

## Reply to Reviewer #1:

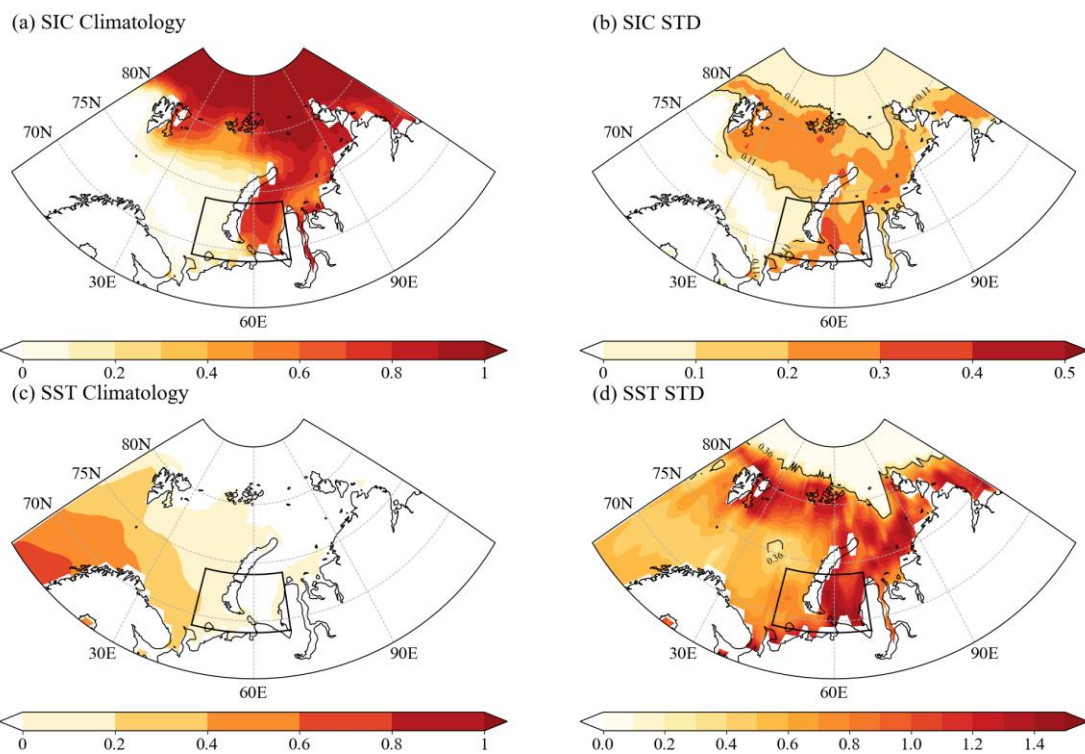


Figure R1: Climatological (a) SIC and (c) SST. Standard deviation of (b) SIC and (d) SST anomalies (shading).

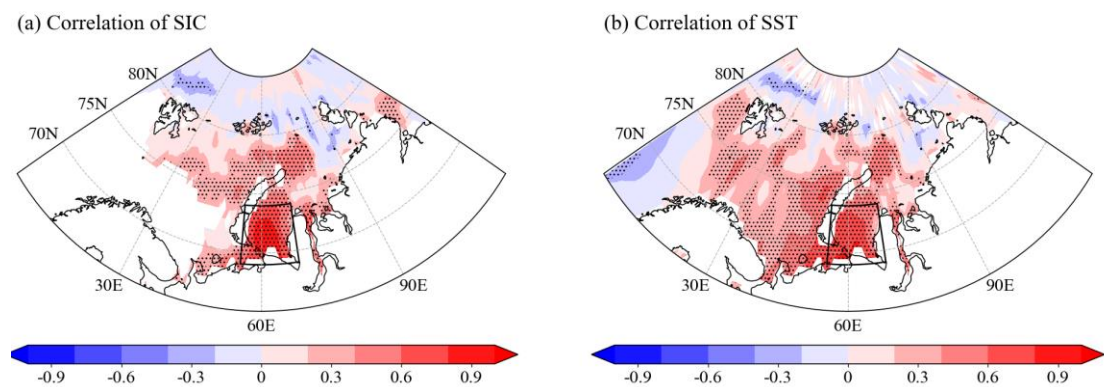


Figure R2: Distribution of correlation coefficients between the June SIC index over the Kara Sea ( $69^{\circ}$  -  $74^{\circ}$  N,  $55^{\circ}$  -  $69^{\circ}$  E, black box) and (a) SIC anomalies, and between the June SST index and (b) SST anomalies during 1982 - 2021. The areas significant at the 90% confidence level are dotted.

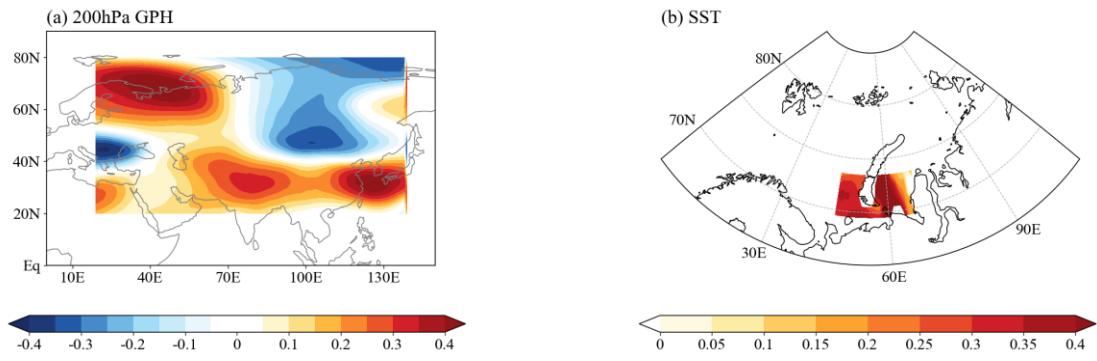


Figure R3: First leading SVD mode between geopotential height at 250 hPa (left) and SST (right) fields during June 1982-2021.