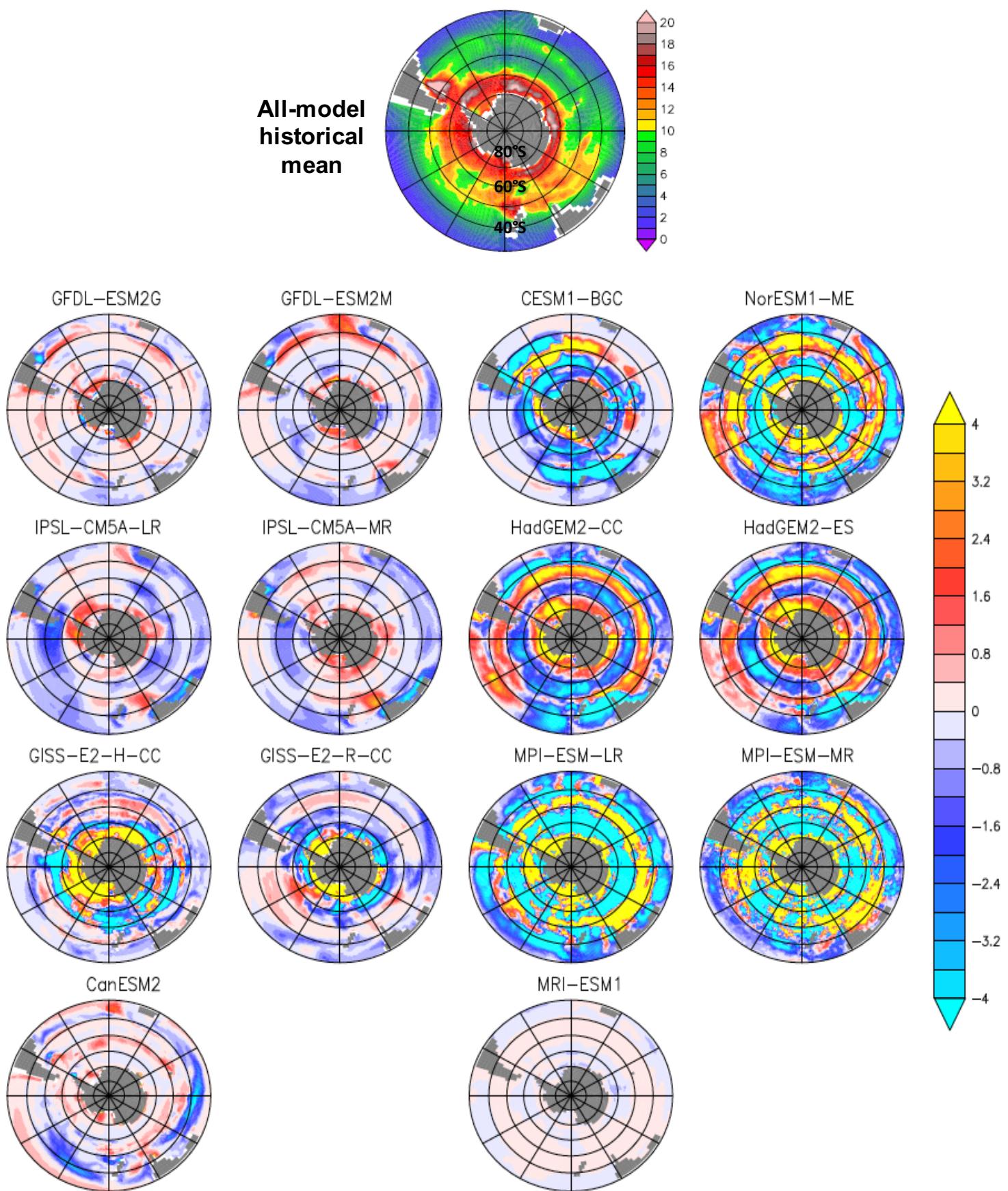
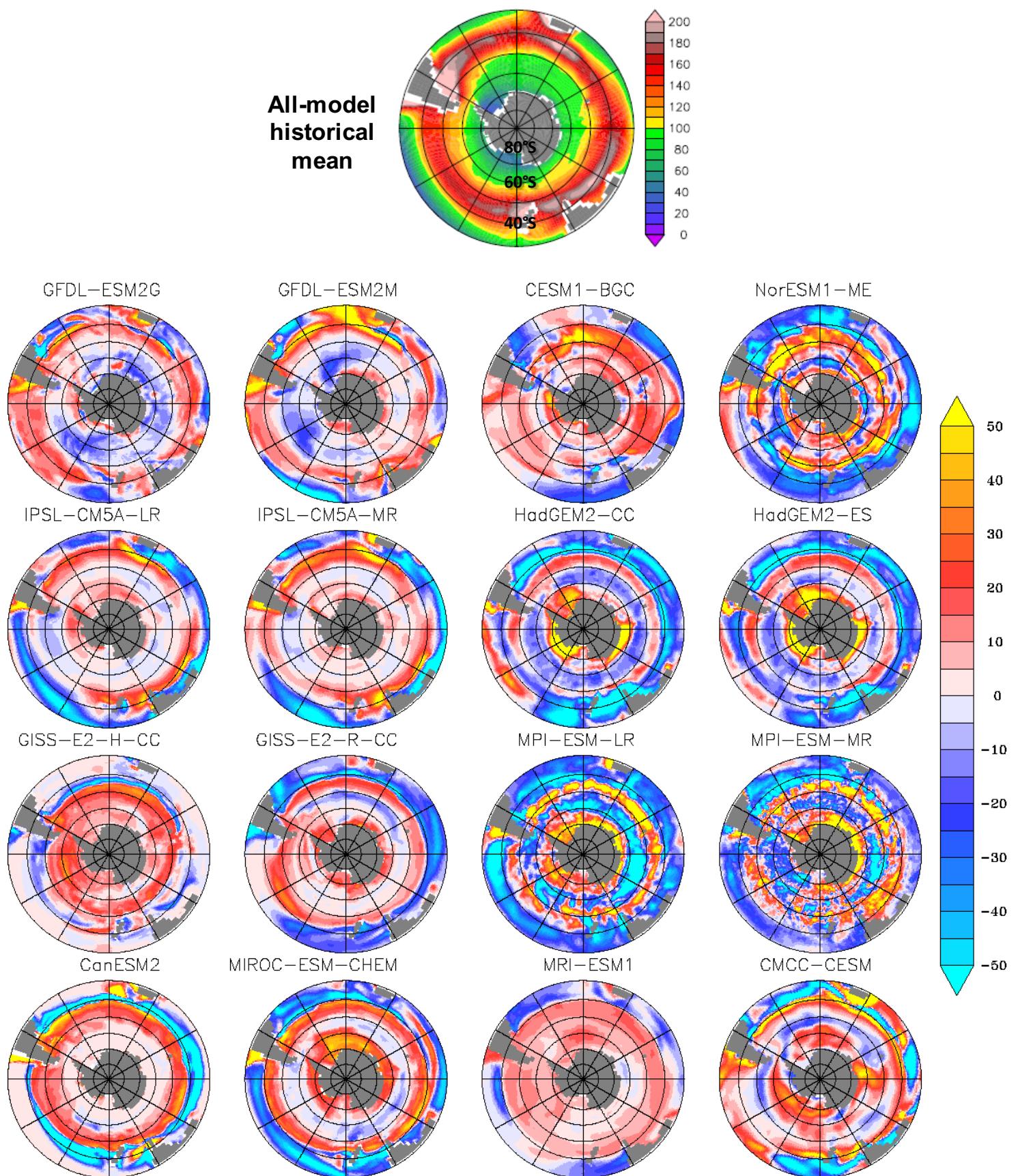


