Supporting Information for "A mechanism for the Arctic sea ice spring predictability barrier"

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Contents of this file

1. Figures S1 to S7

Introduction

This supporting information contains additional figures and captions S1-S7.

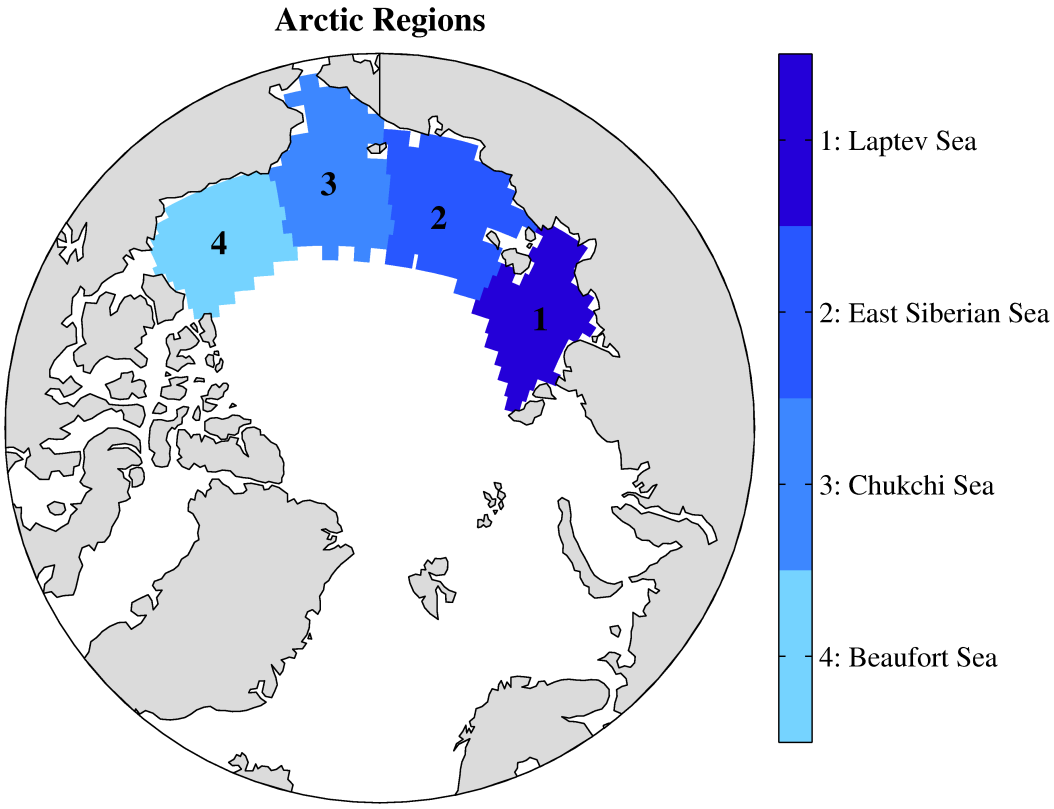

Figure S1. The Arctic regions considered in this study.

