atmosphere

MDPI

Supplementary Materials

Evaluation of Present-Day CMIP6 Model Simulations of Extreme Precipitation and Temperature over the Australian Continent

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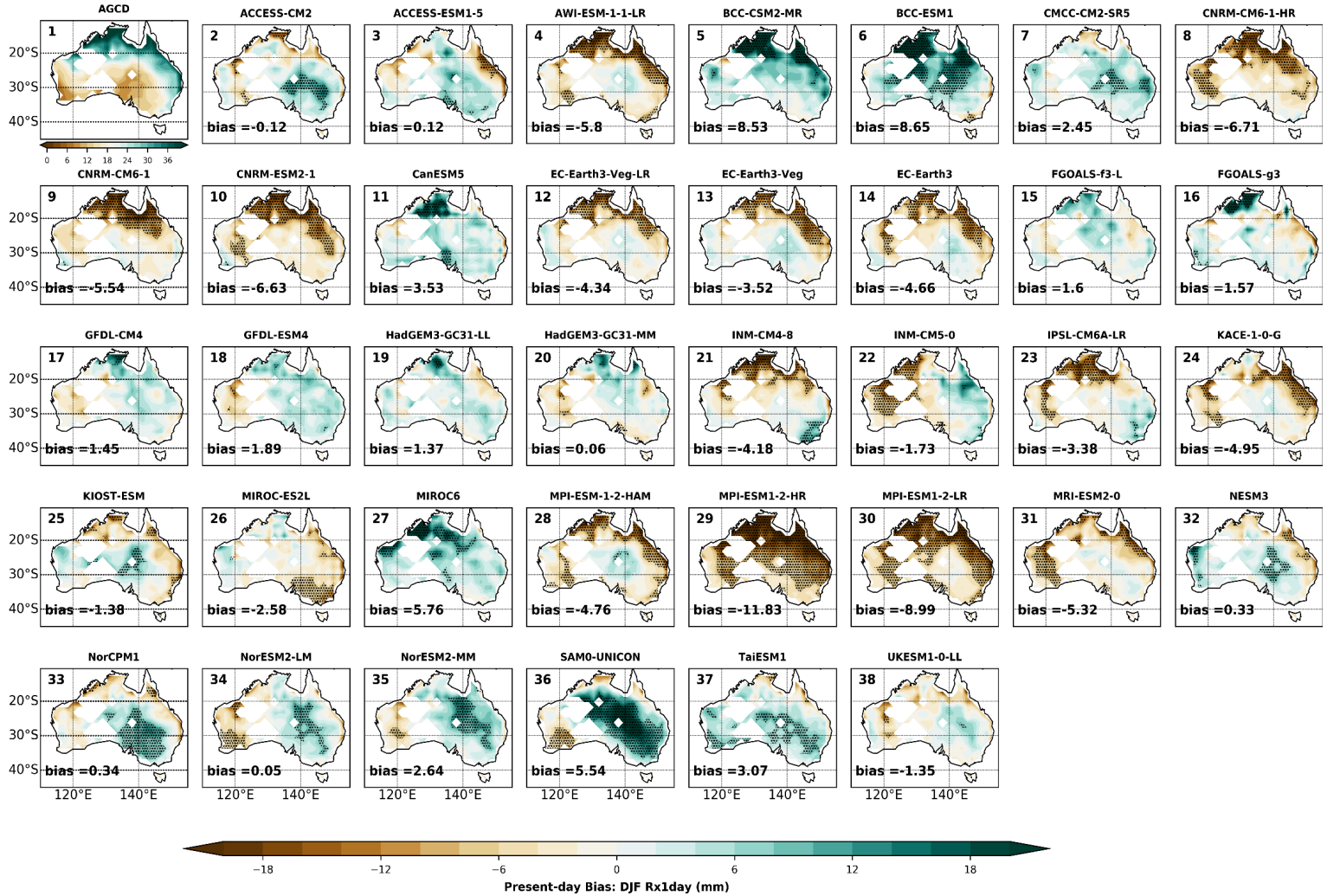

