Supplementary Figure List

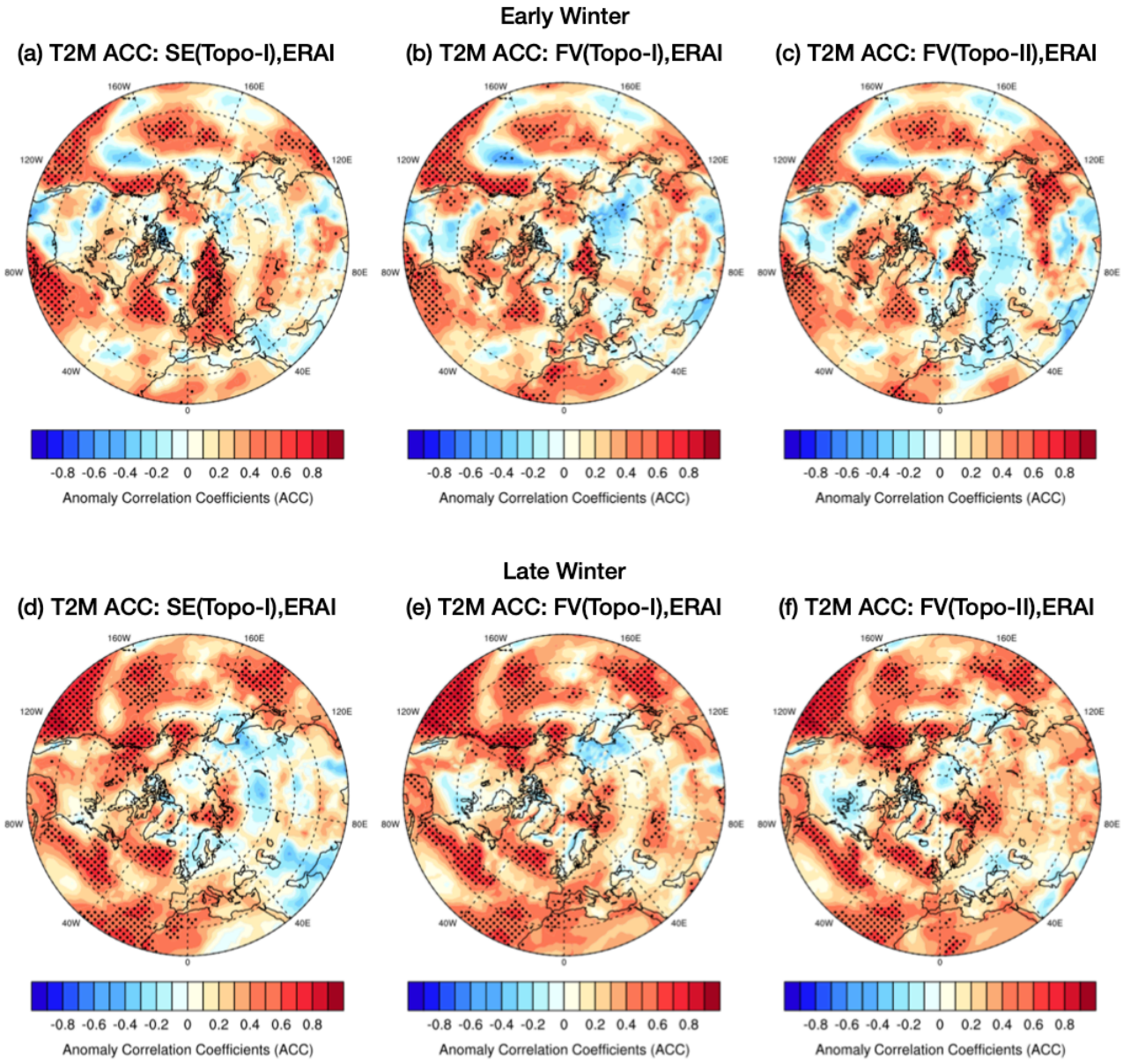

Figure S 1: Same as Figure 3 except for the filled mask on the ocean area.

