

SEARCH Sea Ice Outlook

James E. Overland, Hajo Eicken, Helen V. Wiggins, Alysa J.K. Loring, Sea Ice Outlook Core Integration Group, and Sea Ice Outlook Advisory Group

Background

- The Sea Ice Outlook is driven by the need for better understanding of the arctic sea ice system.
- The effort emerged after the 2007 record minimum ice extent and subsequent discussions at the “Arctic Observation Integration Workshops” in March 2008.
- Each month, up to 22 research groups provided information on current and expected states of the arctic sea ice; the submissions were synthesized into a monthly report.
- The result was an international, integrated, community-wide summary of the state of arctic sea ice over the summer season that was distributed on the SEARCH website and through listserves, and received significant media coverage.
- More information is available at the SEARCH Sea Ice Outlook website: <http://www.arcus.org/search/seaiceoutlook/index.php>.

How Did Summer 2008 Meteorological Conditions Affect the Sea Ice?

- Sea ice extent minimum nearly matched the minimum extent of 2007.
- Ice extent was driven by pre-existing spring conditions and variable summer wind patterns.

How was the 2008 Outlook Successful?

- Good agreement between outlook projections and observations (see charts below right).
- Provided a successful forum for community synthesis.
- Important first step toward better understanding arctic sea ice loss.



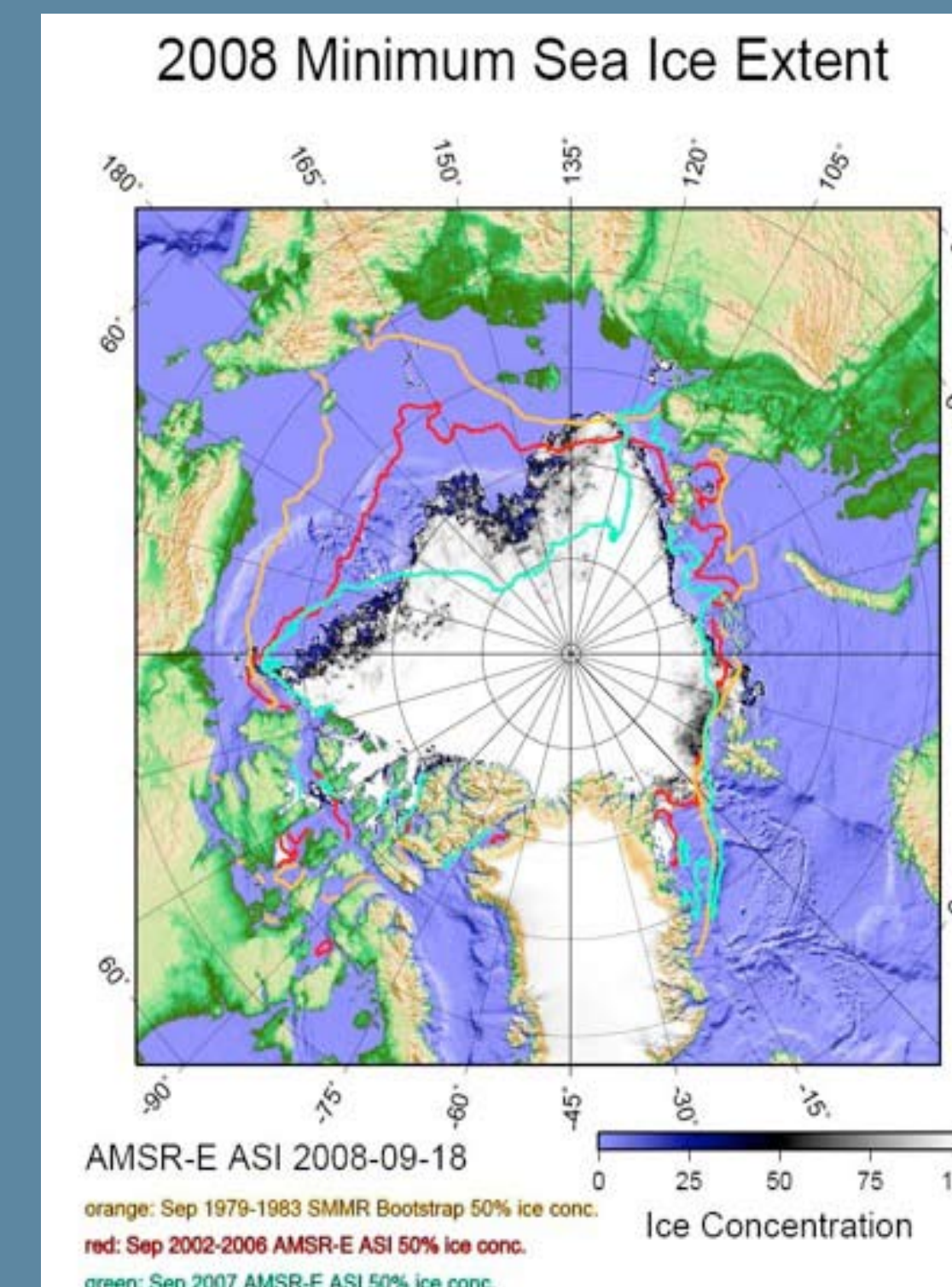
An aerial view of the U.S. Coast Guard icebreaker Healy, surrounded by sea ice and melt ponds. Photo by Ute Kaden (TREC 2005), Courtesy of ARCUS.

