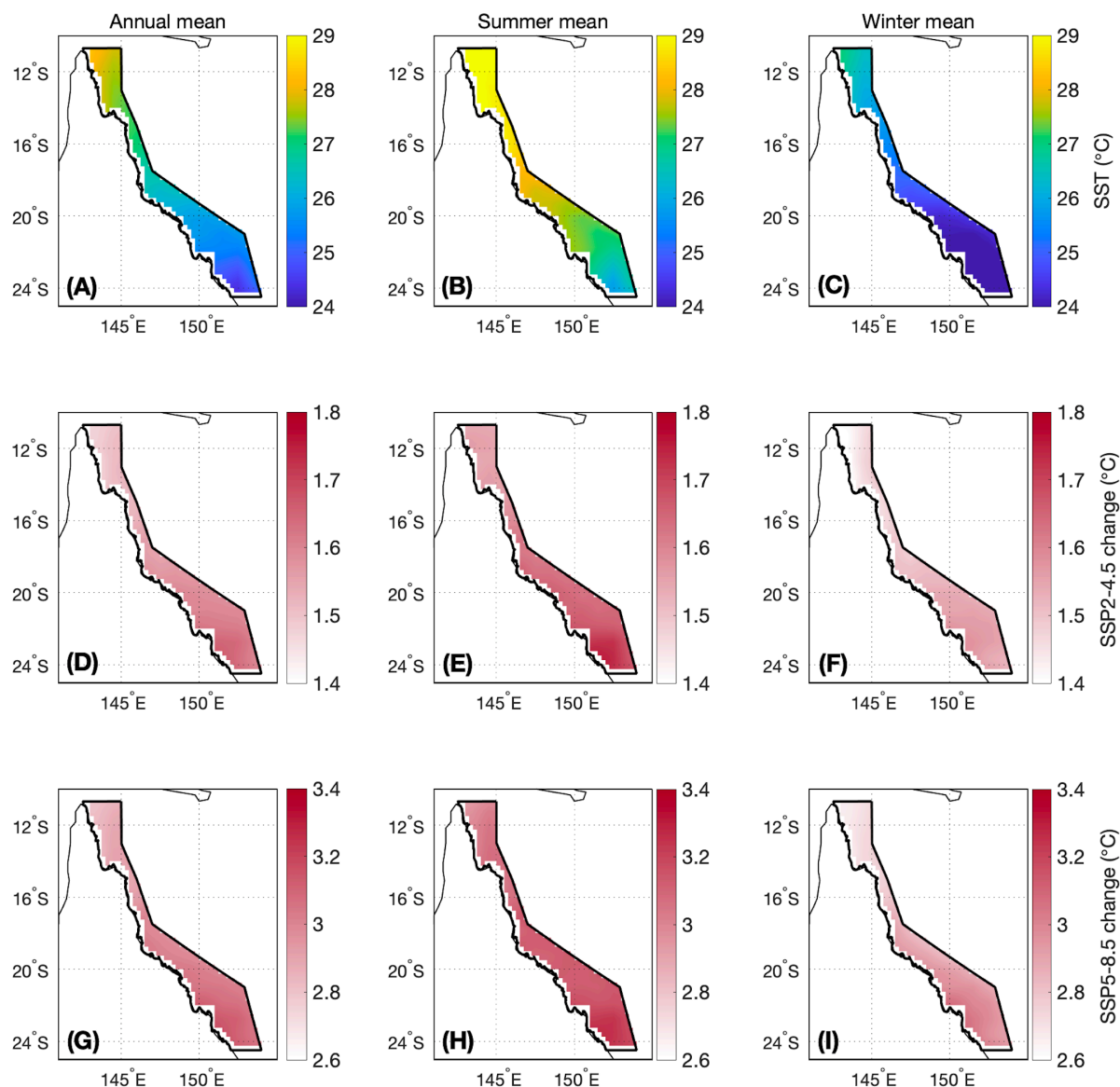
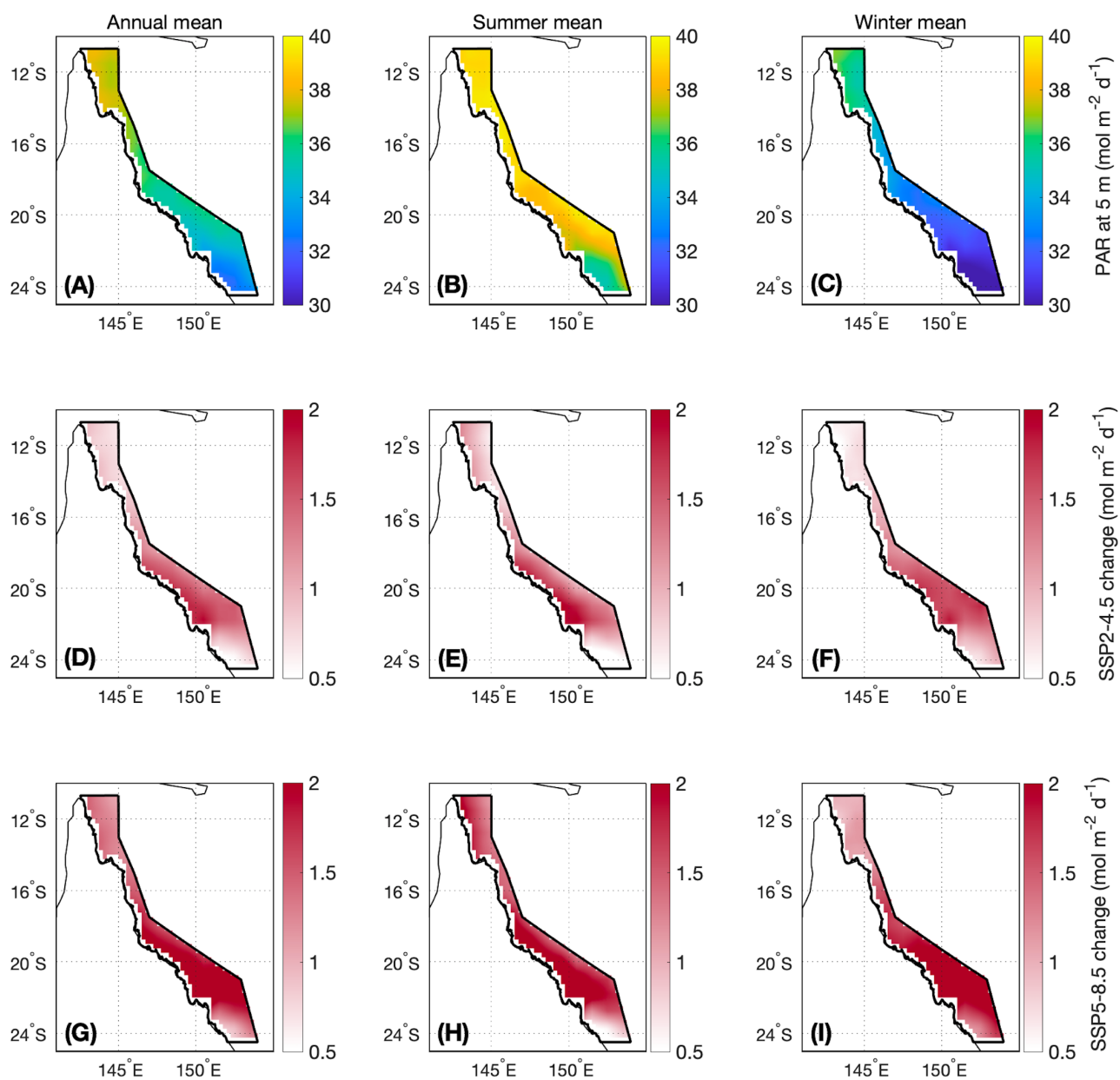


Supplementary Material

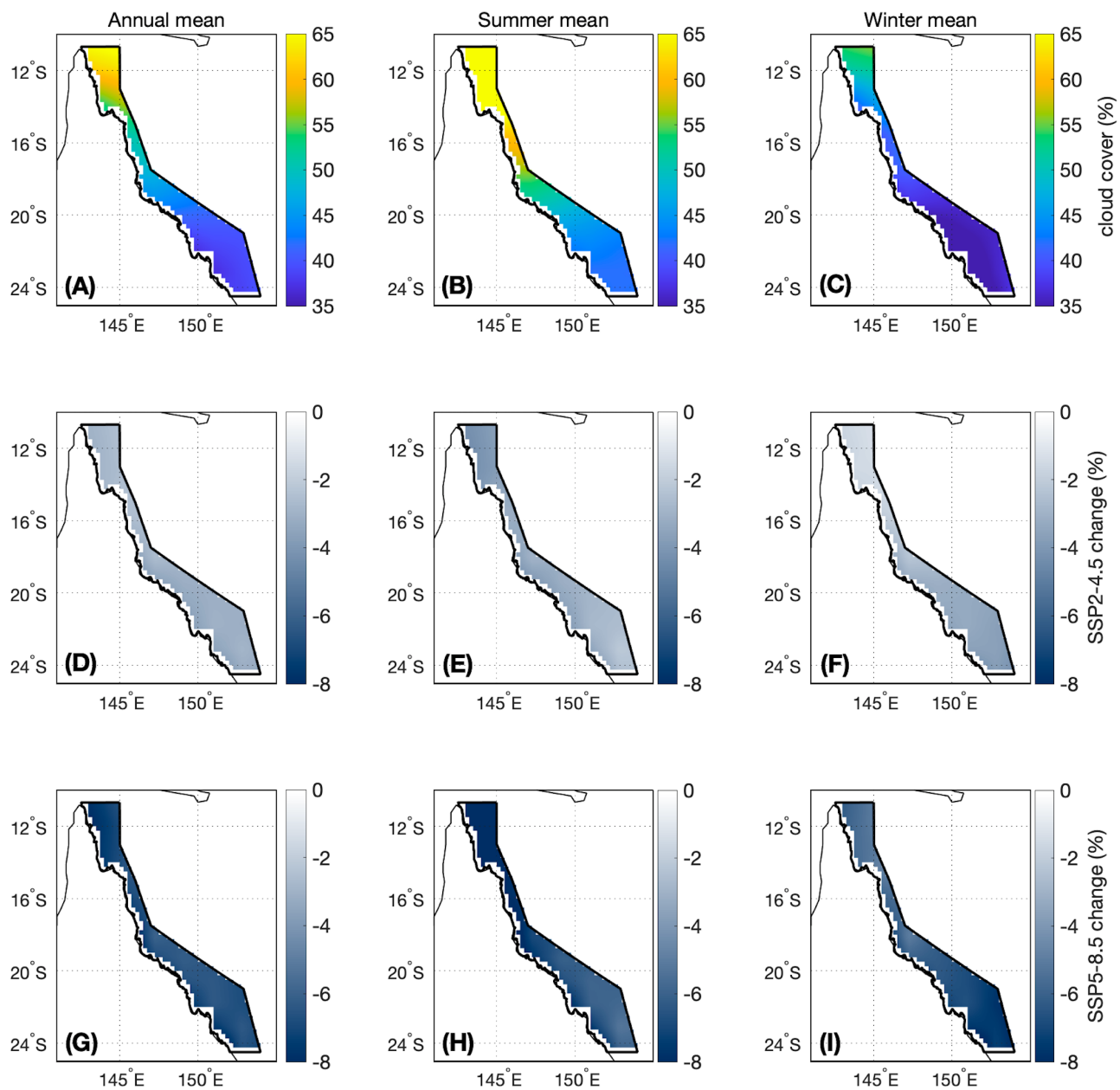
Modelled annual and seasonal mean sea surface temperature (SST; °C), photosynthetically active radiation at 5 m (PAR; mol m⁻² d⁻¹), cloud cover (%), diffuse attenuation coefficient (k_{490} ; m⁻¹), wind speed at 10 m (m s⁻¹), and dimethylsulfide gas transfer velocity (K_w ; cm hr⁻¹) is shown below for a contemporary (2001-2020) climate, calculated as the average of ACCESS-CM2 and ACCESS-ESM 1.5 model output for the Coupled Model Intercomparison Project Phase 6 (CMIP6). The modelled change in each variable by the end of this century (2081-2100) is shown for a SSP2-4.5 and SSP5-8.5 Shared Socioeconomic Pathway (SSP).



