Supplemental to: A GFDL high resolution global ocean/sea-ice configuration for seasonal-to-decadal prediction research

Matthew J. Harrison[1], Theresa Cordero[1], Youngji Joh[1], Robert Hallberg[1], Alistair Adcroft[2], William Cooke[1], Hae-Cheol Kim[3], Colleen McHugh[4], and Utheri Wagura[4]

[1]NOAA/OAR/Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA
[2]Atmospheric and Oceanic Sciences Program, Princeton University, Princeton, NJ, USA
[3]NOAA/NWS/EMC, Rockville, MD, USA
[4]SAIC

Correspondence: Matthew J. Harrison (matthew.harrison@noaa.gov)

Supplemental figures for Appendix B.

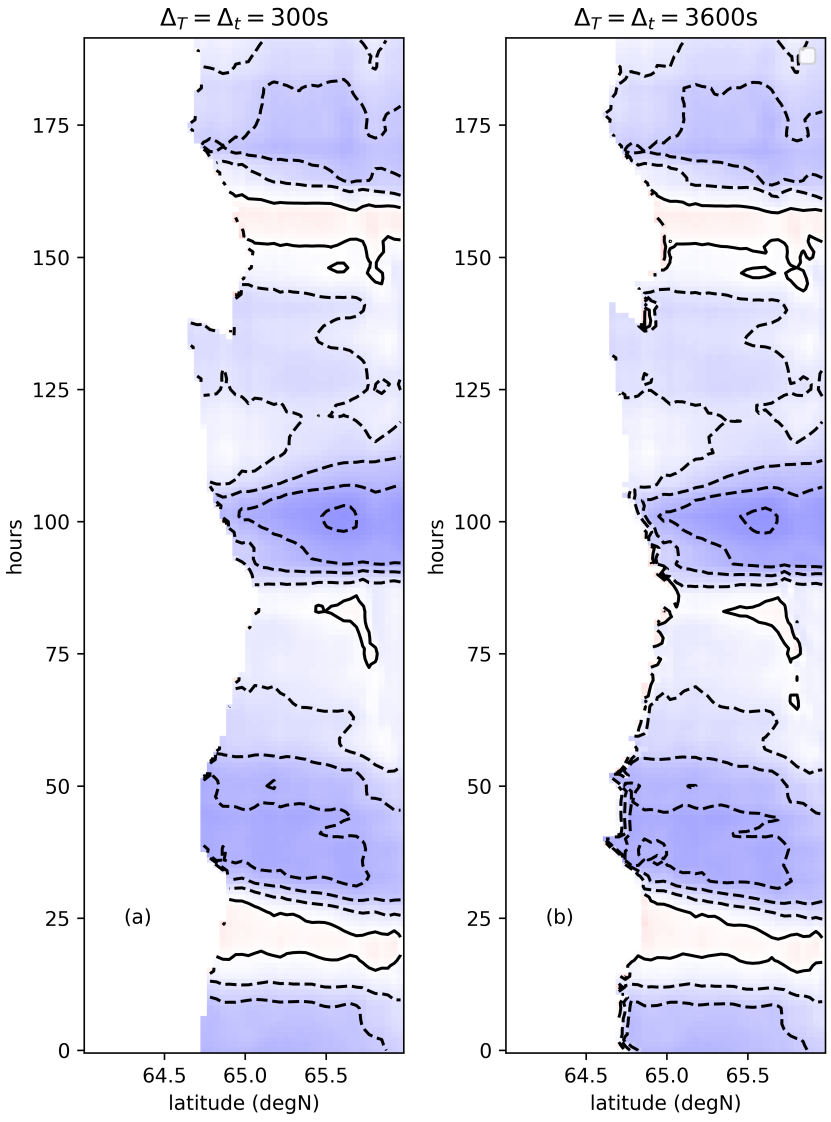


Figure S1. Hourly cell thickness-weighted average sea-ice meridional velocity relative to the ocean at 32°W with $\Delta_T \Delta_t^{-1} = 1$s and (left) $\Delta_T = 300$s and (right) $\Delta_T = 3600$s.