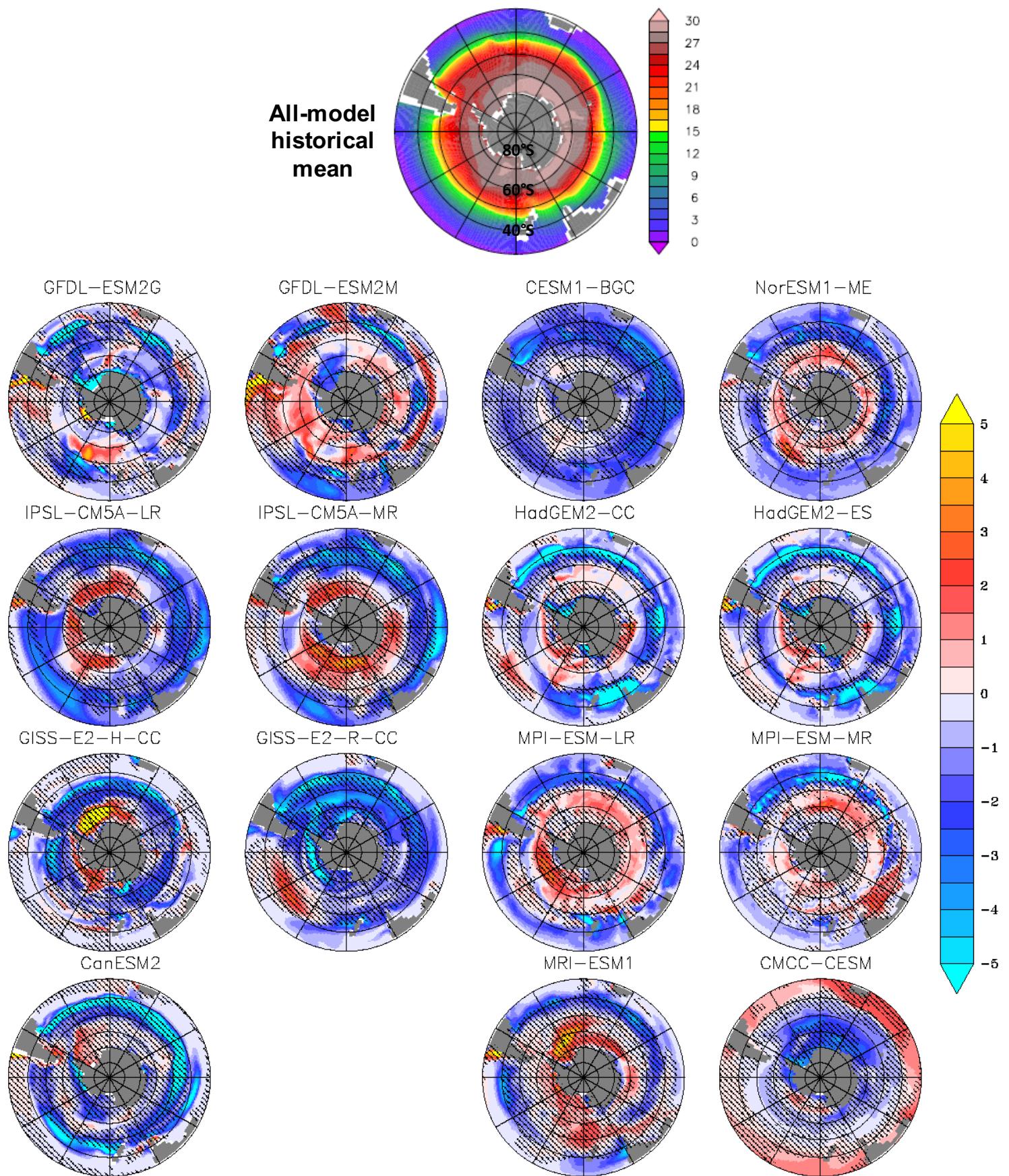
**Fig. S1:  $\Delta$  Maximum annual surface phytoplankton biomass (PB) (mmol m<sup>-3</sup>)**



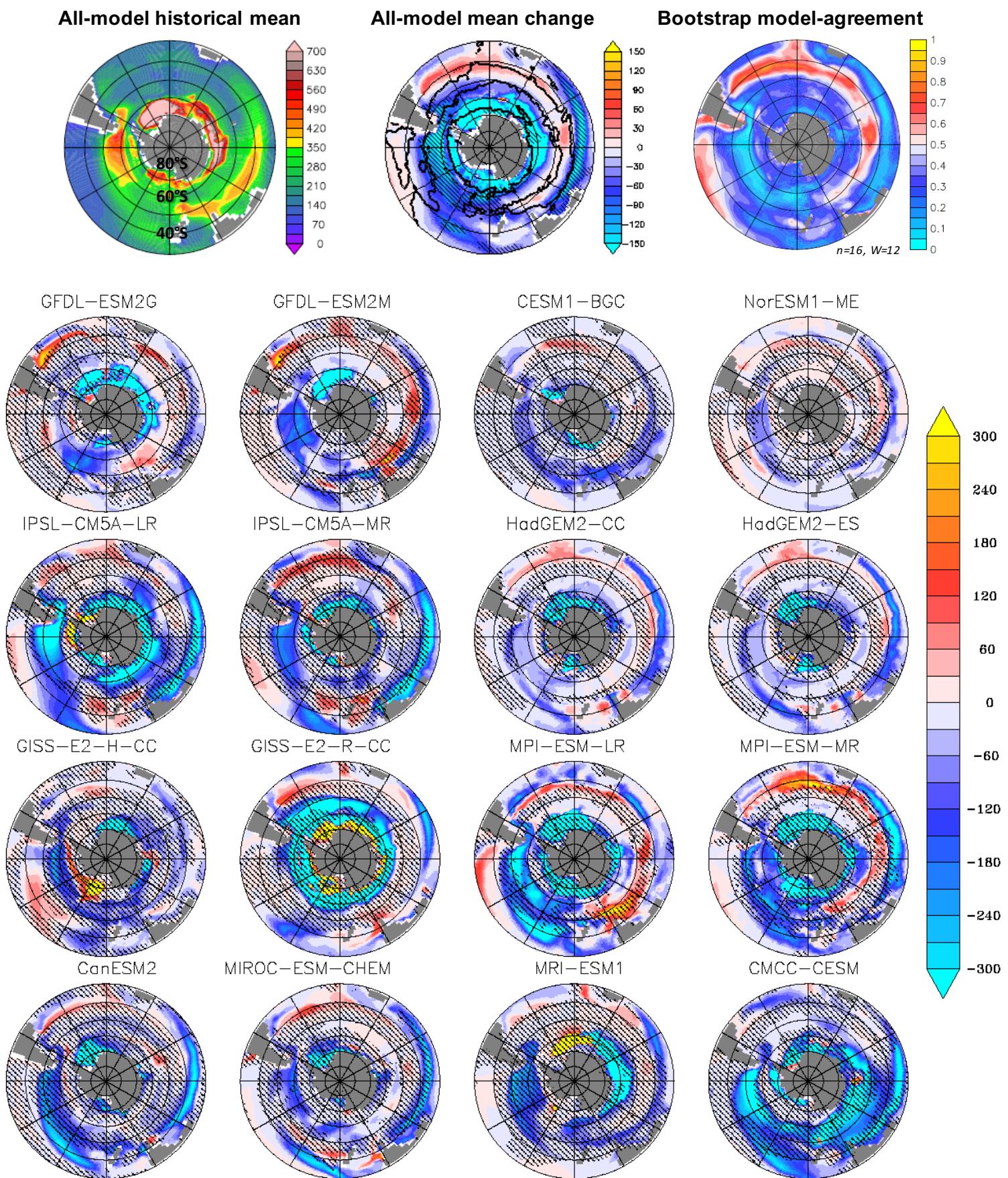
**Fig. S2:  $\Delta$  Average annual vertically integrated production (PP)  
( $\text{gC m}^{-2} \text{yr}^{-1}$ )**