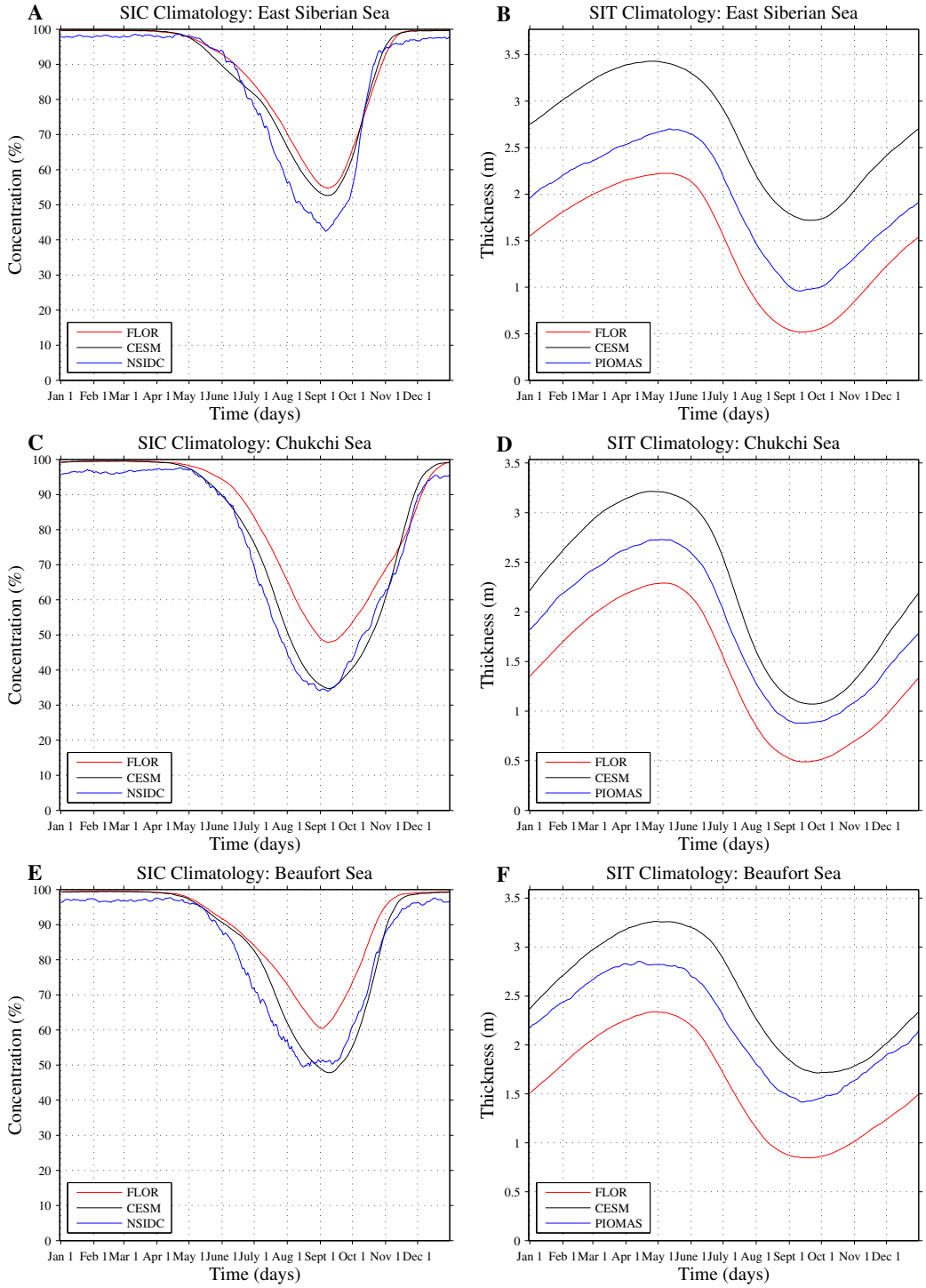

Figure S2. SIC and SIT climatologies in FLOR (red), CESM (black), NSIDC observations (blue), and PIOMAS reanalysis (blue). Climatologies are shown for the East Siberian (A,B), Chukchi (C,D), and Beaufort (E,F) Seas. The model climatologies are computed over the control epoch and the NSIDC and PIOMAS climatologies are computed over 1981–2000.

