the Prediction Network

June 2015 Outlooks of September 2015 Extent



Sea Ice Outlook and the Prediction Network

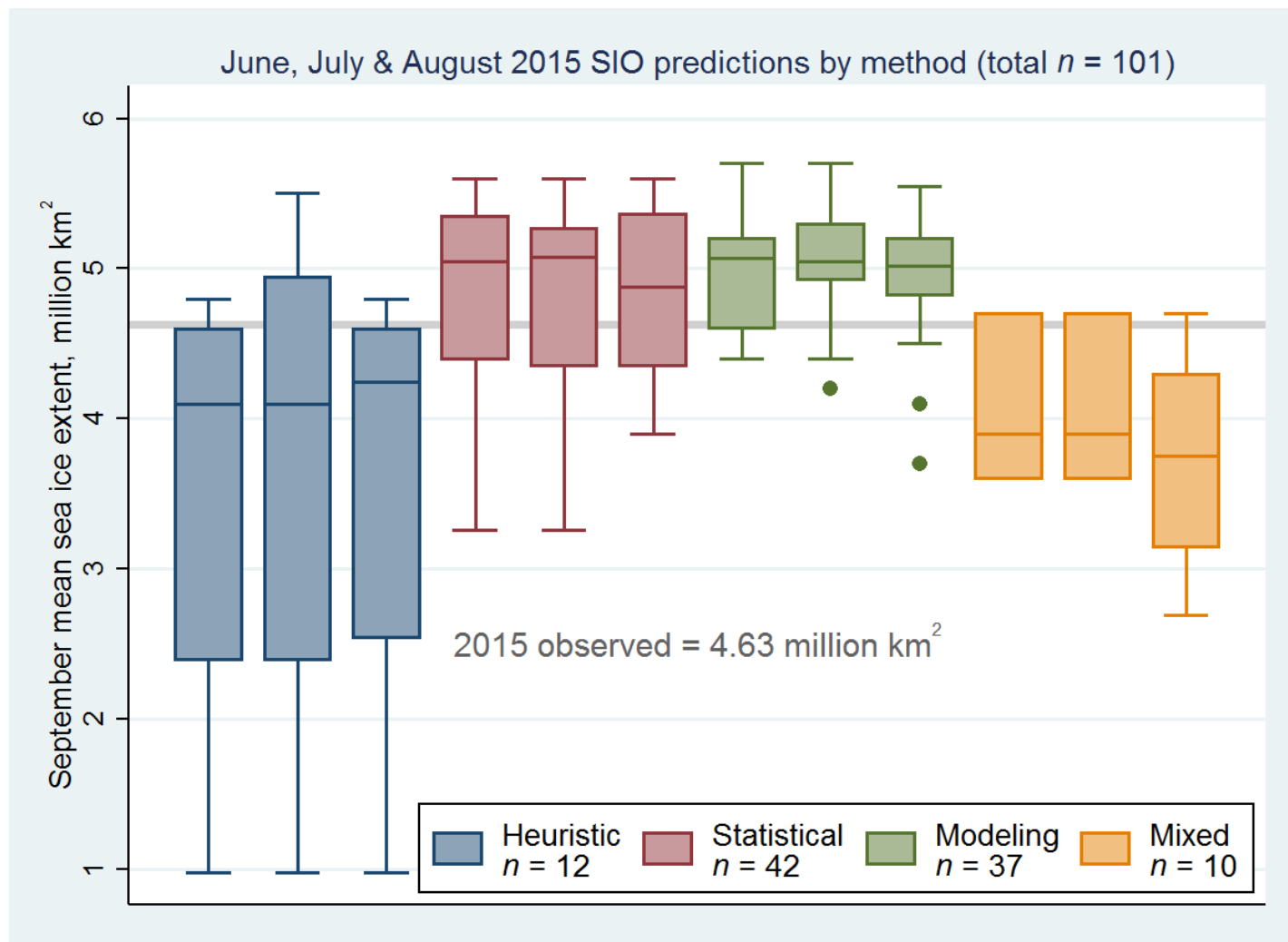


Figure by
Larry Hamilton

Sea Ice Outlook Spatial Distributions

Probability of Sea Ice Presence (SIP) by Model in 2014

