2022 August Sea Ice Outlook Submission Supporting Materials

by

RASM@NPS (Maslowski et al.)

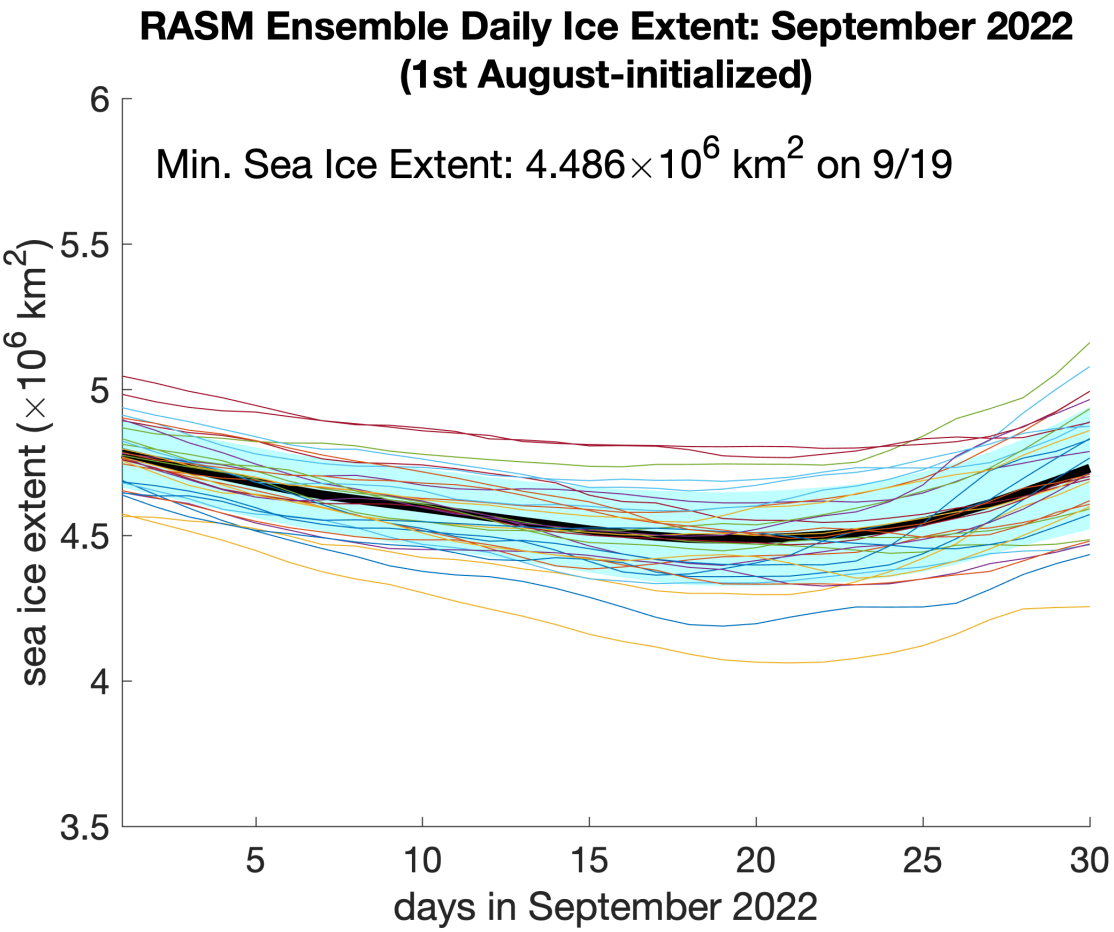

Figure 1. The RASM June-initialized ensemble forecast of daily pan-Arctic sea ice extent for the September 2022 Sea Ice Outlook in contribution to the Sea Ice Prediction Network. The thick black line is the daily ensemble mean sea ice extent for September 2022, color lines are for 31 individual ensemble members and the blue shading represents ±1 standard deviation from the ensemble mean. Minimum daily ensemble mean sea ice extent (4.486 million km^2) is predicted on 9/19/2022.