Figure S1. Climatological mean December-January-February bias in maximum 1-day precipitation (Rx1Day: mm) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951–2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

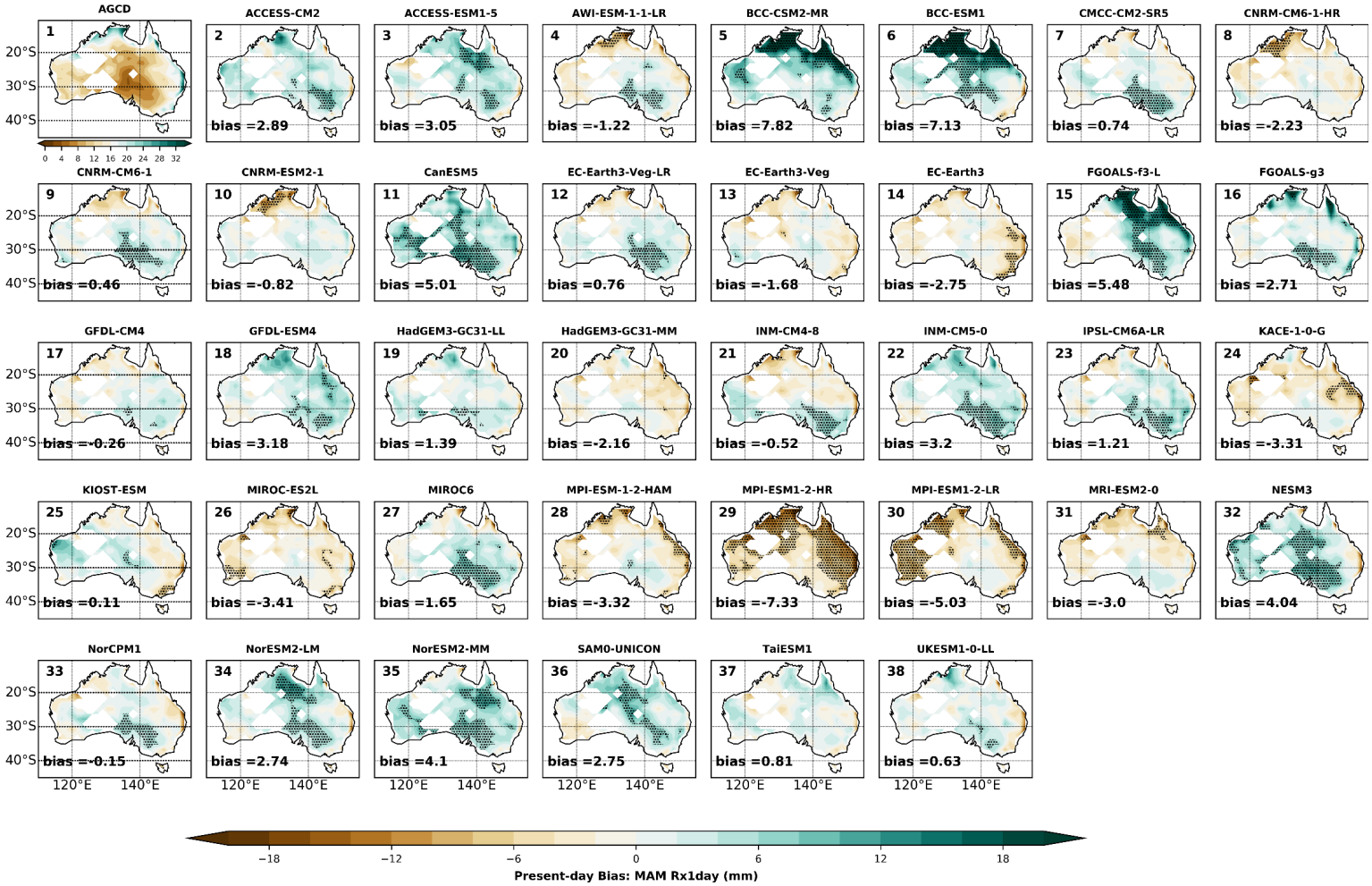

Figure S2. Same as S1 but for March-April-May.