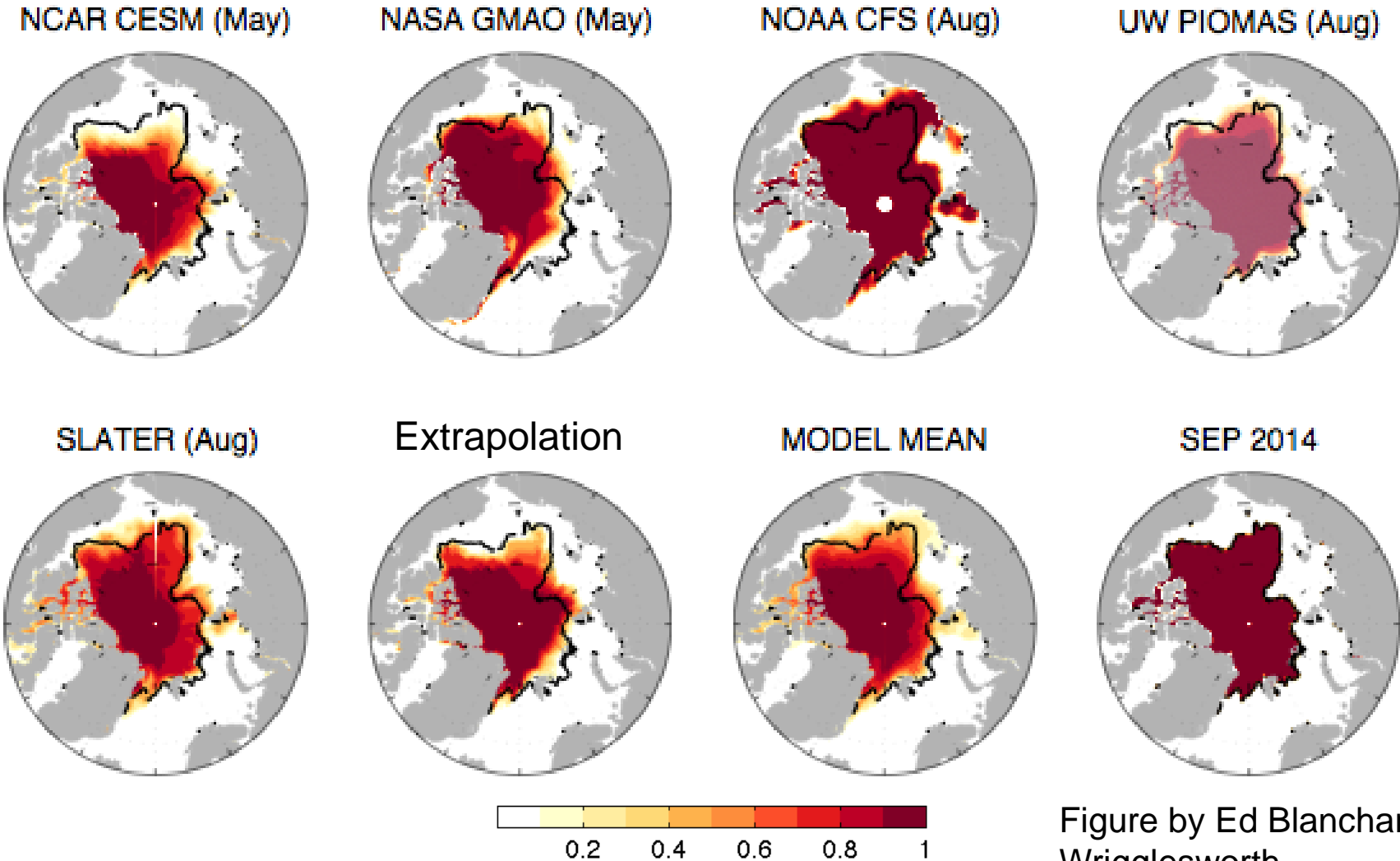


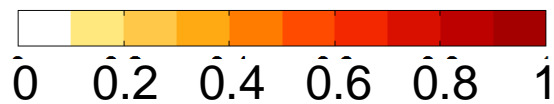
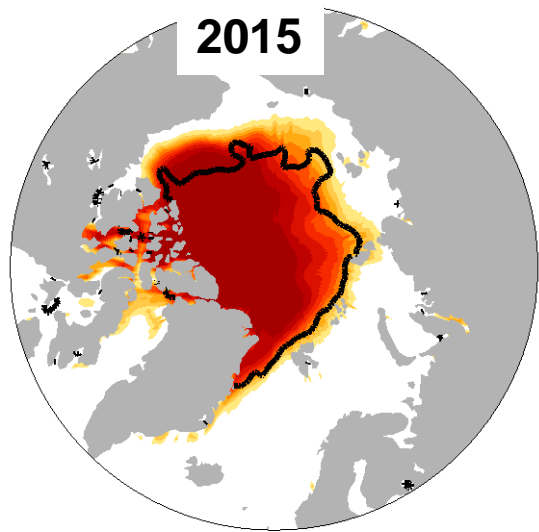
Figure by Ed Blanchard-Wrigglesworth

Sea Ice Outlook Spatial Distributions

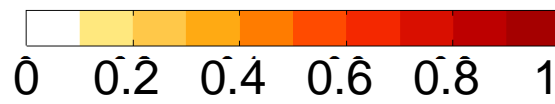
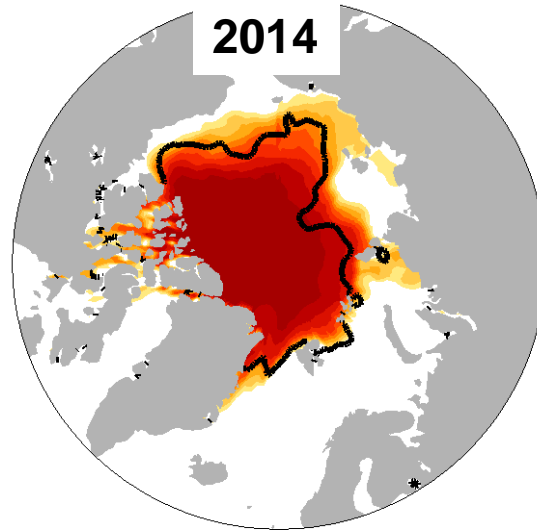
SIP in September in 2015 vs 2014