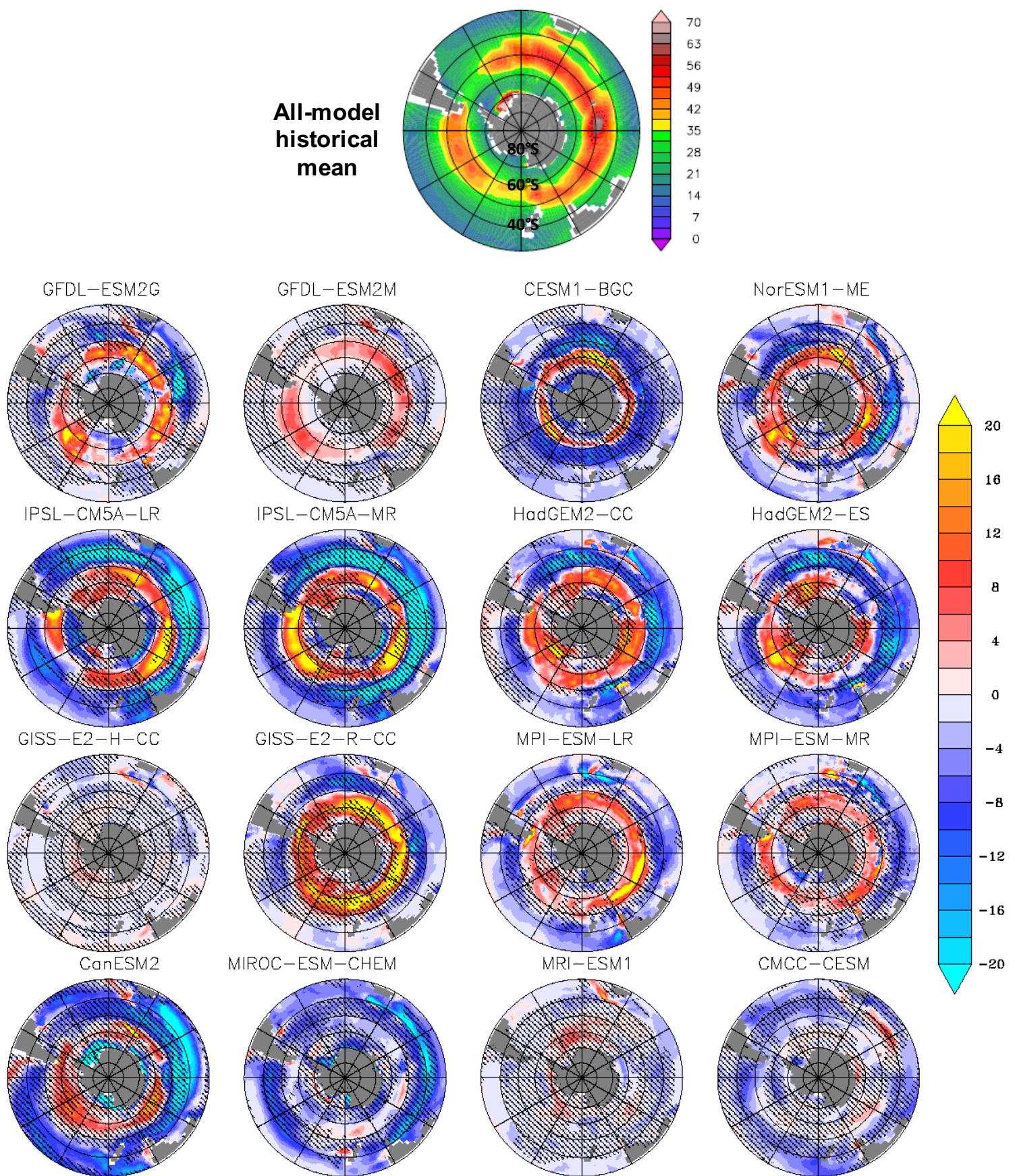
**Fig. S3:  $\Delta$  Wintertime (maximum annual) surface  $\text{NO}_3$  concentrations ( $\text{mmol m}^{-3}$ )**



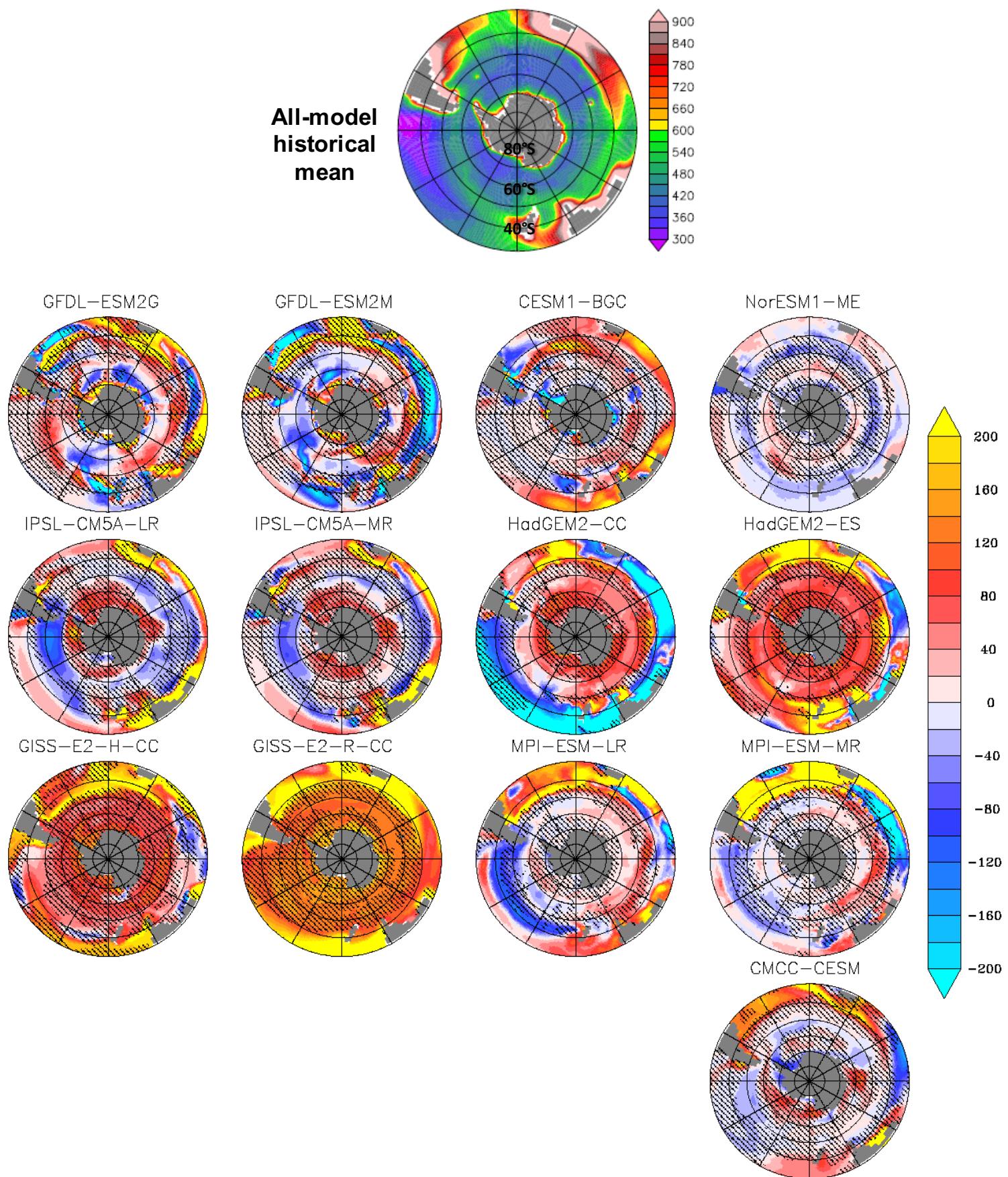
**Fig. S4:  $\Delta$  Wintertime (maximum annual) mixed layer depth (MLD) (m)**