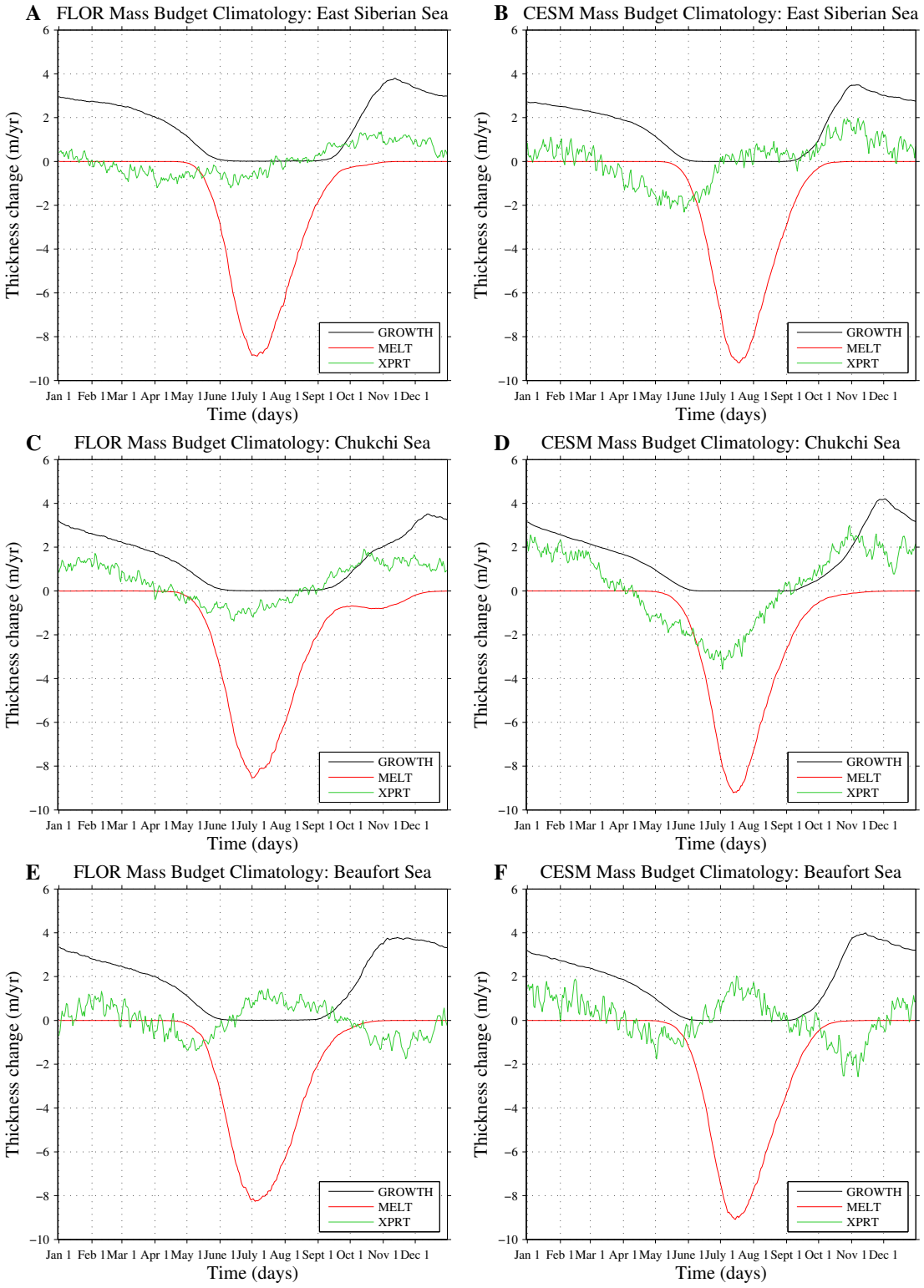

Figure S3. Mass budget climatologies in CESM and FLOR showing growth (black), melt (red), and export (green) rates. Climatologies are shown for the East Siberian (A,B), Chukchi (C,D), and Beaufort (E,F) Seas and are computed over the control epoch.