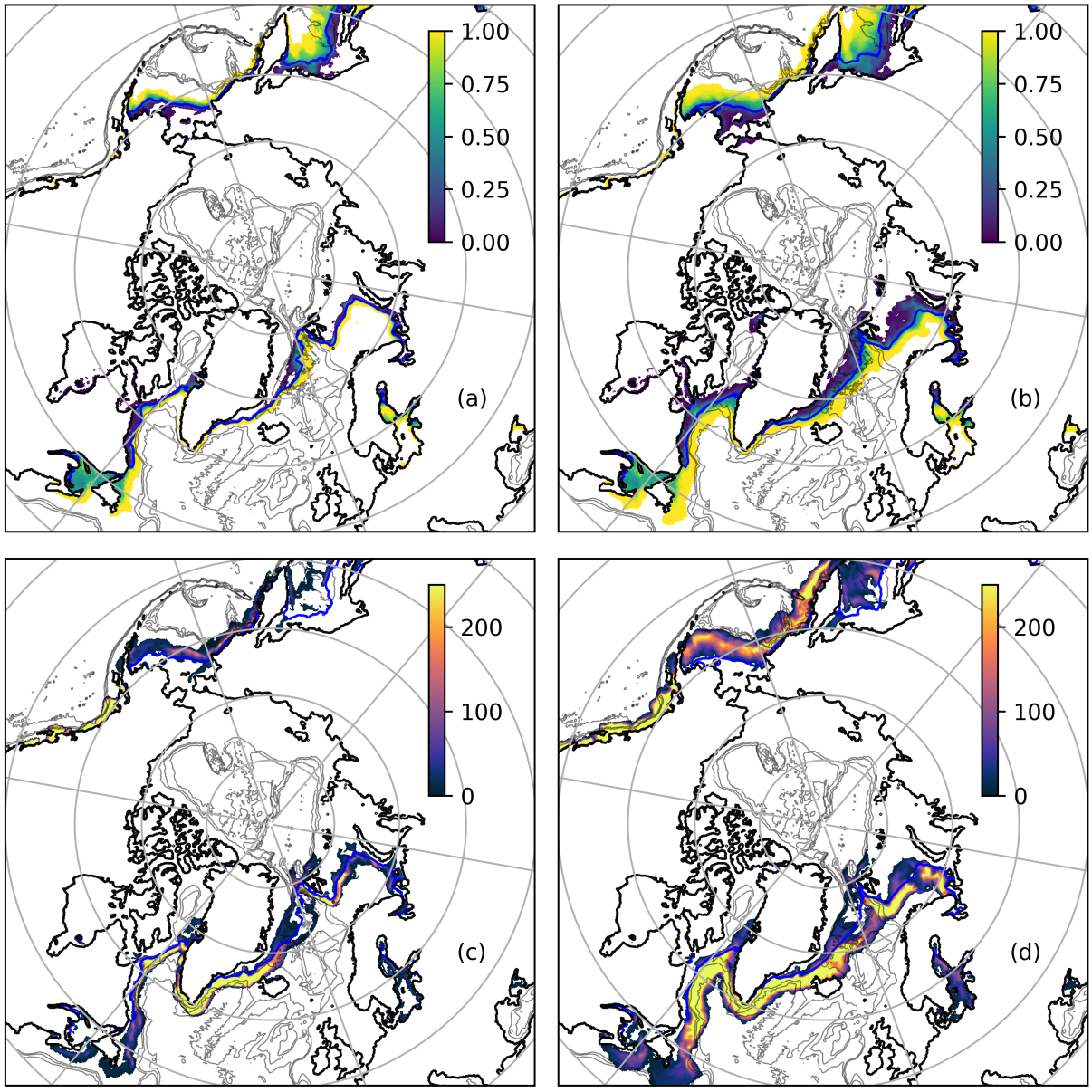


Figure S2. Seasonal sea-ice lead fraction (panels a,b) and bottom meltrates (W m^2, panels c and d) during 1962 Boreal winter. The lefts column (a,c) shows A01 ($\Delta_T \Delta_t^{-1} = 4$), and the right columns (b,d) is A02 ($\Delta_T \Delta_t^{-1} = 1$). The time average ice extent is indicated by the magenta contour. A01 has a more confined MIZ in all sectors of the Arctic compared to A02, and this is associated with more diffuse bottom melt rates near the pack ice edge. The sea-ice lead fraction is defined as the fractional number of days with 20-93% sea-ice cover.