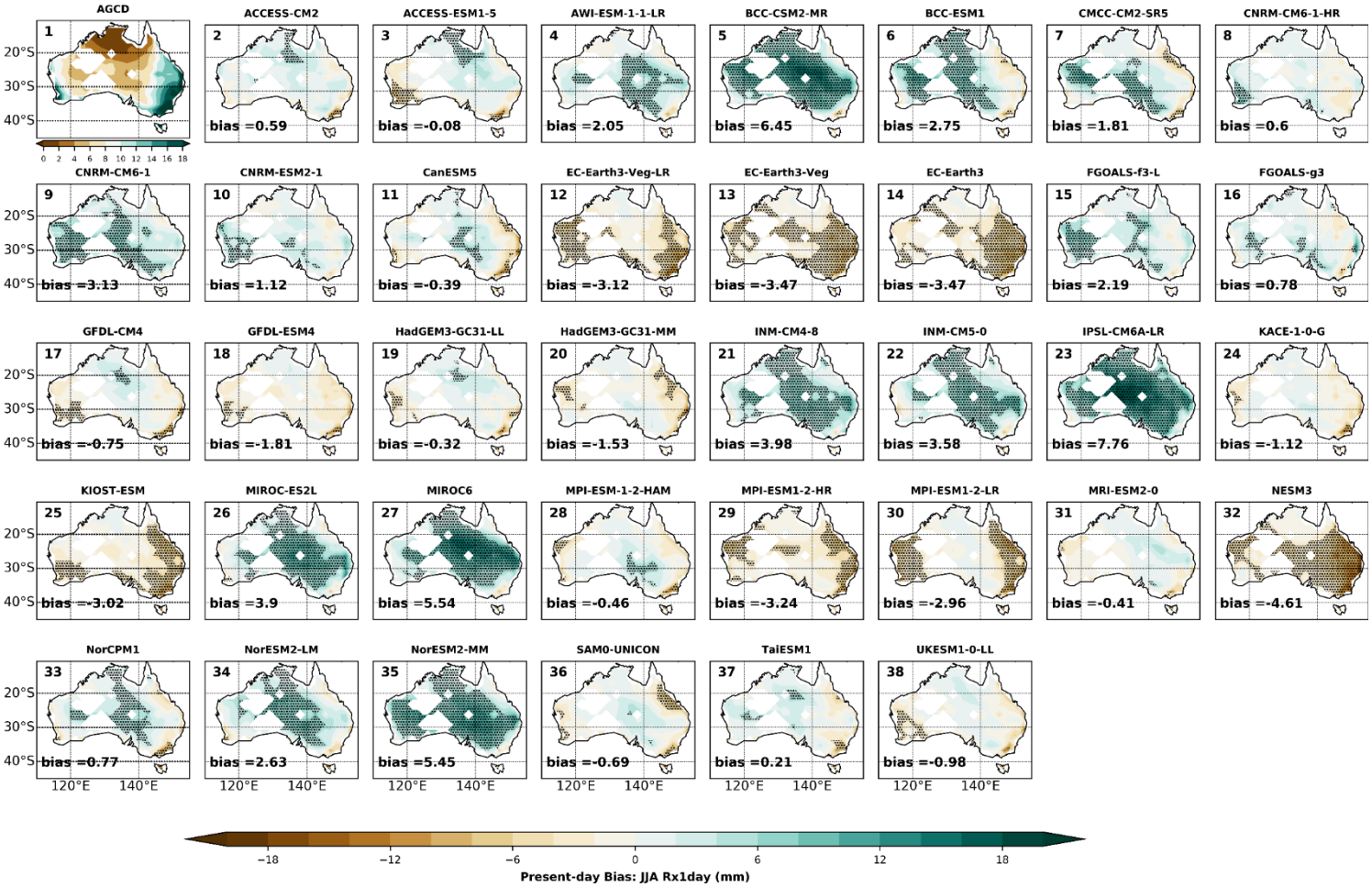

Figure S3. Same as S1 but for June-July-August.