Multi-model mean forecast (colors)
with observed extent (black line)

May/June initialization



Mixed date of initialization



Forecast Difference

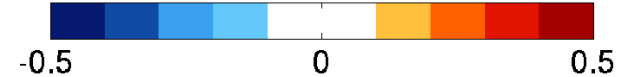
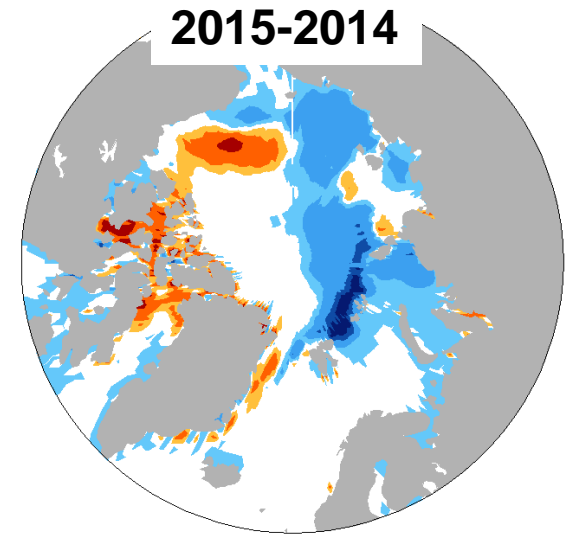


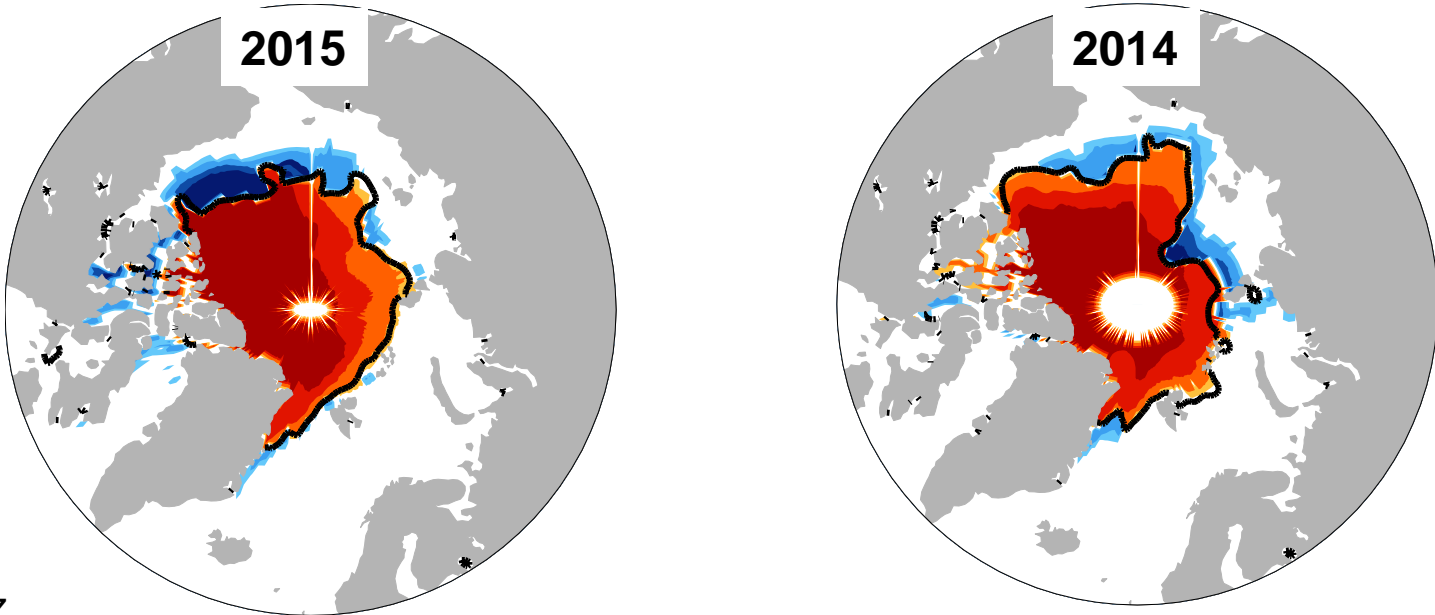
Figure by Ed Blanchard-
Wrigglesworth & C. Bitz