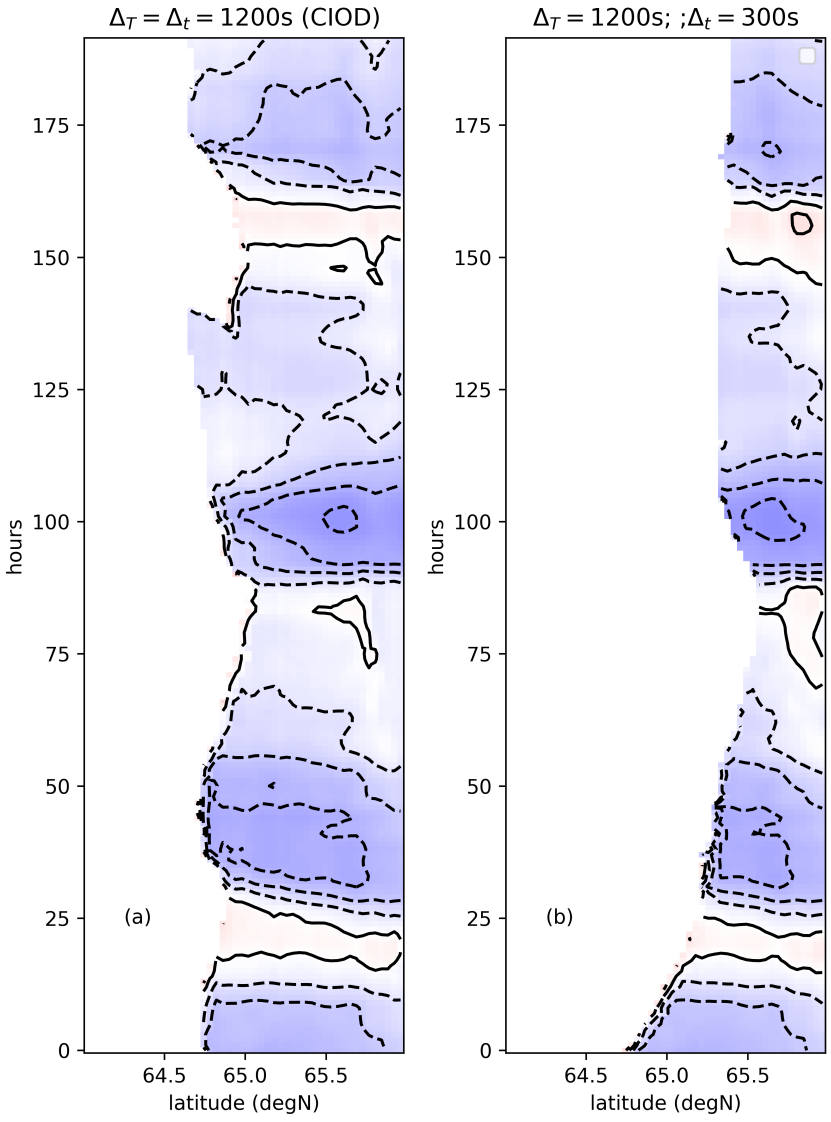


Figure S3. Hourly cell thickness-weighted average sea-ice meridional velocity relative to the ocean at 32°W (left) $\Delta_T \Delta_t^{-1} = 1$ and (right) $\Delta_t \Delta_t^{-1} = 4$.