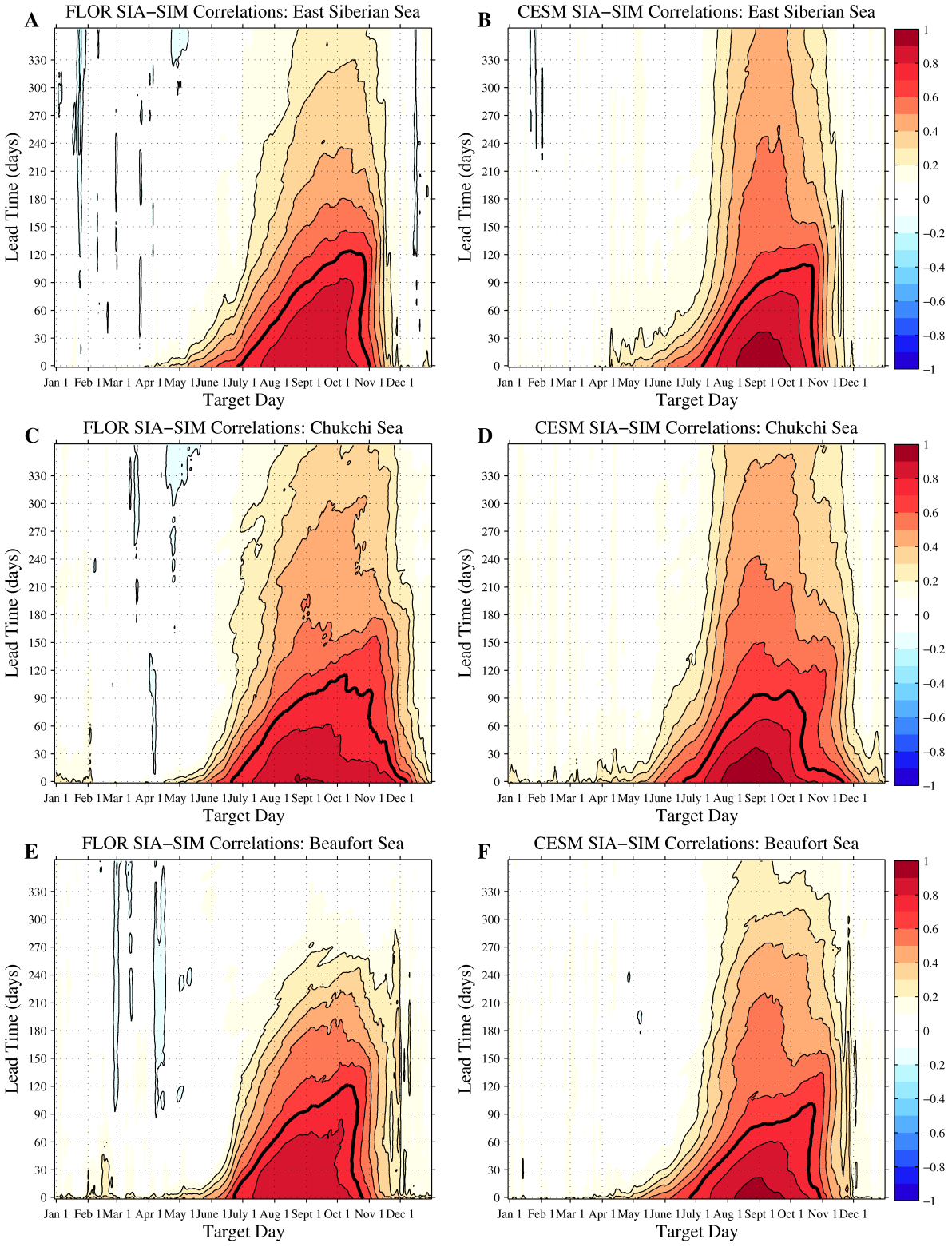

Figure S4. Lagged correlations between SIA and earlier SIM in FLOR and CESM in the control epoch. Correlations are shown for the East Siberian (A,B), Chukchi (C,D), and Beaufort (E,F) Seas. The thick black contours indicate $r = 0.7$.