2014 Forecasts: Slater, CFSv2, GMAO, PIOMAS, CESM
2015 Forecasts: GMAO, NRL, UCL-Belgium, MetOffice

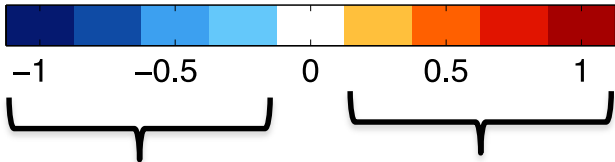
Sea Ice Outlook Spatial Distributions

SIP in 2015 vs 2014

Forecast Agreement



Figures C. Bitz



Probability of ice > 1
where observations had
none

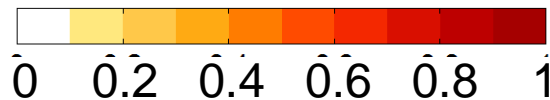
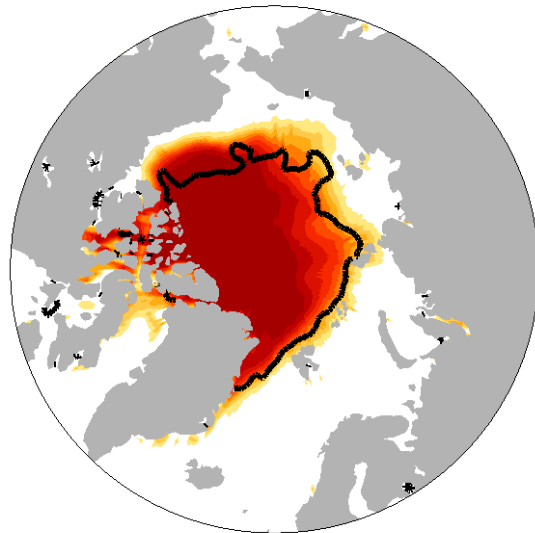
Probability of ice > 1
where ice was observed
in September

Sea Ice Outlook Spatial Distributions

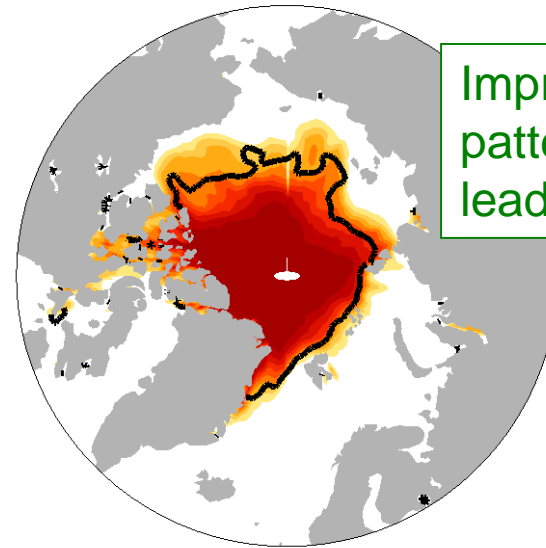
Probability of Sea Ice Presence in September in 2015

Multi-model mean forecast (colors)
with observed extent (black line)

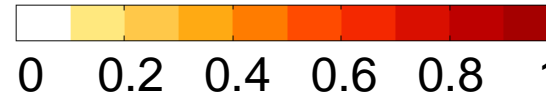
May/June initialization



July/Aug initialization



Improved spatial
pattern at shorter
lead time



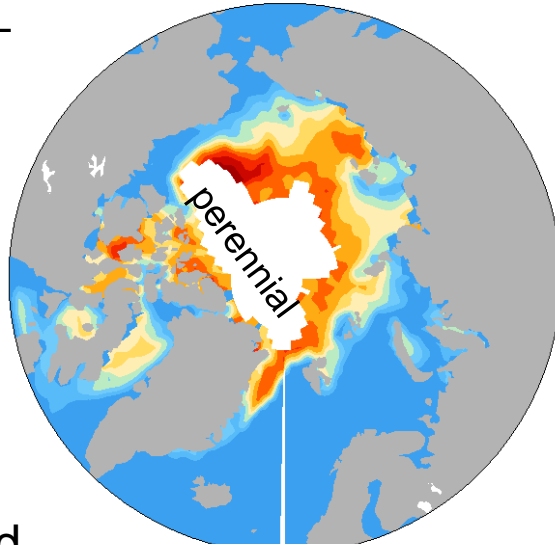
May/June IC Forecasts: GMAO, NRL, UCL-Belgium, MetOffice
July/August IC Forecasts: SLATER, NRL, MetOffice