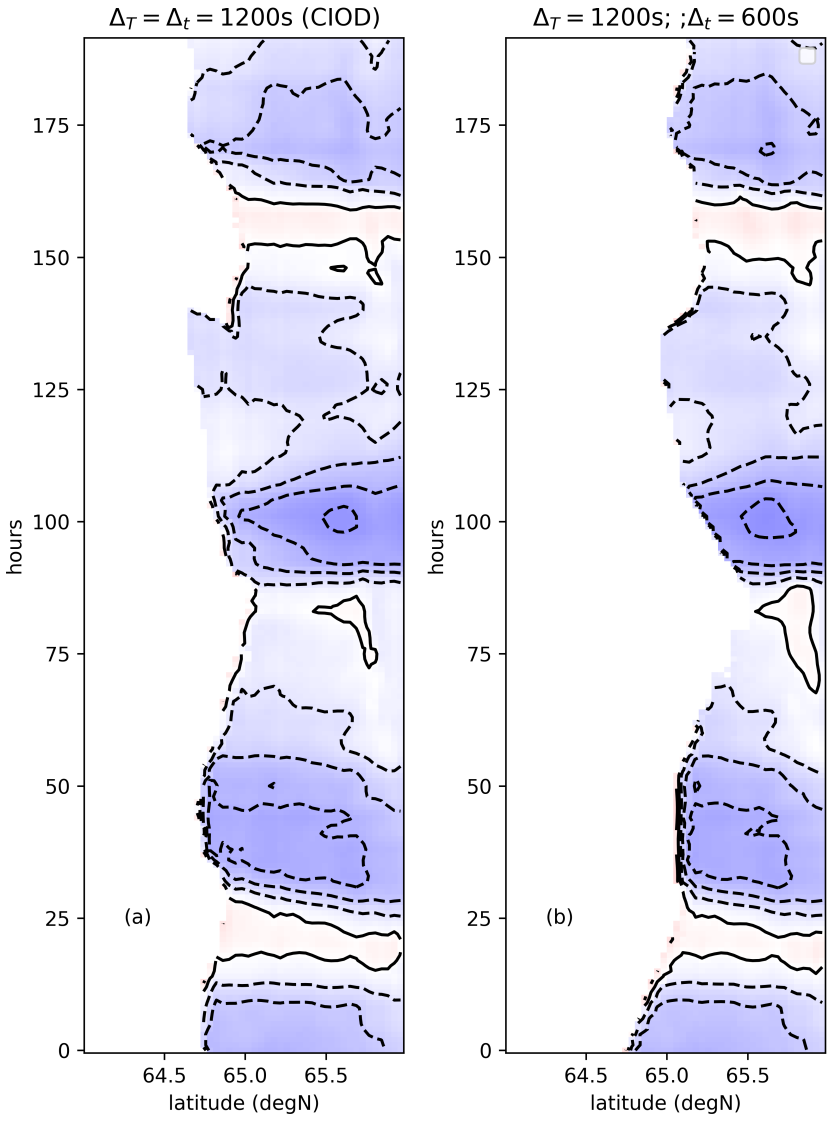


Figure S4. Hourly cell thickness-weighted average sea-ice meridional velocity relative to the ocean at 32°W (left) $\Delta_T \Delta_t^{-1} = 1$ and (right) $\Delta_t \Delta_t^{-1} = 2$.