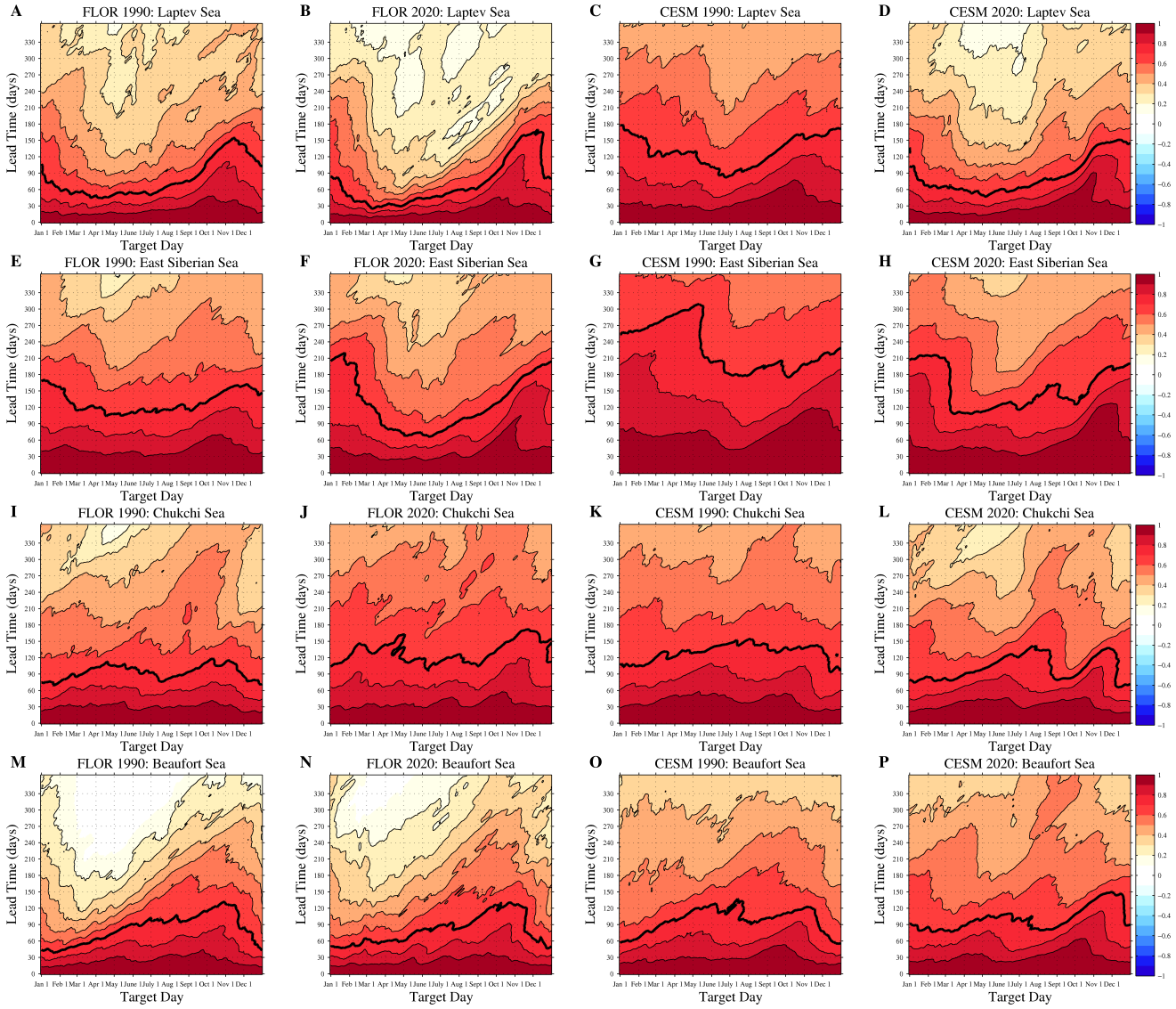

Figure S5. Lagged correlations between SIM and earlier SIM in FLOR and CESM in epochs centered upon 1990 (the control epoch) and 2020. Correlations are shown for the Laptev (A–D), East Siberian (E–H), Chukchi (I–L), and Beaufort (M–P) Seas. The thick black contours indicate $r = 0.7$. Note that SIM–SIM correlations are generally lower in the 2020 epoch, due to reduced multi-year ice.