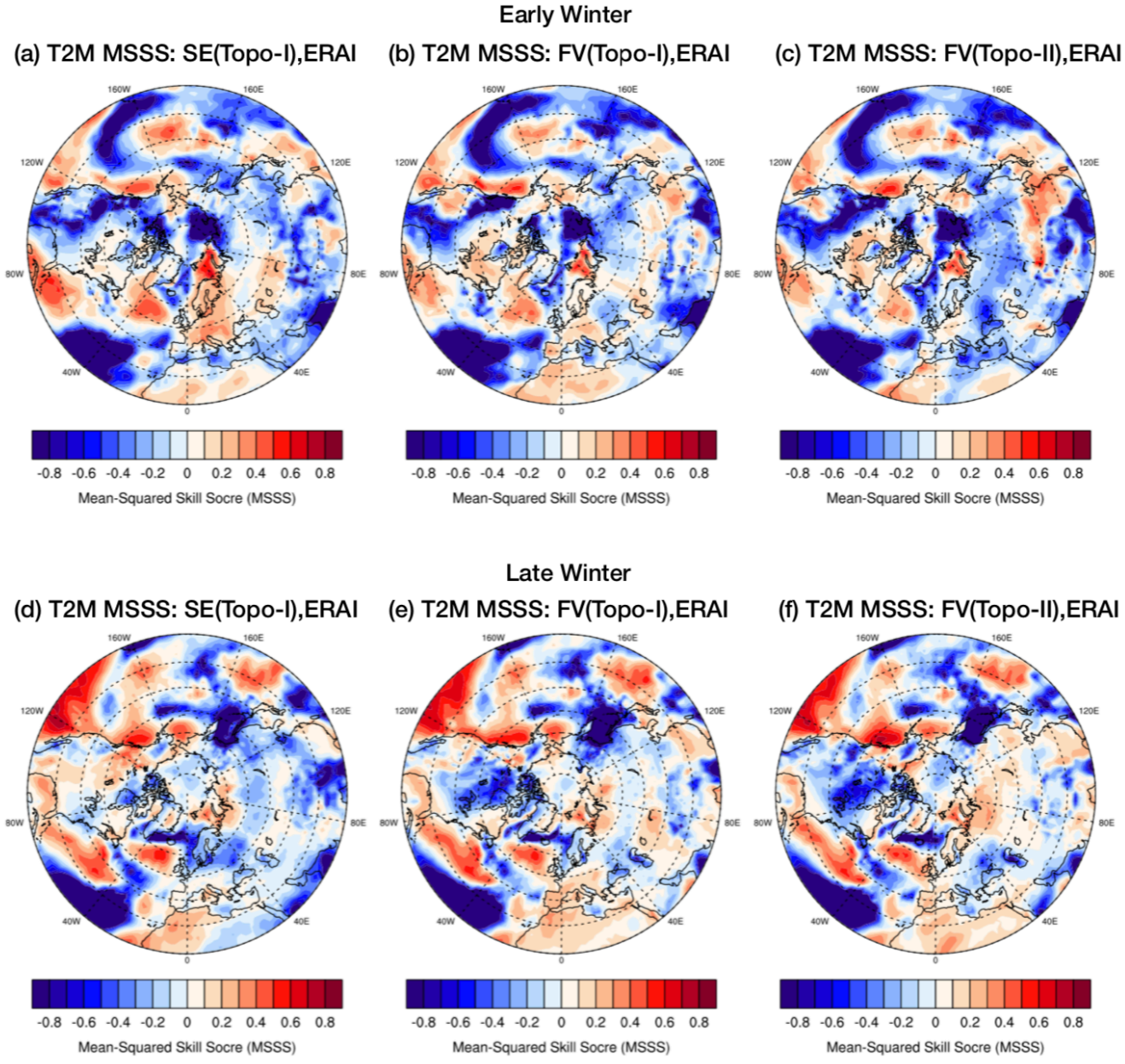

Figure S 2: Same as Figure 4 except for the filled mask on the ocean area.

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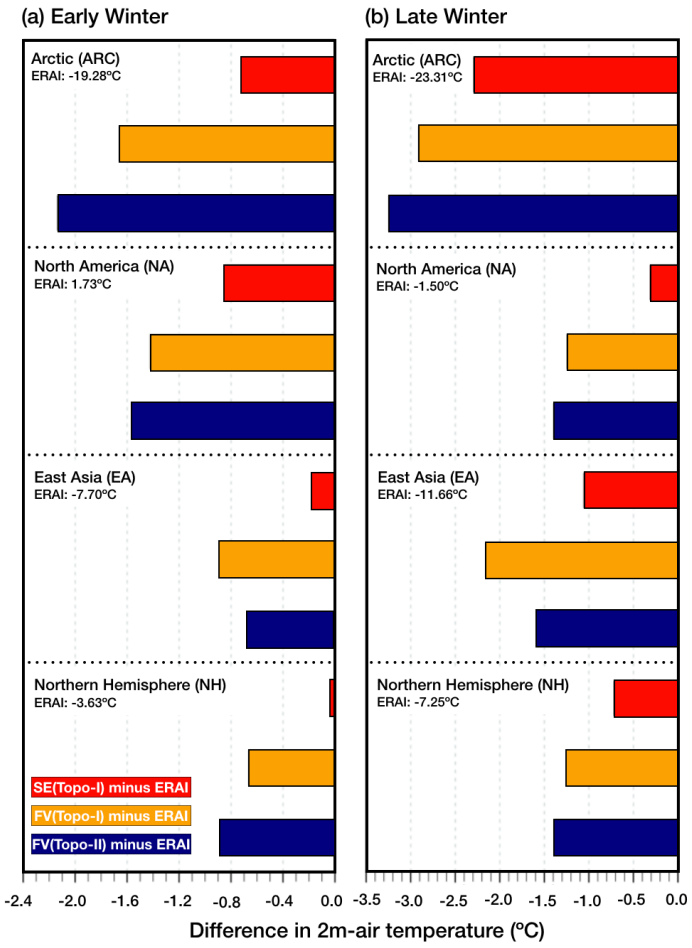

Figure S 3: Difference in 2m-air temperature between models and ERA-Interim reanalysis (ERAI) during (a) early winter, (b) late winter. Difference for SE (Topo-I) (red), FV(Topo-I) (yellow), FV(Topo-II) (blue) model on Arctic (ARC), North America (NA), East Asia (EA), and Northern Hemisphere (NH).