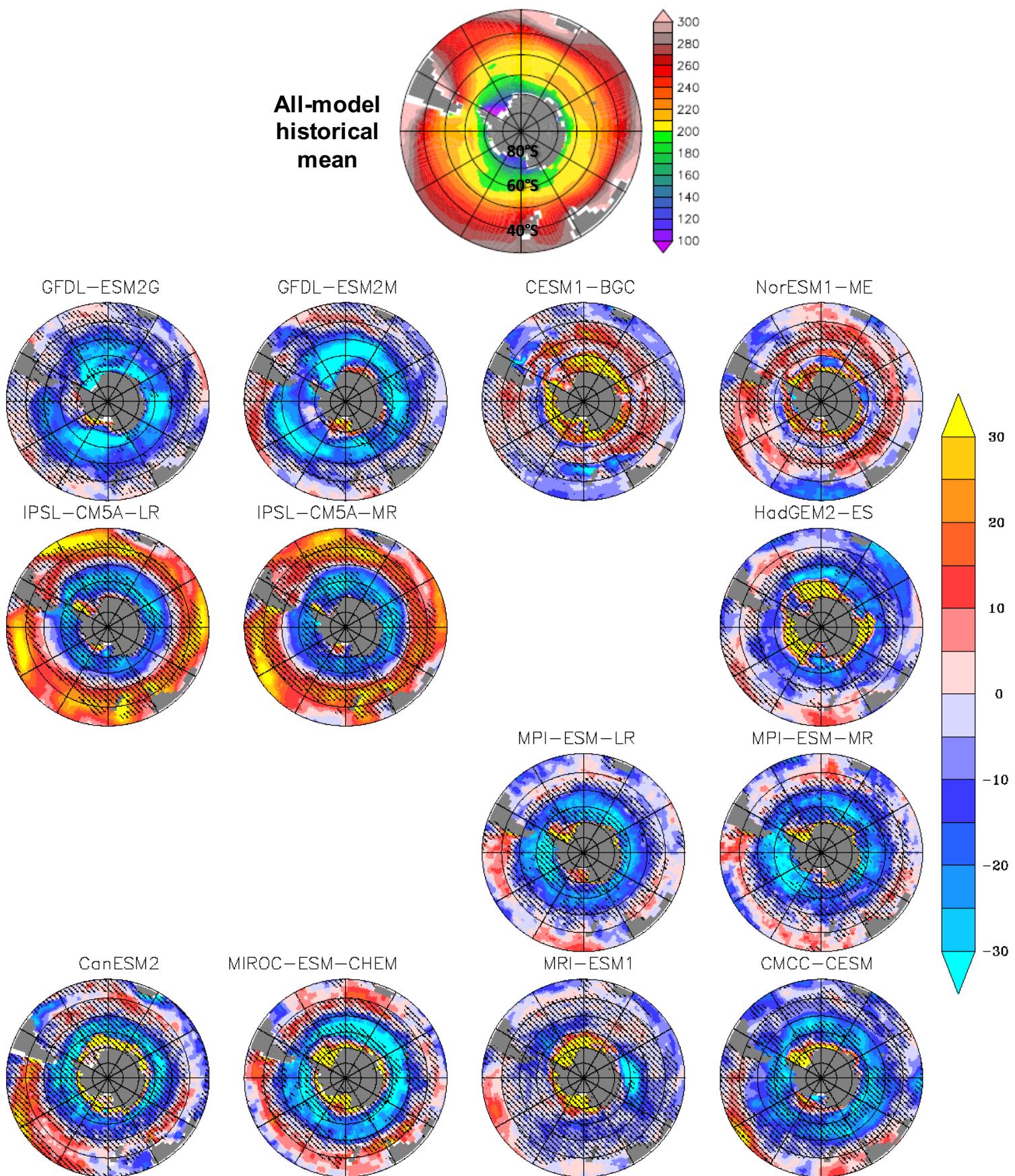
**Fig. S5:  $\Delta$  Summertime (minimum annual) mixed layer depth (MLD) (m)**



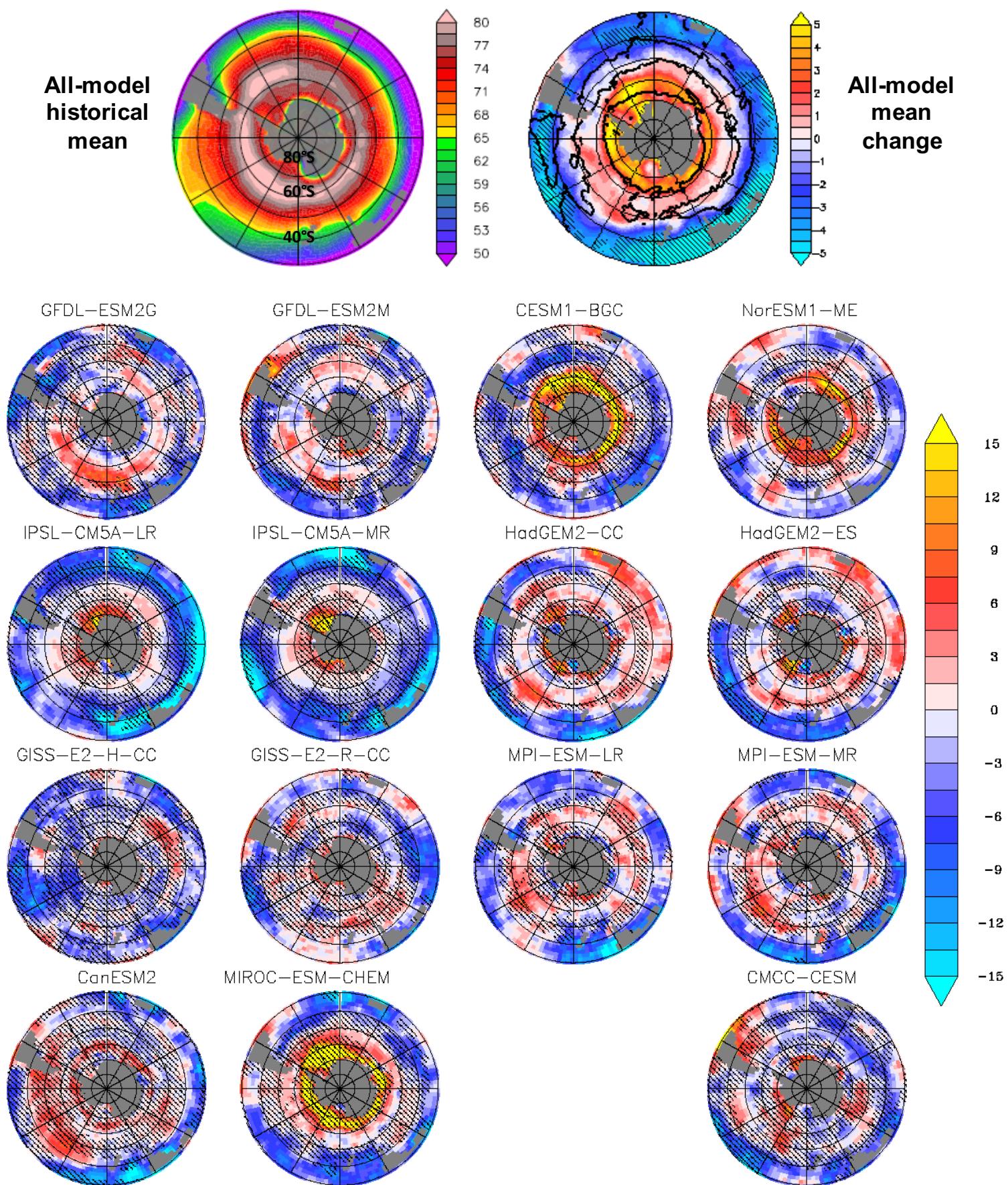
**Fig. S6:  $\Delta$  Wintertime (maximum annual) surface dissolved iron concentrations ( $\text{nmol m}^{-3}$ )**