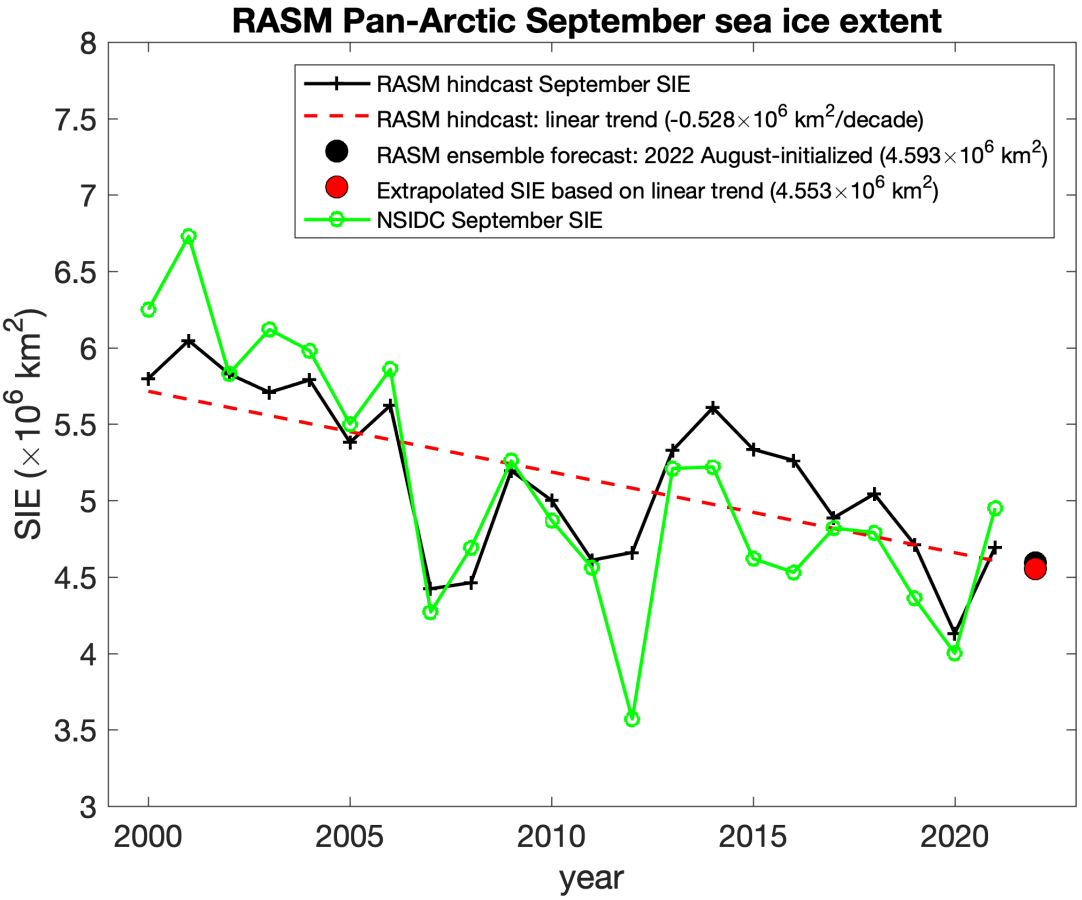

Figure 2. The linear trend (red dashed; –0.528 million km^2/decade) of September mean sea ice extent (black solid) from the RASM hindcast simulation during the baseline period (2000-2021). The red circle is the extrapolated September 2022 sea ice extent value based on the linear trend calculated. The black circle is the RASM ensemble forecast for September 2022 reported to 2022 July call for Sea Ice Outlook. The pan-Arctic sea ice extent anomaly (subtracting the RASM September 2022 Outlook extent from the extrapolated September 2022 value) is –0.040 million km^2.