Figure by Ed Blanchard-
Wrigglesworth & C. Bitz

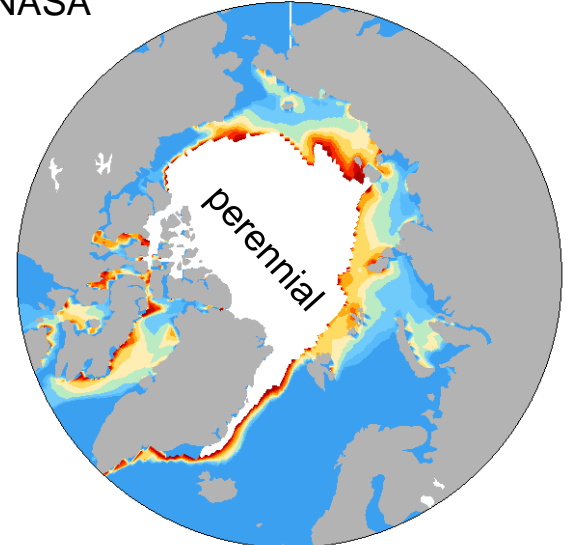
Sea Ice Outlook Spatial Distributions

First Ice-Free Day (IFD) in 2015, Forecast Initialized in June

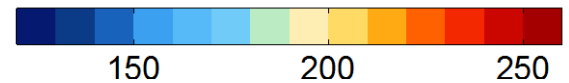
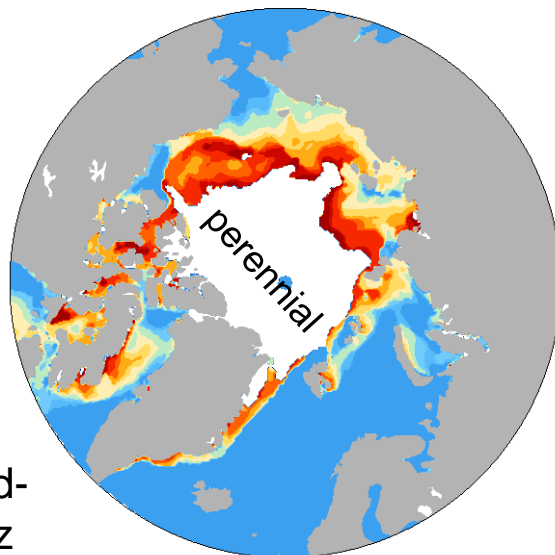
Posey/ NRL



Cullather / NASA
GMAO



Observed



Julian Day

May 1= 121

June 1=152

July 1=182

Aug 1=213

Sep 1=244

2015 Sea Ice Outlook Post-Season Action Team

The 2015 Sea Ice Outlook (SIO) Action Team convened from mid-October to late December 2015. This Action Team was lead by SIPN Project Principal Investigators Julienne Stroeve and Walter Meier. It was convened and supported by ARCUS.

GOALS FOR ACTION TEAM

- Work with the SIPN leadership team to develop a SIO post-season report to assess and summarize the physical processes that factored into the sea ice dynamics during the 2015 melt season, as well as a discussion of the various outlook methods.
- Assist in outreach and dissemination of the post-season report (e.g., share and discuss with colleagues).
- Develop a short summary of recommendations for changes and improvements to the SIO for the 2016 season.
- Contribute to (or lead) other publications or presentations based on the 2015 SIO (e.g., peer reviewed papers, an EOS article, presentations at conferences such as at AGU fall meetings or other organizations).

TEAM MEMBERS

- Julienne Stroeve, National Snow and Ice Data Center (NSIDC)
- Walter Meier, NOAA Goddard Space Flight Center
- Cecilia Bitz, University of Washington
- Lawrence Hamilton, University of New Hampshire
- Adrienne Tivy, Environment Canada
- Neil Barton, Naval Research Laboratory - Monterey, California
- Matthew Druckenmiller, NSIDC
- Neven Fuckar, Institut Catalá de Ciéncias del Clima (IC3, Barcelona, Spain)
- François Massonnet, Université catholique de Louvain (UCL), Brussels and Catalan Institute of Climate Sciences (IC3, Barcelona, Spain)
- Alek Petty, Earth System Science Interdisciplinary Center, University of Maryland and NOAA
- Andrew Slater, NSIDC