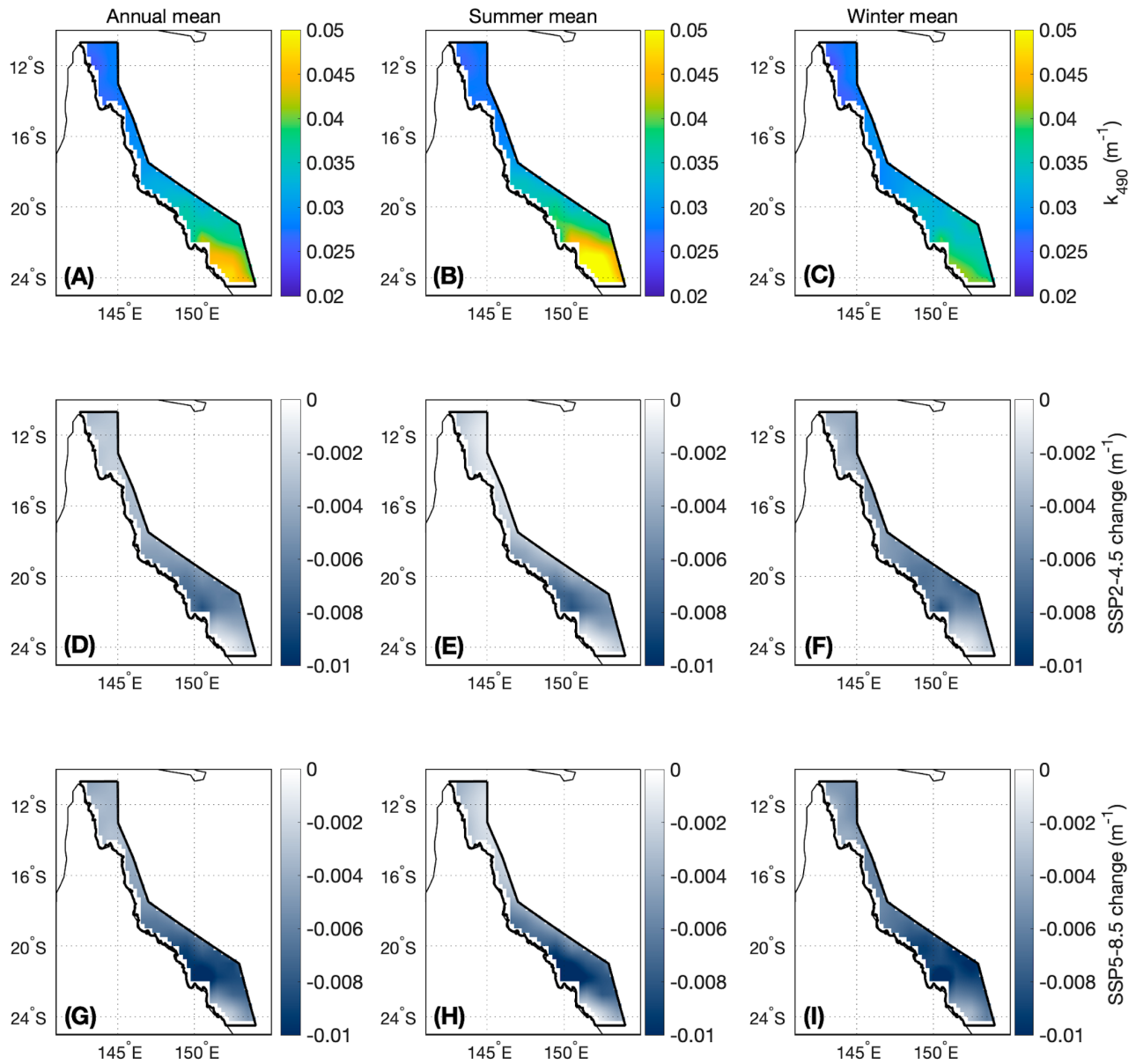
SI Figure 1. Contemporary (A) annual, (B) summer (November-April) and (C) winter (May-October) mean SST and the change in (D, G) annual, (E, H) summer and (F, I) winter mean SST by the end of this century modelled under a (middle panels) SSP2-4.5 and (lower panels) SSP5-8.5 scenario. The bold black outline shows the boundary of the Great Barrier Reef Marine Park (GBRMP). Note that the colour scales differ between the SSP-2.5 and SSP5-8.5 changes.