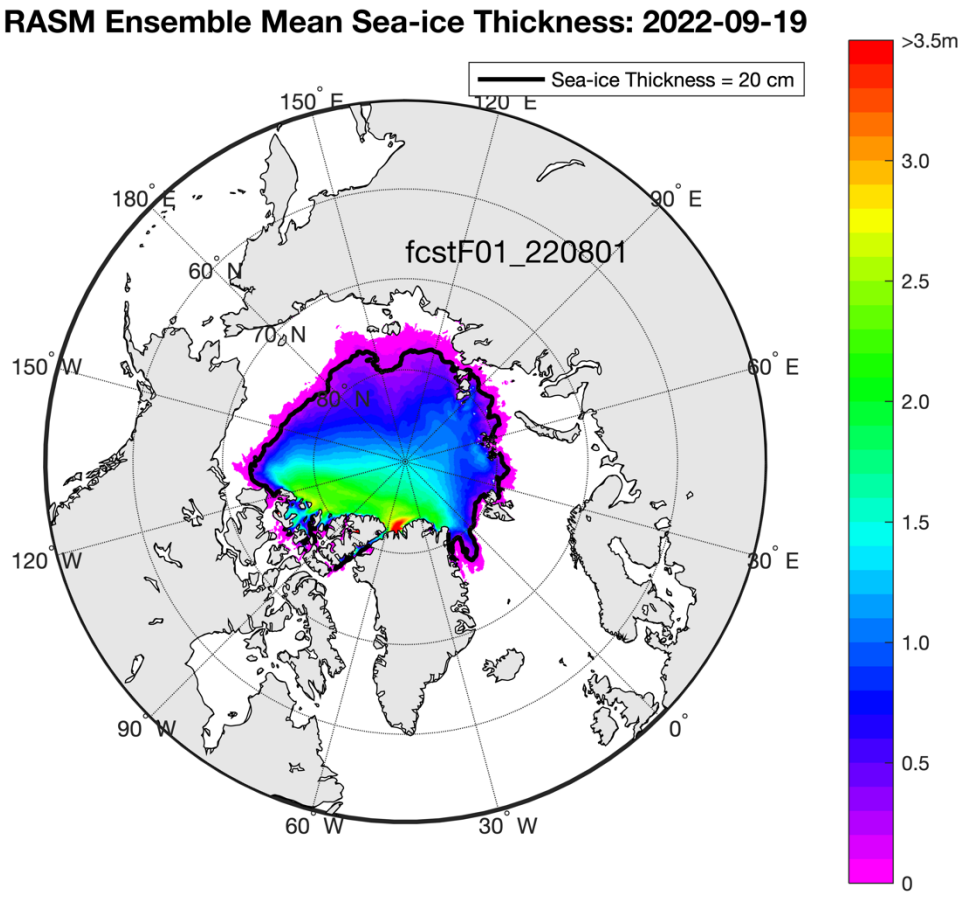

Figure 3. The RASM ensemble mean (31 members initialized on August 1, 2022) of sea ice thickness forecasted on September 19, 2022.

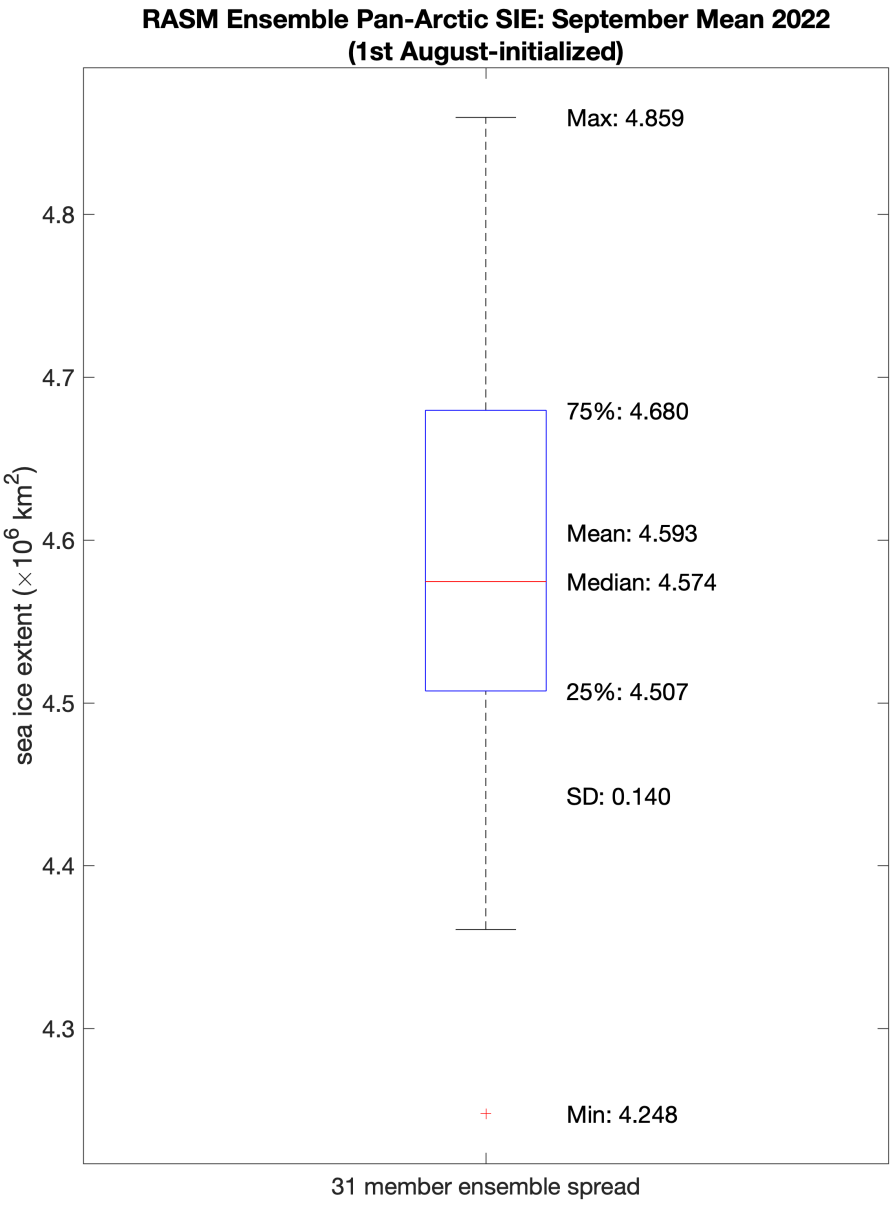

Figure 4. The ensemble spread of the RASM forecast (31 members) for September 2022 sea ice extent. On a box, the central mark (red) is the median (Q2), the edges of the box (blue) are the 25th (Q1) and 75th (Q3) percentiles (4.507 and 4.680 million km^2, respectively), and the whiskers extend to a maximum of 1.5 times the interquartile range [1.5*(Q3-Q1)] (i.e., 99.3% data coverage if the data are normally distributed). The most extreme (minimum and maximum) data points and standard deviation (SD) are also shown, and outliers are indicated as (+).