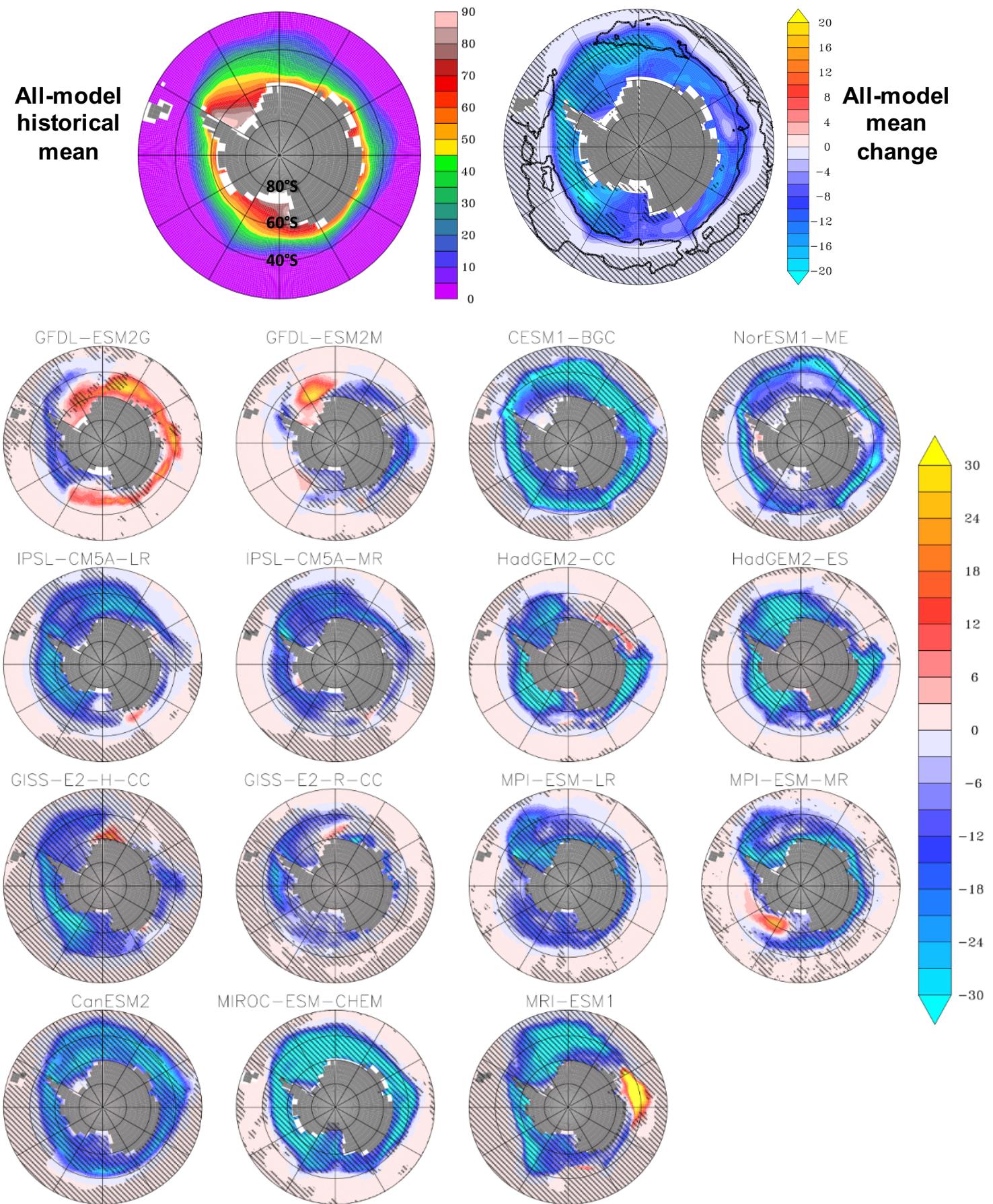
**Fig. S7:  $\Delta$  Summertime (maximum annual) IPAR  
(W m<sup>-2</sup>)**



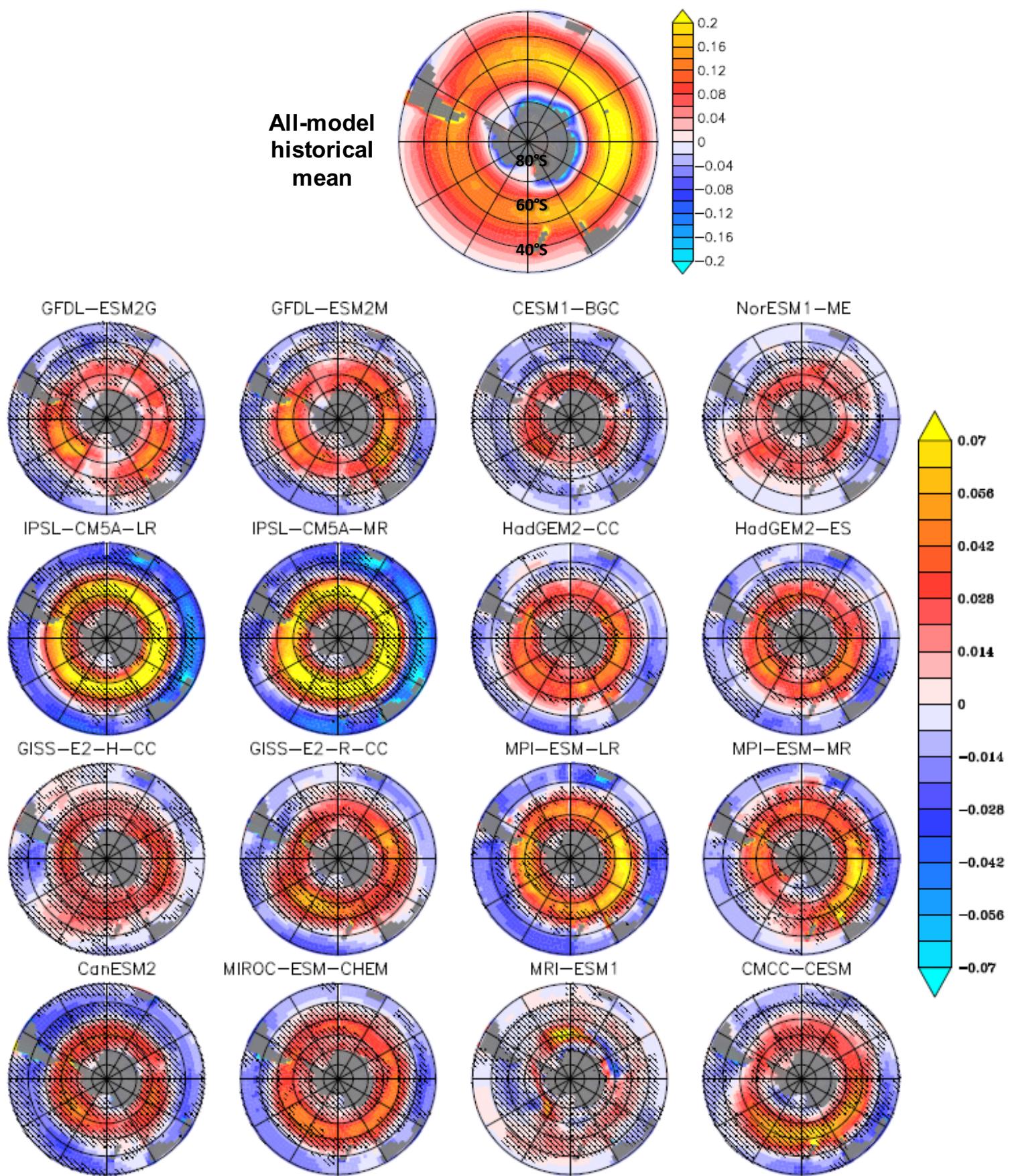
**Fig. S8:  $\Delta$  Average summer (DJF) total cloud area fraction (%)**