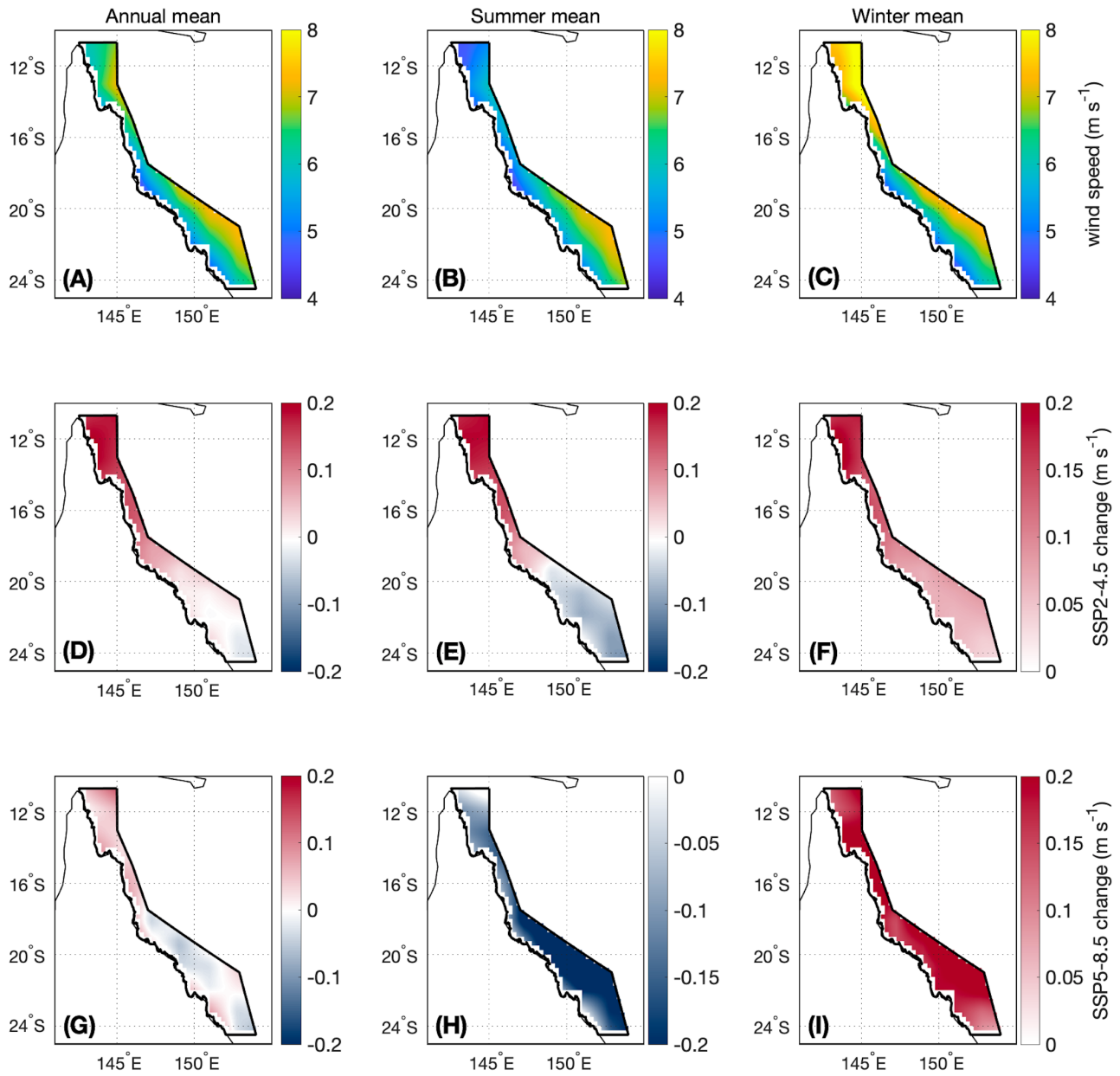
SI Figure 2. As for SI Figure 1, but for PAR at 5 m.