Analysis of 2015 sea ice by sea ice model and atmosphere

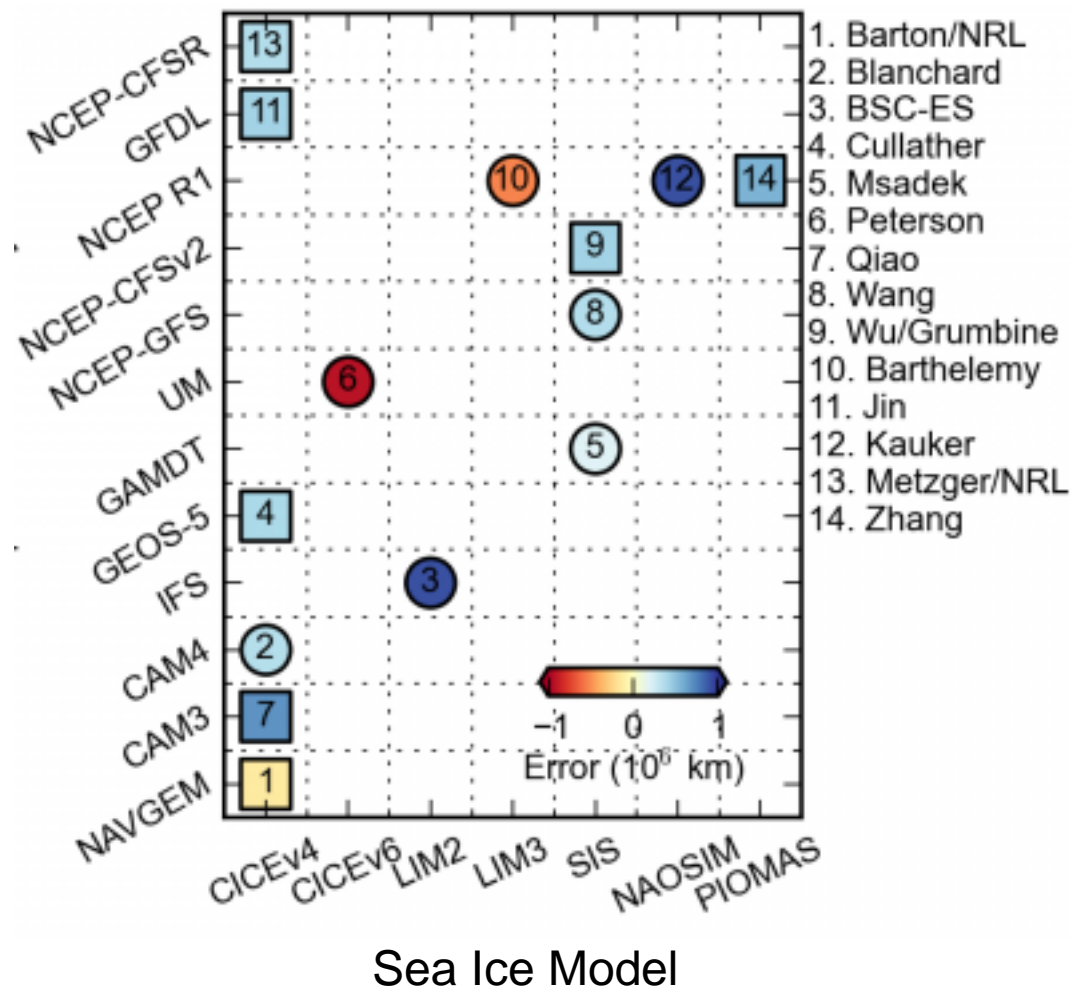