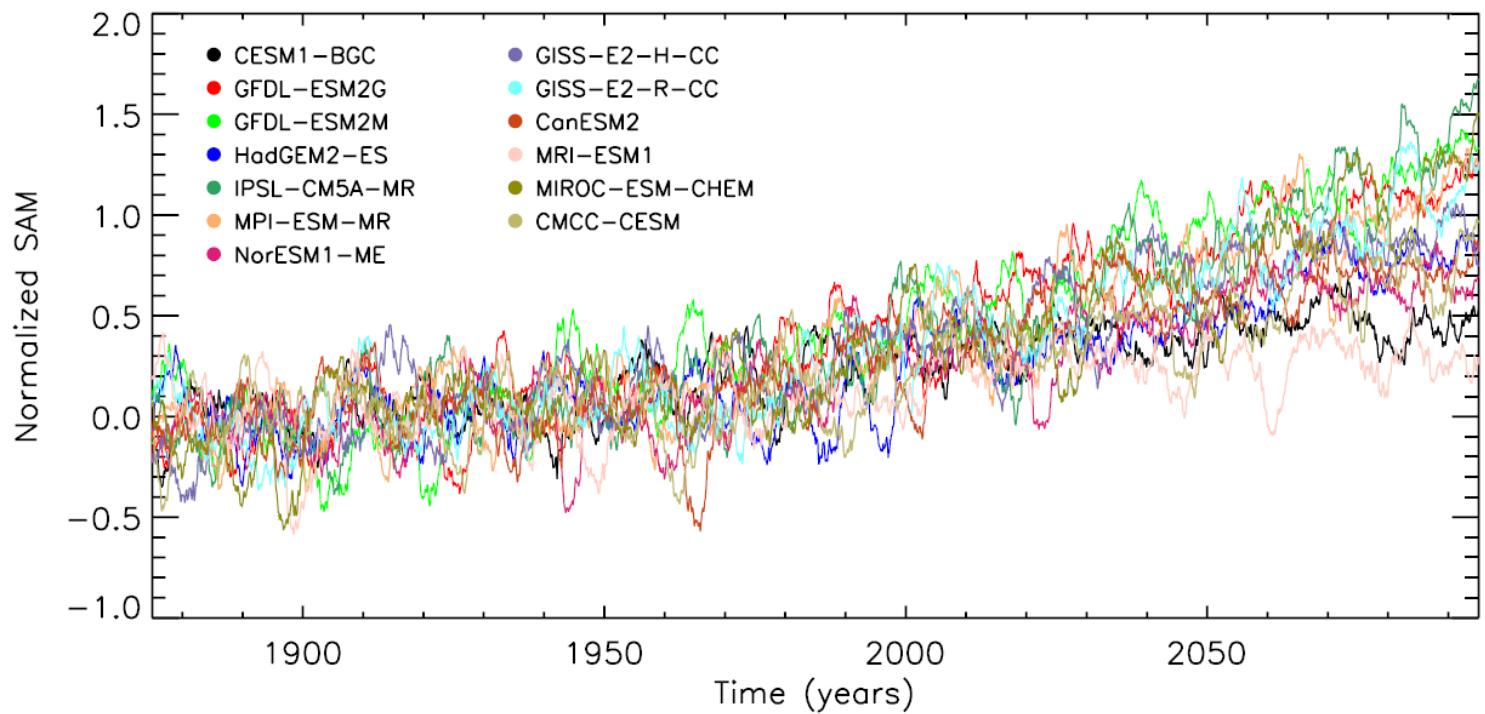
**Fig. S9:  $\Delta$  Average annual sea ice area fraction (%)**



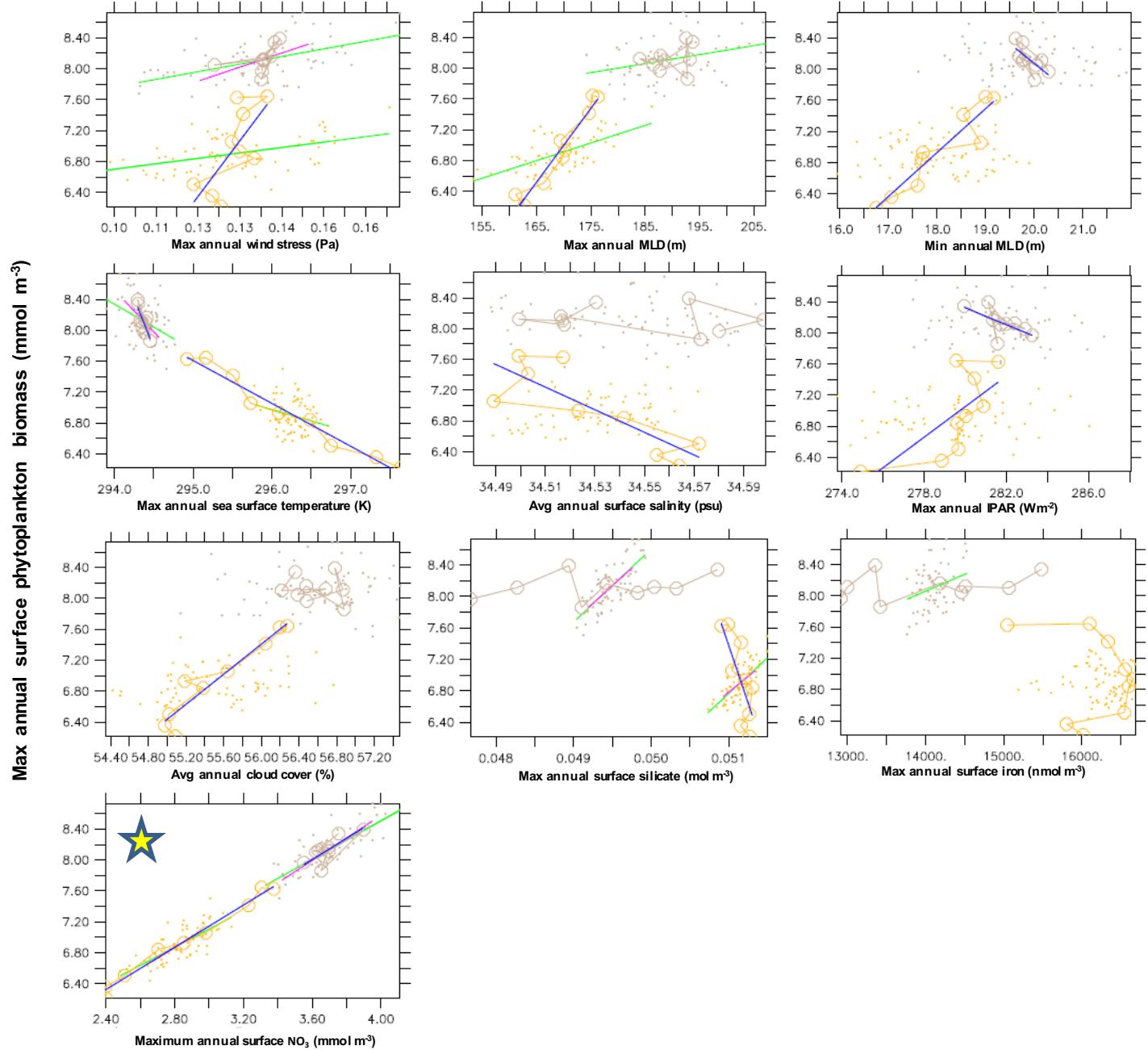
**Fig. S10:  $\Delta$  Average annual zonal wind stress (Pa)**