Some Implications for the Future of Arctic Sea Ice and Future Outlook Efforts Based on the 2008 Outlook

- Current conditions may continue until another warm year causes rapid sea ice loss.
- Condition of late spring sea ice can be a major driver of the sea ice minimum.
- Improvements in future efforts should include:
 - ★ More remote sensing of spring and summer sea ice conditions;
 - ★ More sea ice thickness data; and
 - ★ More formal forecasting and evaluation methods.



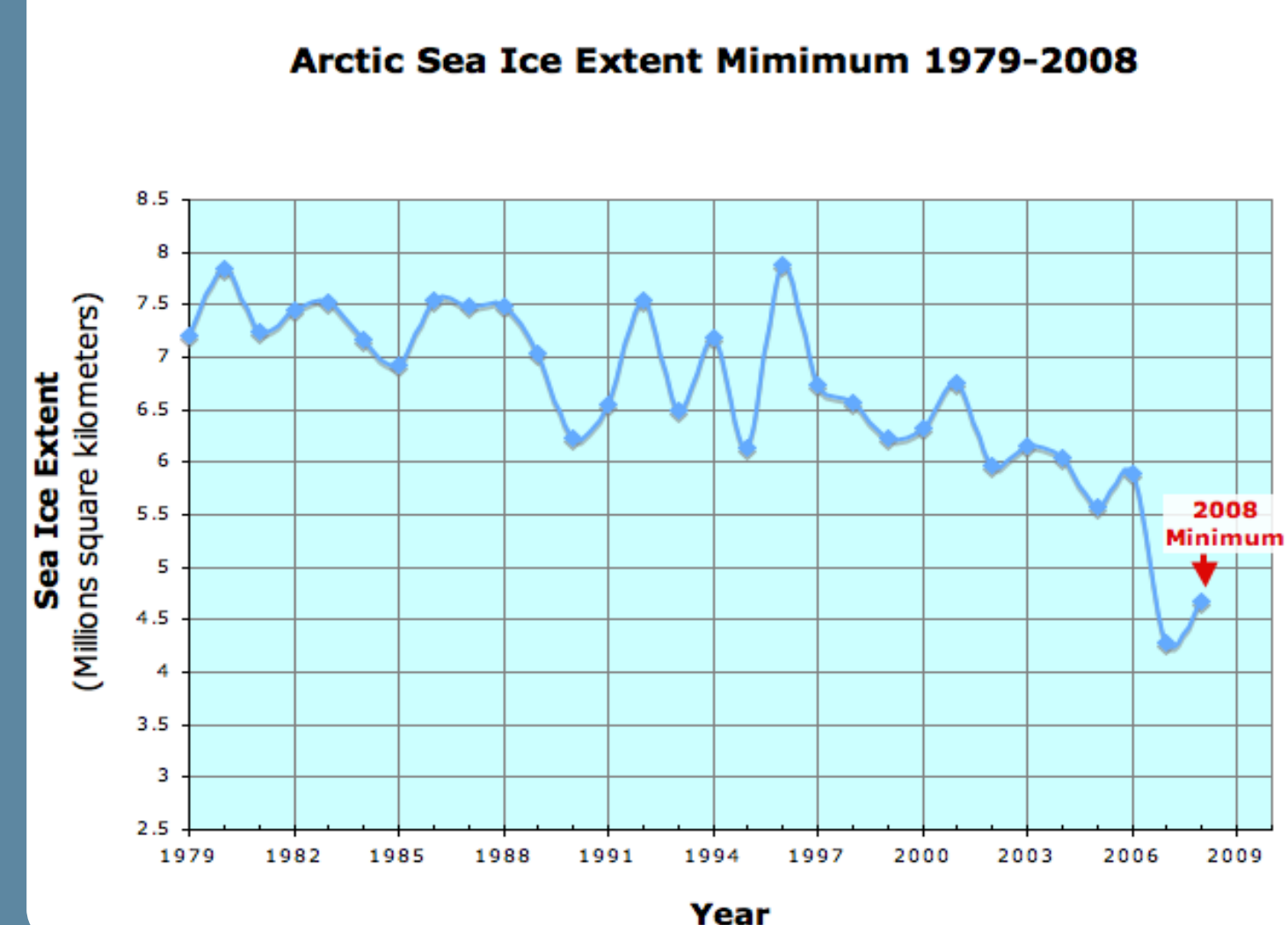
Pool of water on ice chunk in the Bering Sea as seen from the USCGC Healy. Photo by Patty Janes (TREC 2006), Courtesy of ARCUS.