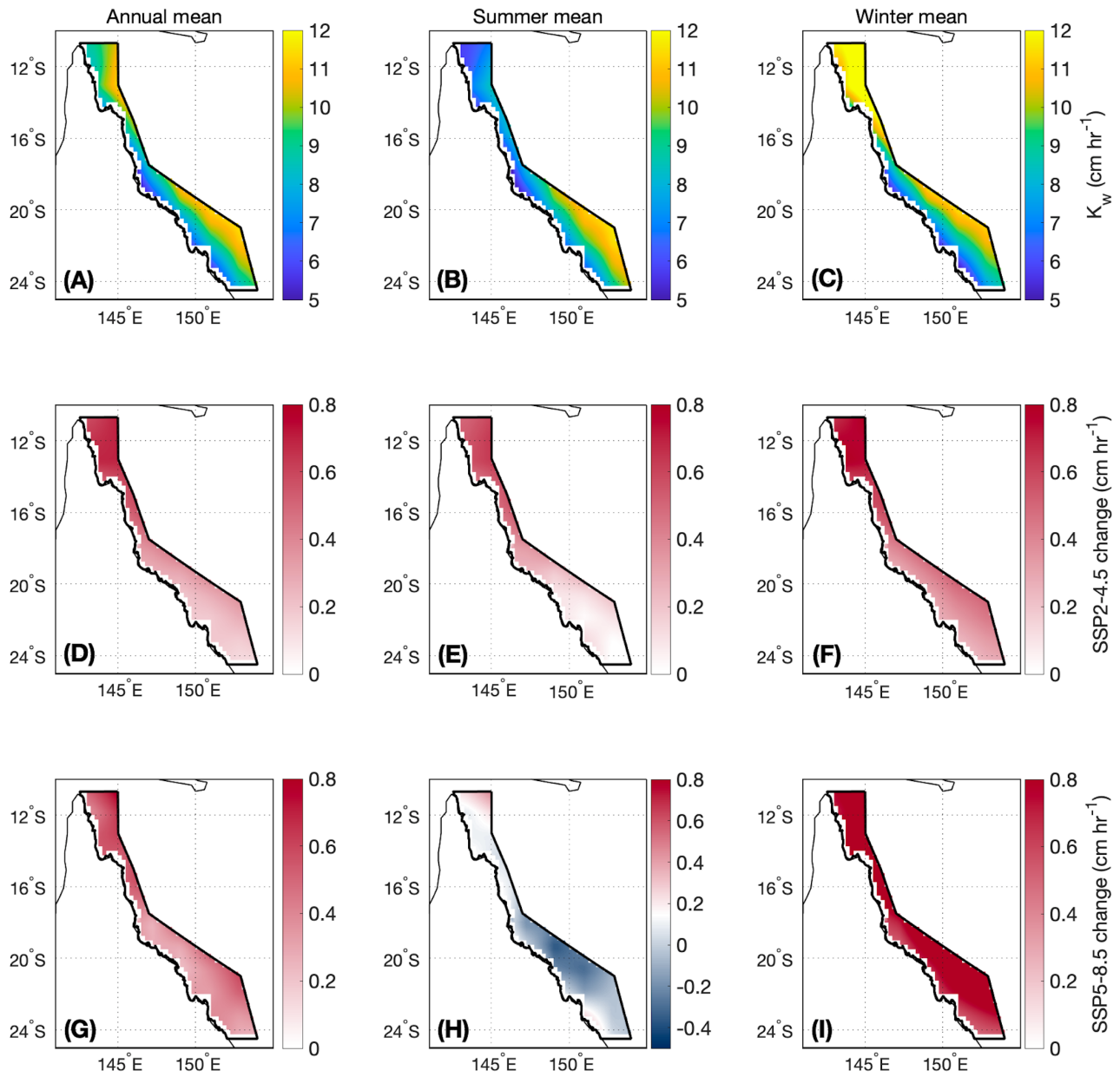
SI Figure 3. As for SI Figure 1, but for cloud cover.



SI Figure 4. As for SI Figure 1, but for k_{490} .



SI Figure 5. As for SI Figure 1, but for wind speed at 10 m.



SI Figure 6. As for SI Figure 1, but for K_w .