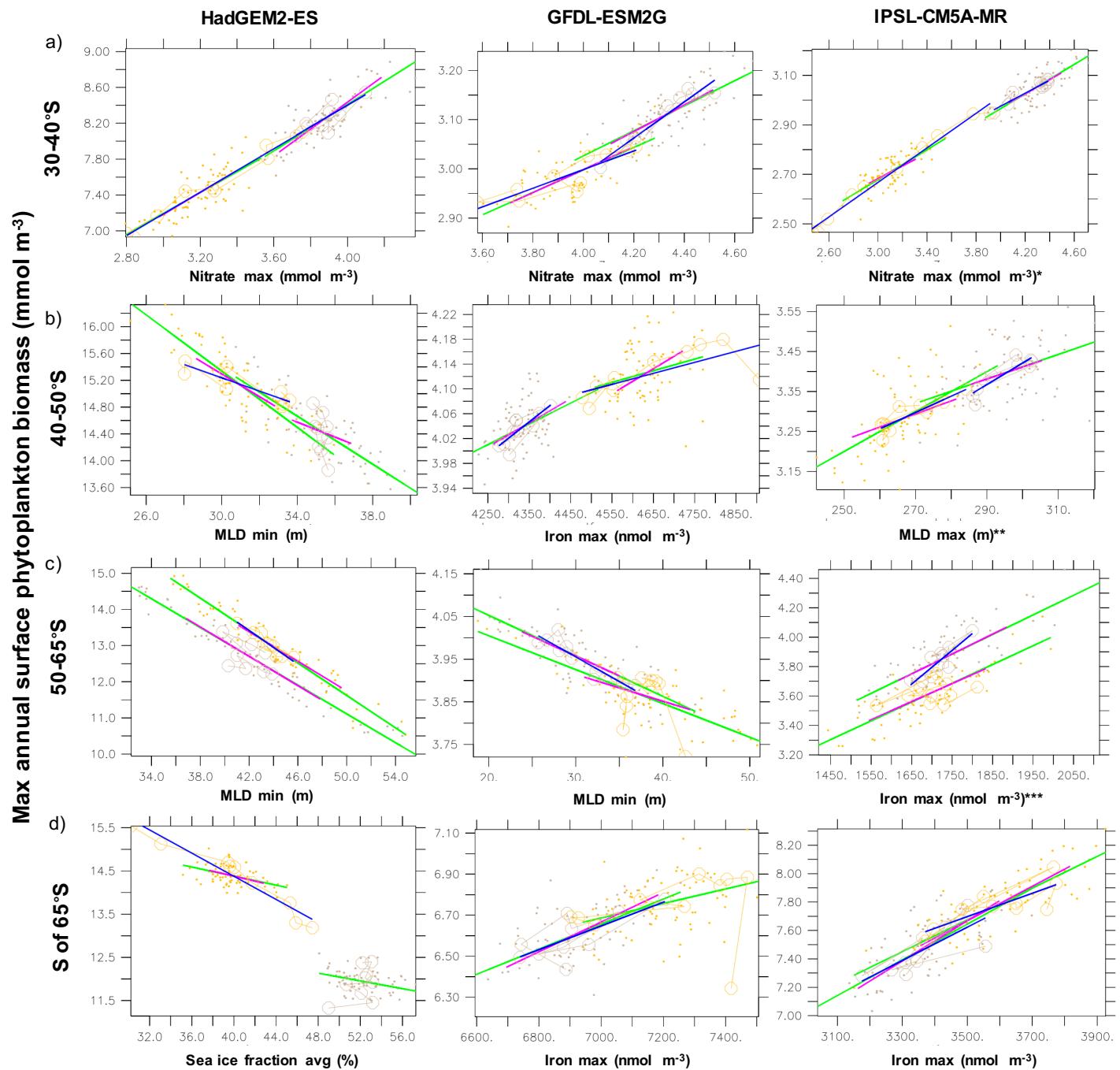
**Fig. S11: SAM time series in CMIP5 models**



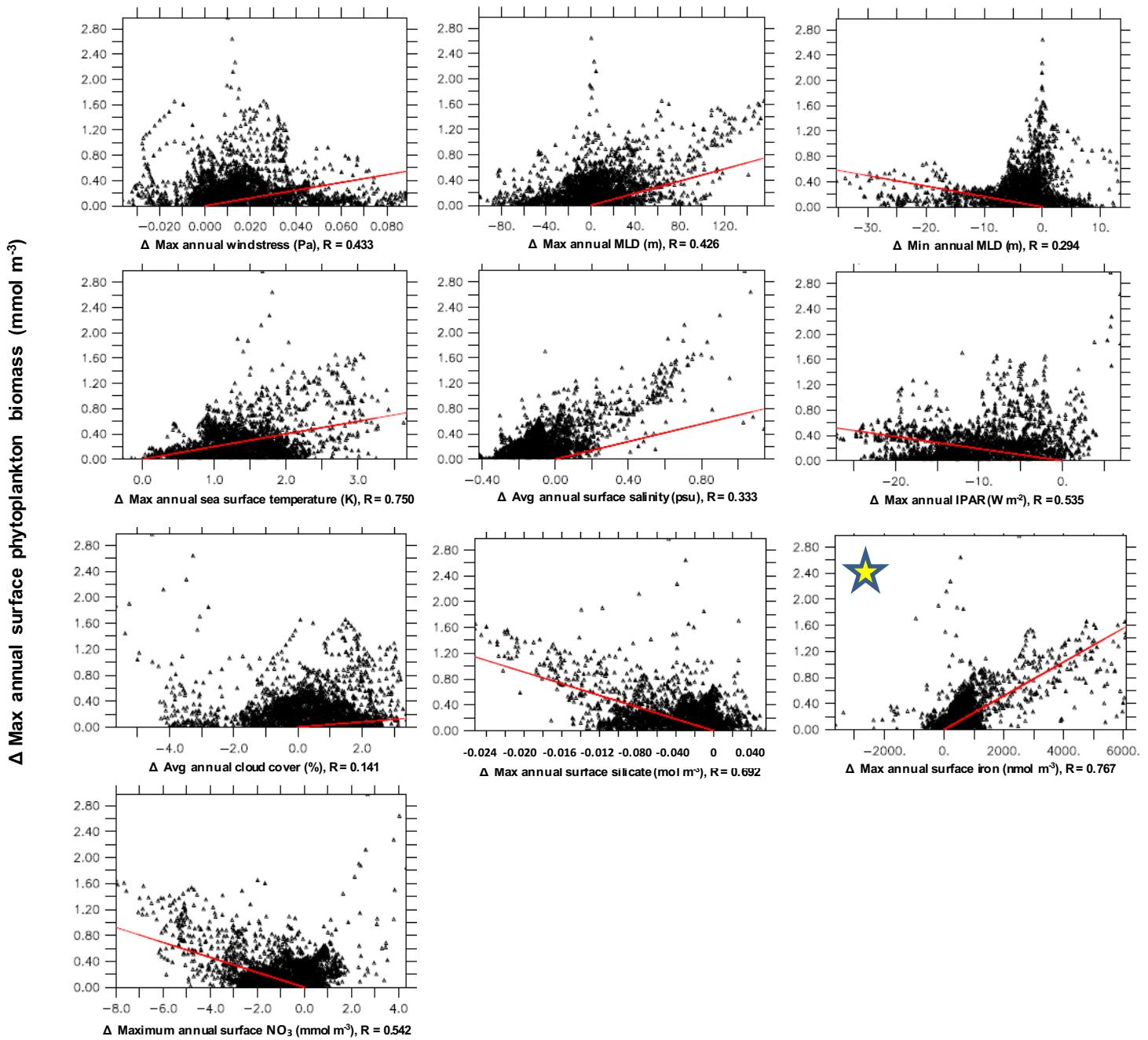
**Fig. S12: Chosen vs. unchosen driving variables for Fig. 2**