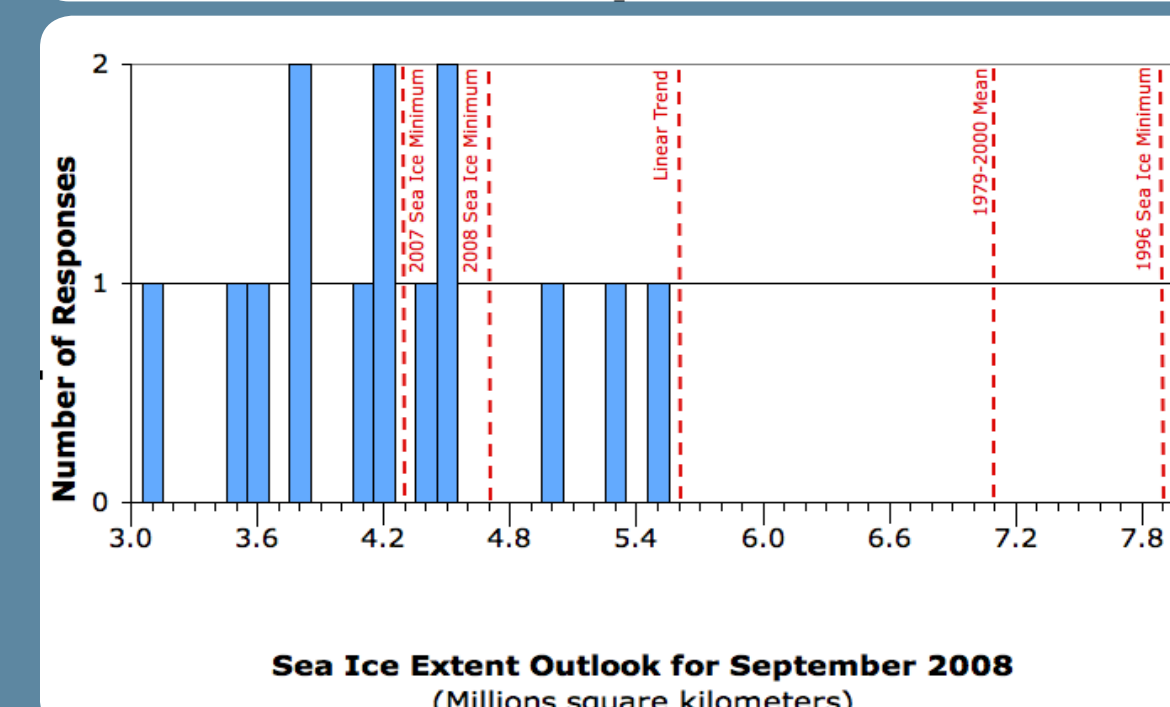
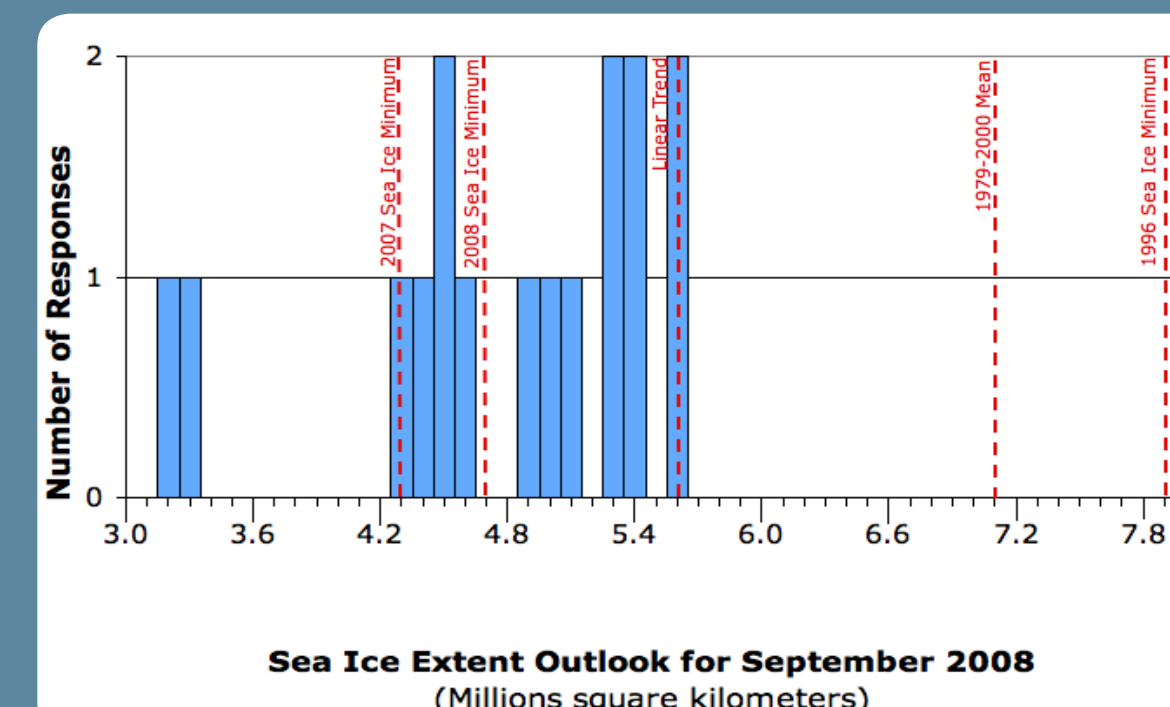
Sea ice extents for mid September 2007 and 2008. Credit: Spreen and Kaleschke. <http://www.ifm.uni-hamburg.de/~wrs/seaice/amr-e.html>