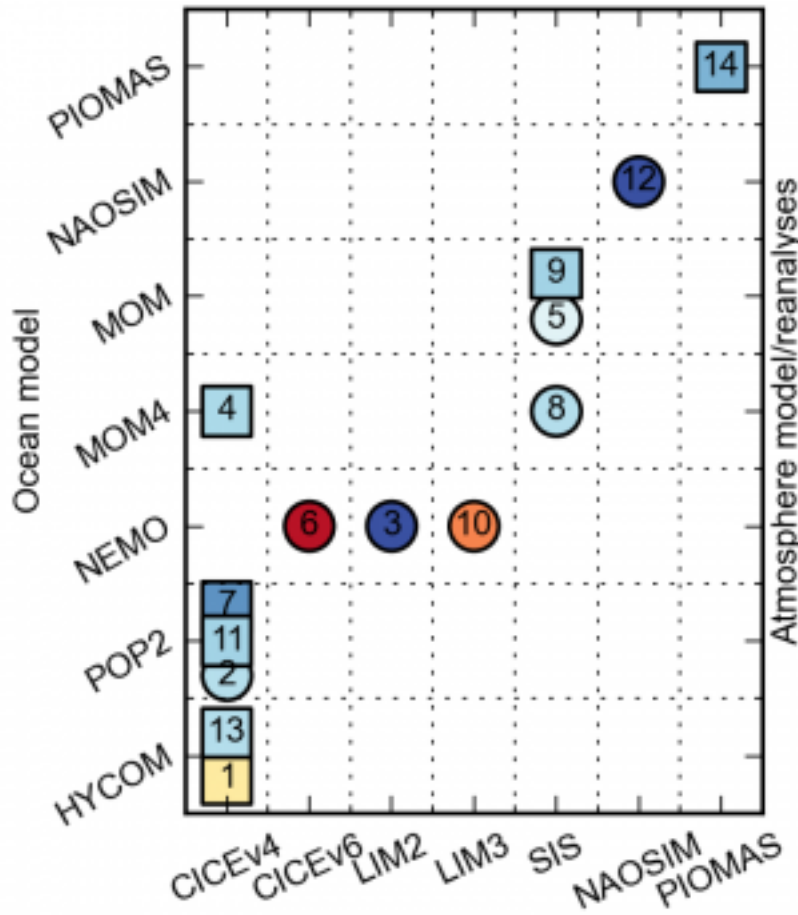
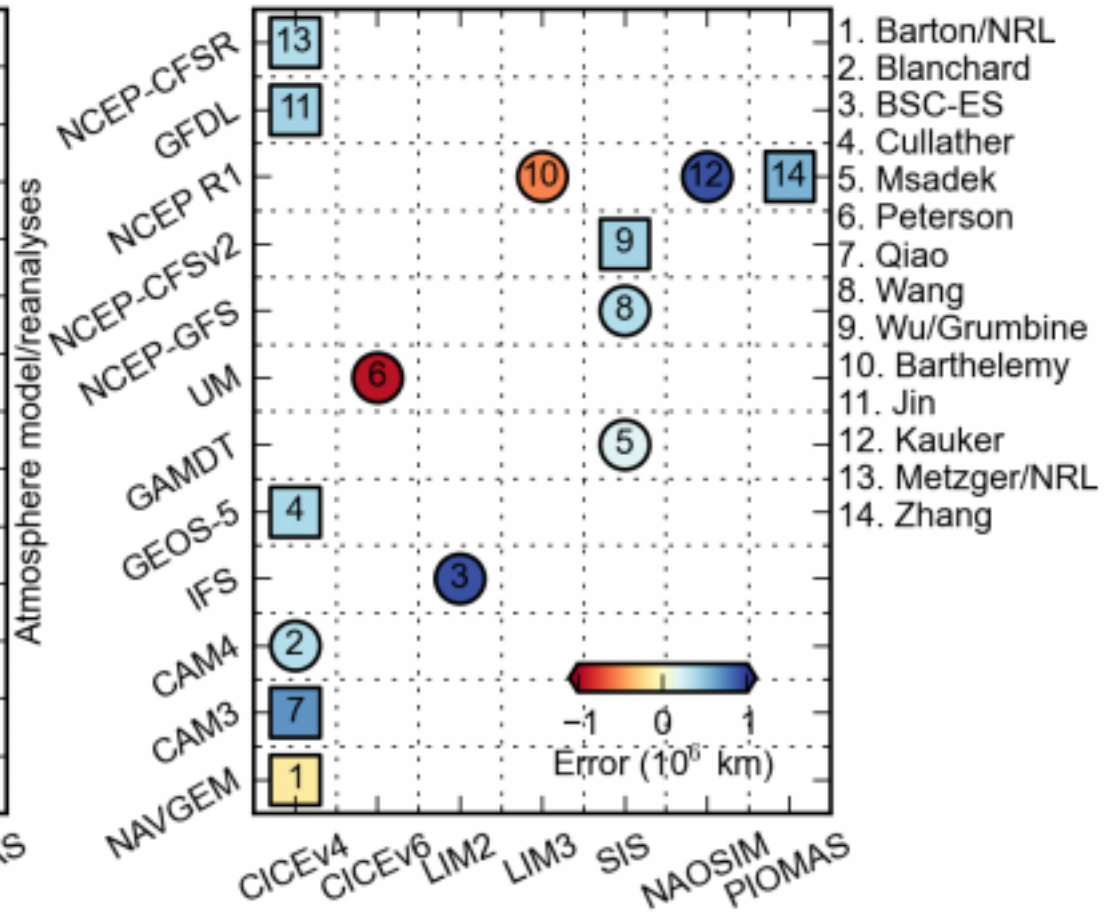