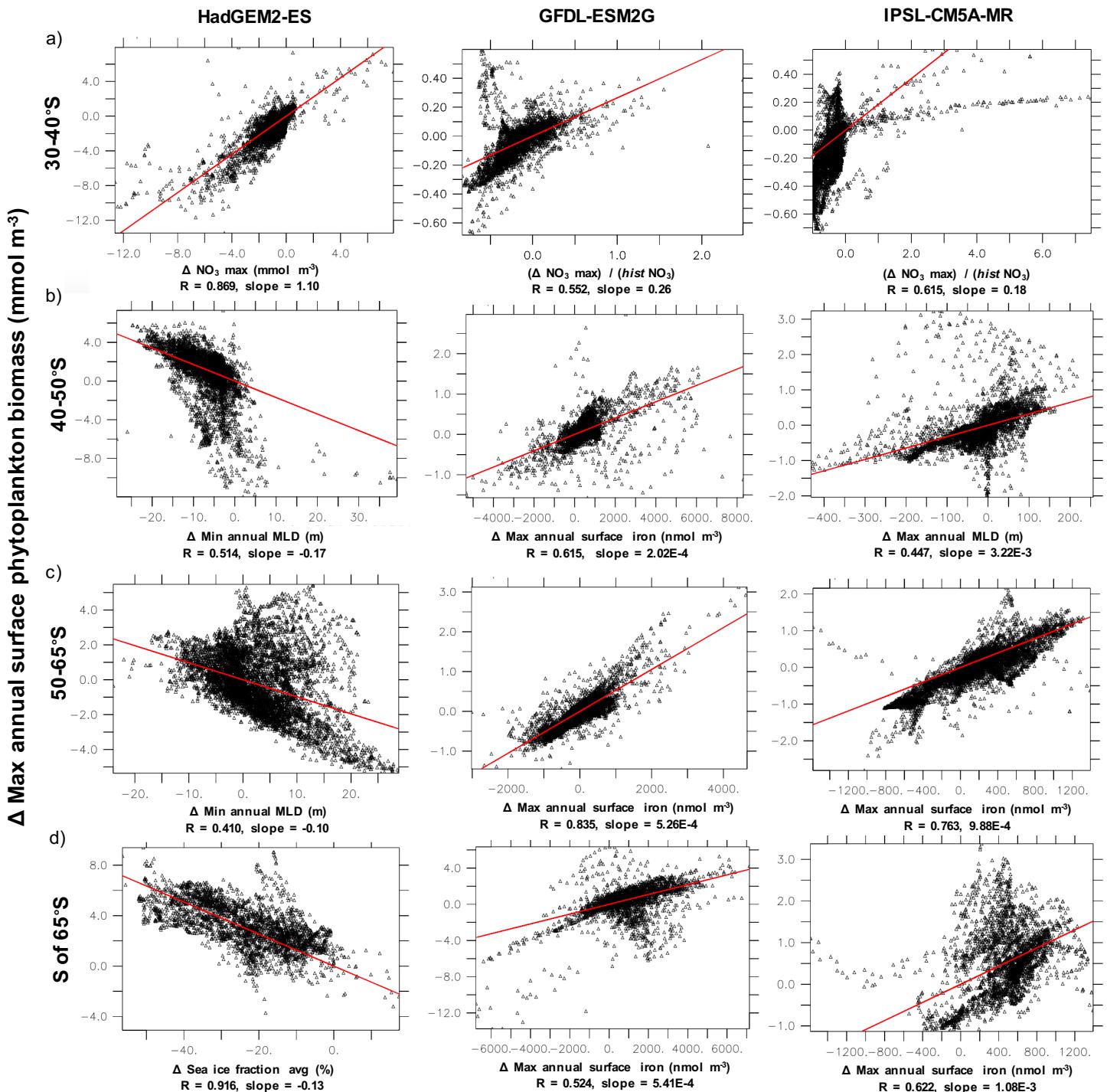
**Fig. S13: Unmasked multiple timescale temporal correlations  
(unmasked version of Fig. 2)**



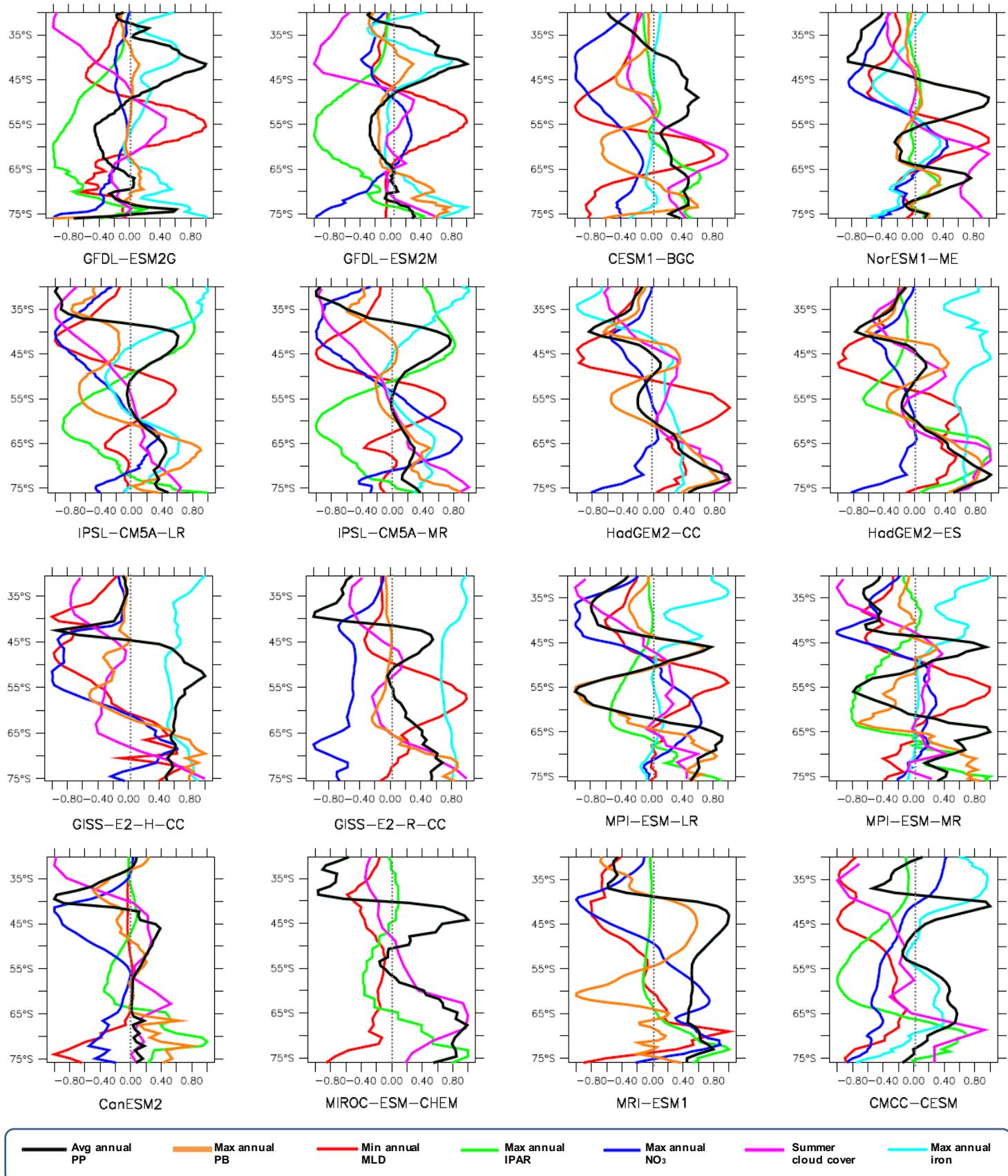
**Fig. S14: Chosen vs. unchosen driving variables for Fig. 3**



**Fig. S15: Unmasked 100-year change spatial correlations  
(unmasked version of Fig. 3)**



**Fig. S16: Normalized zonally-averaged 100-year changes in individual models**



|                  |                  |                   |                    |                               |                       |                    |
|------------------|------------------|-------------------|--------------------|-------------------------------|-----------------------|--------------------|
| Avg annual<br>PP | Max annual<br>PB | Min annual<br>MLD | Max annual<br>IPAR | Max annual<br>NO <sub>3</sub> | Summer<br>cloud cover | Max annual<br>iron |
|------------------|------------------|-------------------|--------------------|-------------------------------|-----------------------|--------------------|

**Fig. S17: All-model zonally-averaged *historical* means and 100-year absolute changes**