A crew member of the USCGC Healy walks on the sea ice of the Arctic Ocean. Photo by Ute Kaden (TREC 2005), Courtesy of ARCUS.



Annual arctic sea ice extent since 1979. Data is from the NSIDC sea ice index (http://nsidc.org/data/seaice_archives/index.html). Graph courtesy of ARCUS.



Distributions of responses for September arctic sea ice extent based on May and July data.



Sea animals like polar bears depend on the ice for survival. This bear was seen in the Arctic Ocean from the USCGC Healy. Photo by Ute Kaden (TREC 2005), Courtesy of ARCUS.

Recent and Upcoming Activities

- Sea Ice Outlook Presentation and Community Meeting at the AGU Fall Meeting, San Francisco (16 and 17 December 2008)
- Sea Ice Outlook Working Group Meeting and Community eMeeting (Winter 2009)
- Final Retrospective 2008 Sea Ice Outlook Report Published (Winter/Spring 2009)
- Planning for 2009 Sea Ice Outlook (Winter / Spring 2009)

Support and Contacts

Sea Ice Outlook activities are supported through the National Science Foundation (NSF) and the National Oceanic and Atmospheric Administration (NOAA), with additional support from the arctic research community. It is implemented in close cooperation with the European Union DAMOCLES program and other international efforts.

For further information about the Sea Ice Outlook, please contact: James Overland, Lead, Sea Ice Outlook Core Integration Group (james.e.overland@noaa.gov); Hajo Eicken, Member, Sea Ice Outlook Core Integration Group (hajo.eicken@gi.alaska.edu); Helen Wiggins, ARCUS, SEARCH Project Office (helen@arcus.org); or Alysa Loring, ARCUS, SEARCH Project Office (alysa@arcus.org); or go to the Sea Ice Outlook website: <http://www.arcus.org/search/seaiceoutlook/index.php>.