Figure by Alek Petty & Francois Massonnet et al

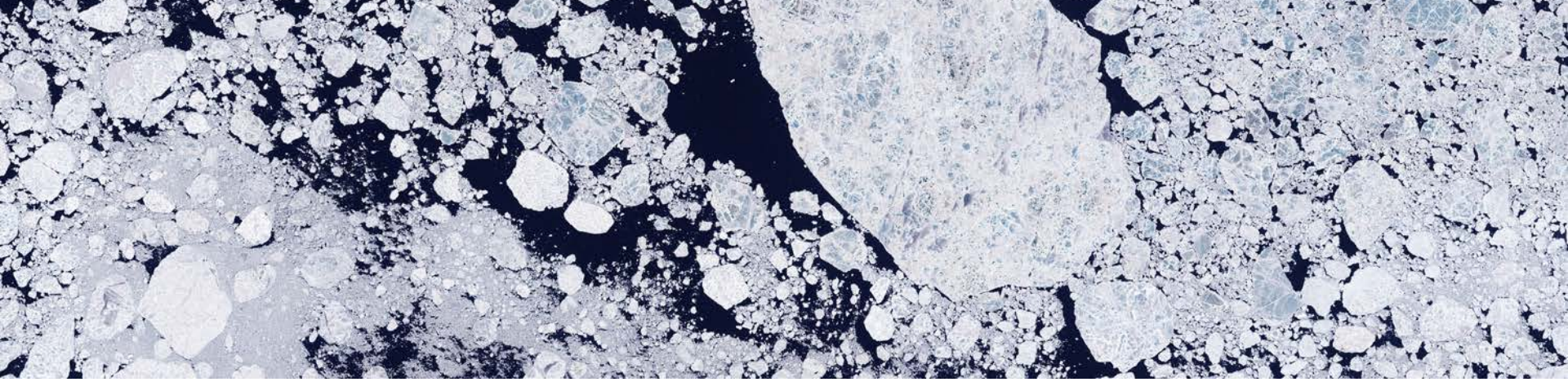


Sea Ice Model



Sea Ice Model

Figure by Alek Petty & Francois Massonnet et al



2016 Polar Prediction Workshop 4-6 May

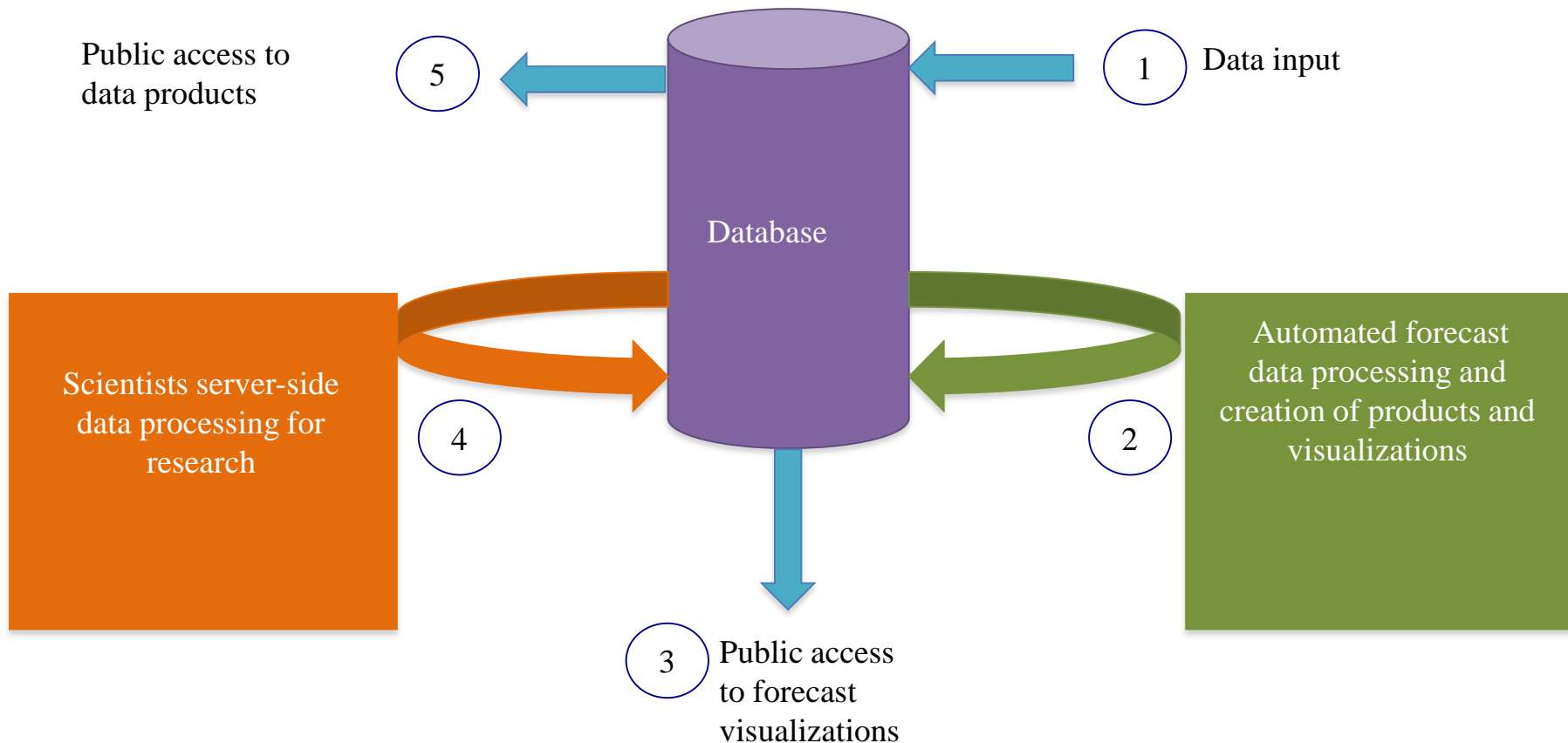
at Lamont Doherty Lab in Palisades New York
learn more and register at

<https://www.arcus.org/sipn/meetings/workshops/may-2016>

Extended SIPN

Proposed to Build and Support a Data Portal

Year round forecasts for 0-5 month range
Daily fields for a dozen variables



The logo for the Sea Ice Prediction Network (SIPN) features the letters 'SIPN' in a large, bold, black sans-serif font. To the right of 'SIPN', the words 'SEA ICE PREDICTION NETWORK' are written in a smaller, white, all-caps sans-serif font. Below 'SIPN', the full name 'Sea Ice Prediction Network' is written in a smaller, black, sans-serif font. The logo is set against a dark blue background that has a white, jagged mountain-like silhouette at the top.

SEA ICE PREDICTION NETWORK

Sea Ice Prediction Network

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