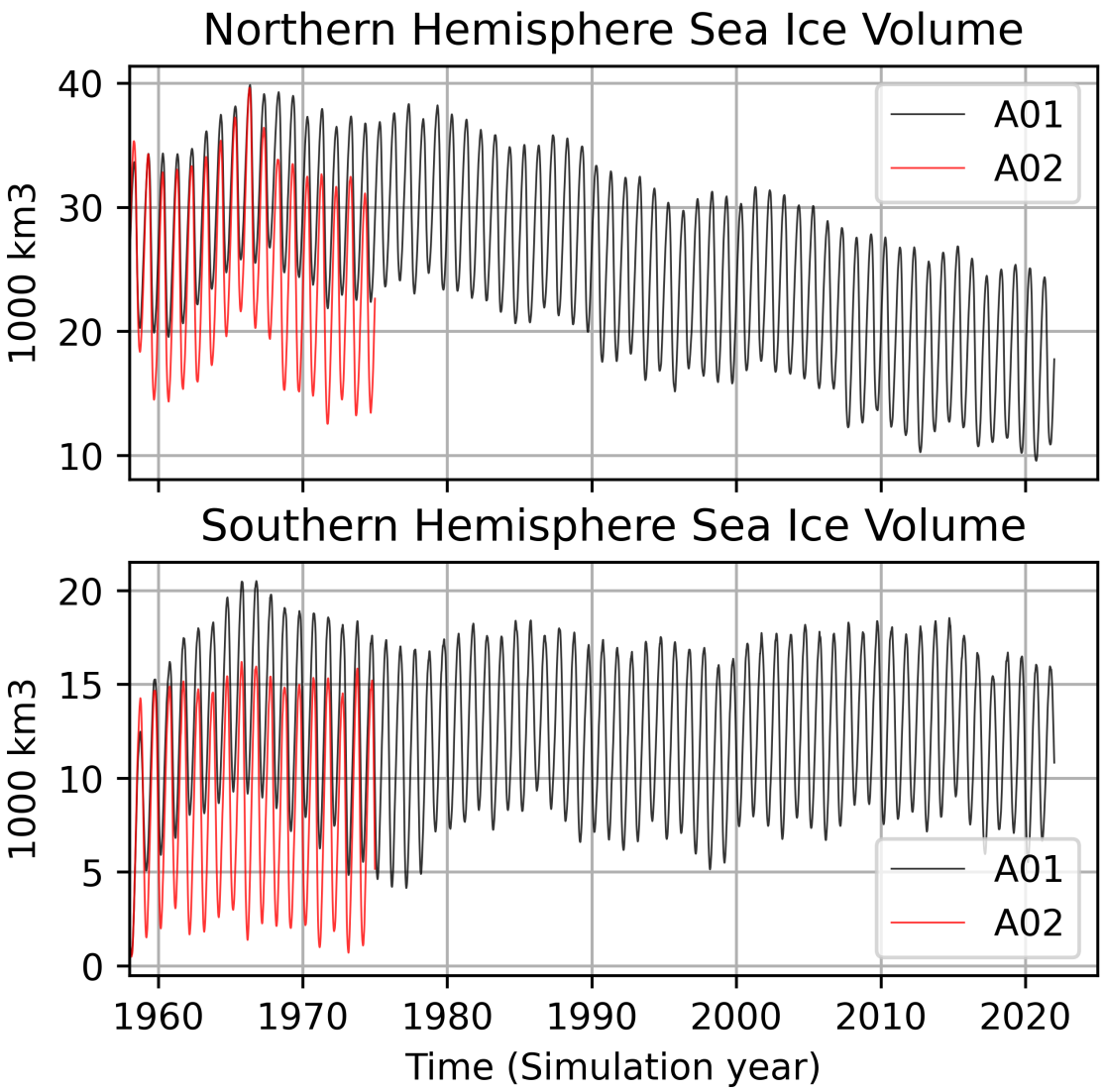


Figure S5. Northern (top) and Southern (bottom) hemisphere sea-ice volume totals for A01 (black, $\Delta_T \Delta_t^{-1} = 4$) and A02 (red, $\Delta_T \Delta_t^{-1} = 1$).

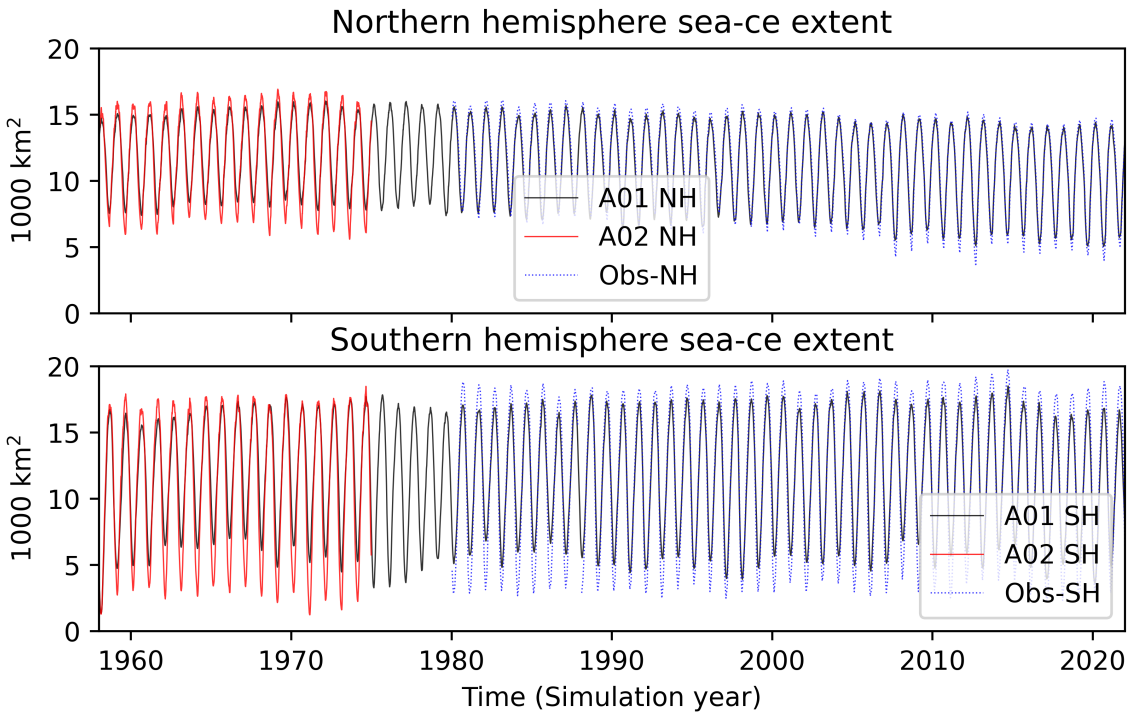


Figure S6. Northern (top) and Southern (bottom) hemisphere sea-ice extent (SIE) totals for A01 (black) and A02 (red).