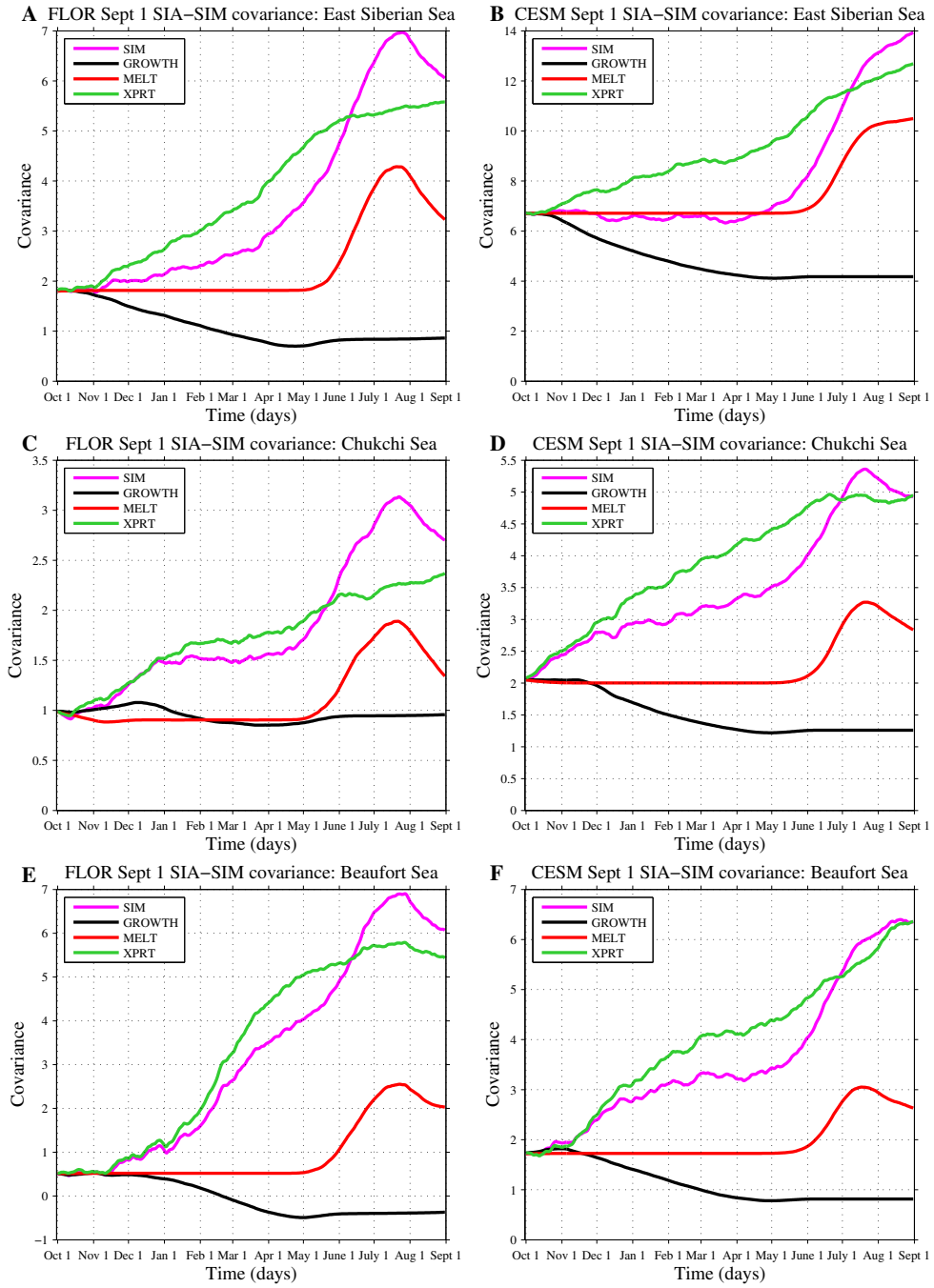

Figure S6. Covariance decomposition between September 1 SIA and earlier SIM in FLOR and CESM in the East Siberian (A,B), Chukchi (C,D), and Beaufort (E,F) Seas. Plotted are the full SIM covariance (magenta) and the covariance contributions from the growth (black), melt (red), and export (green) terms. Covariance contributions are plotted relative to the October 1 SIM covariance.

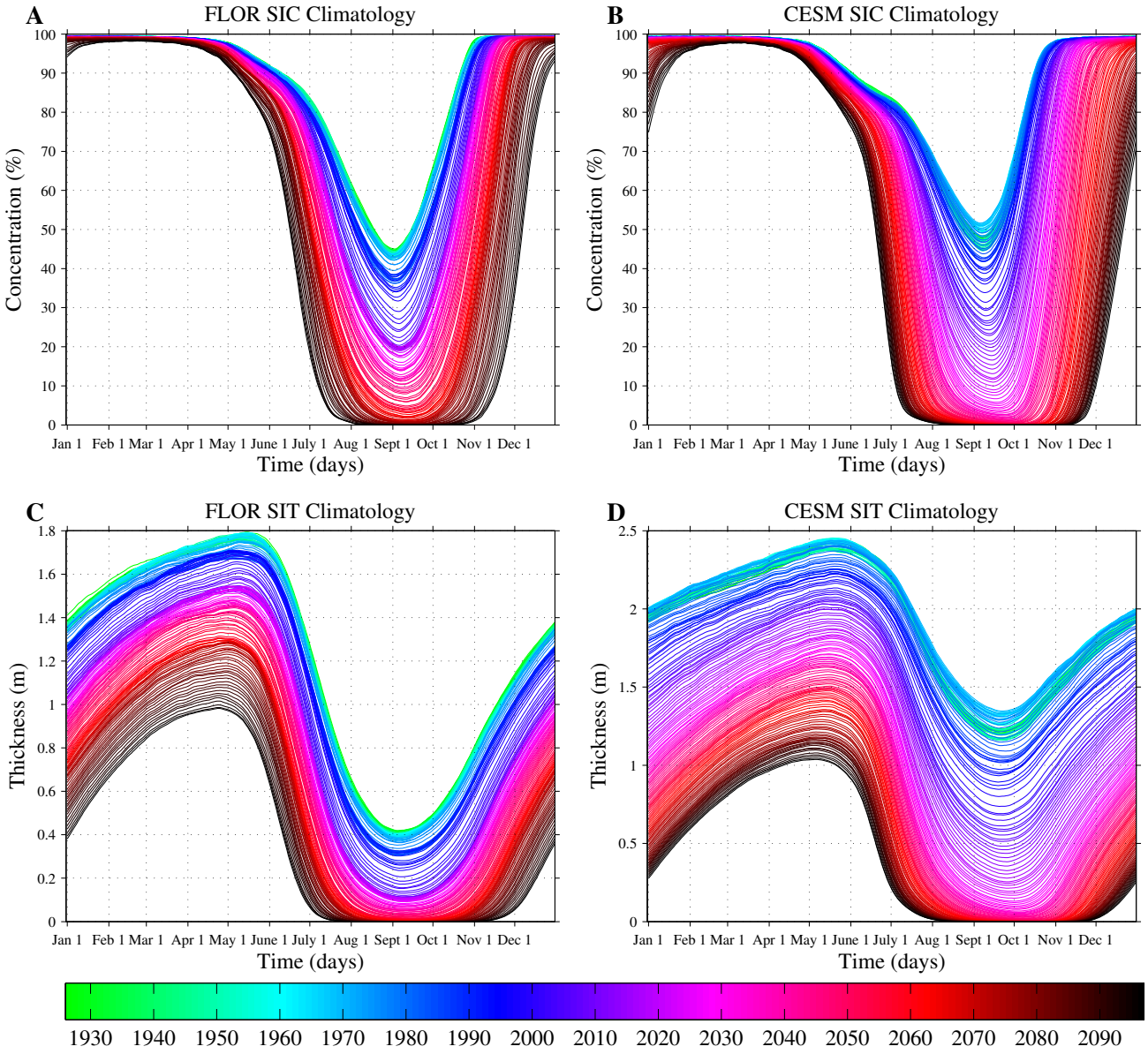

Figure S7. Laptev Sea SIC and SIT climatologies in FLOR and CESM in different temporal epochs.