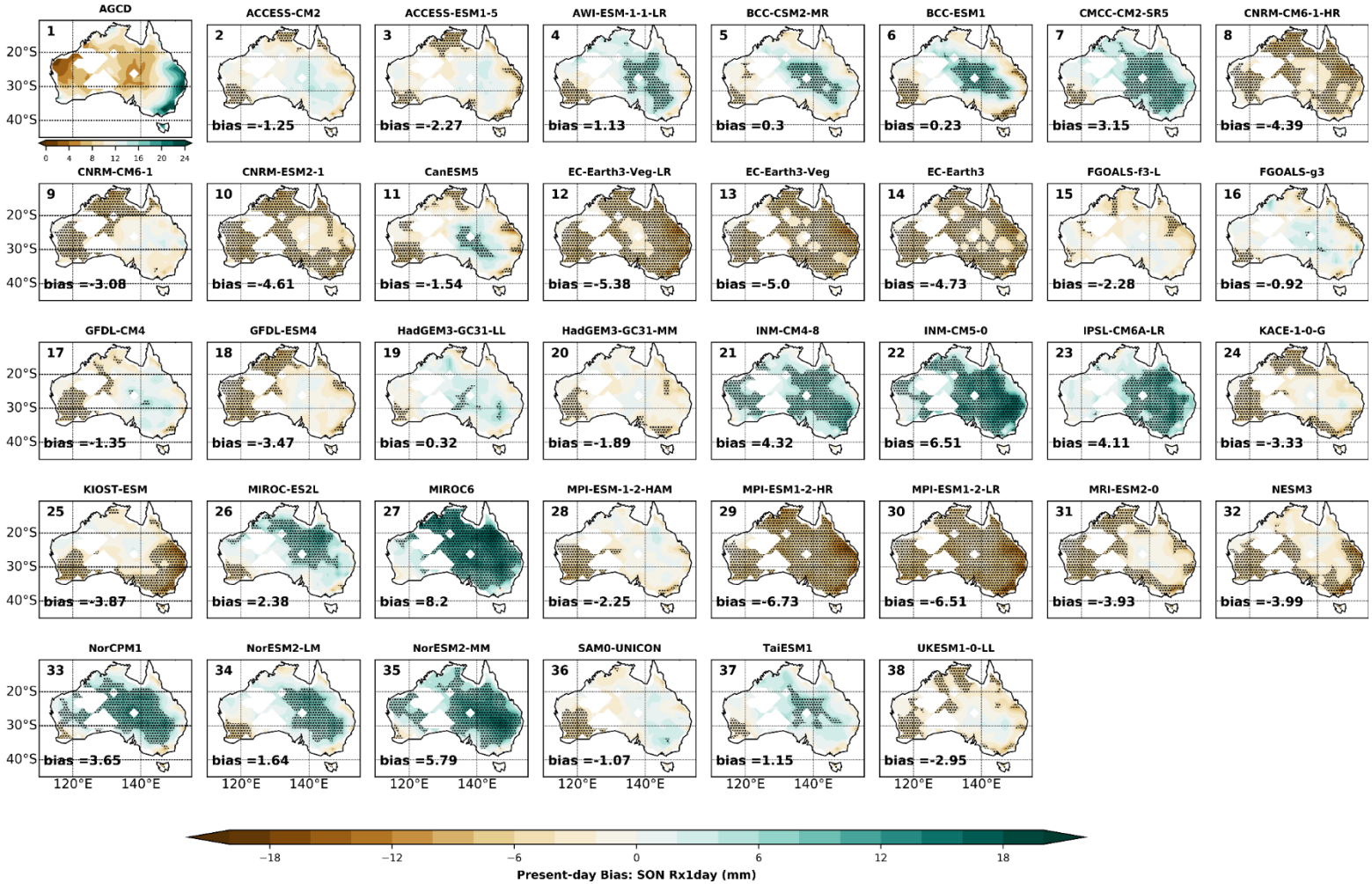

Figure S4. Same as S1 but for September-October-November.

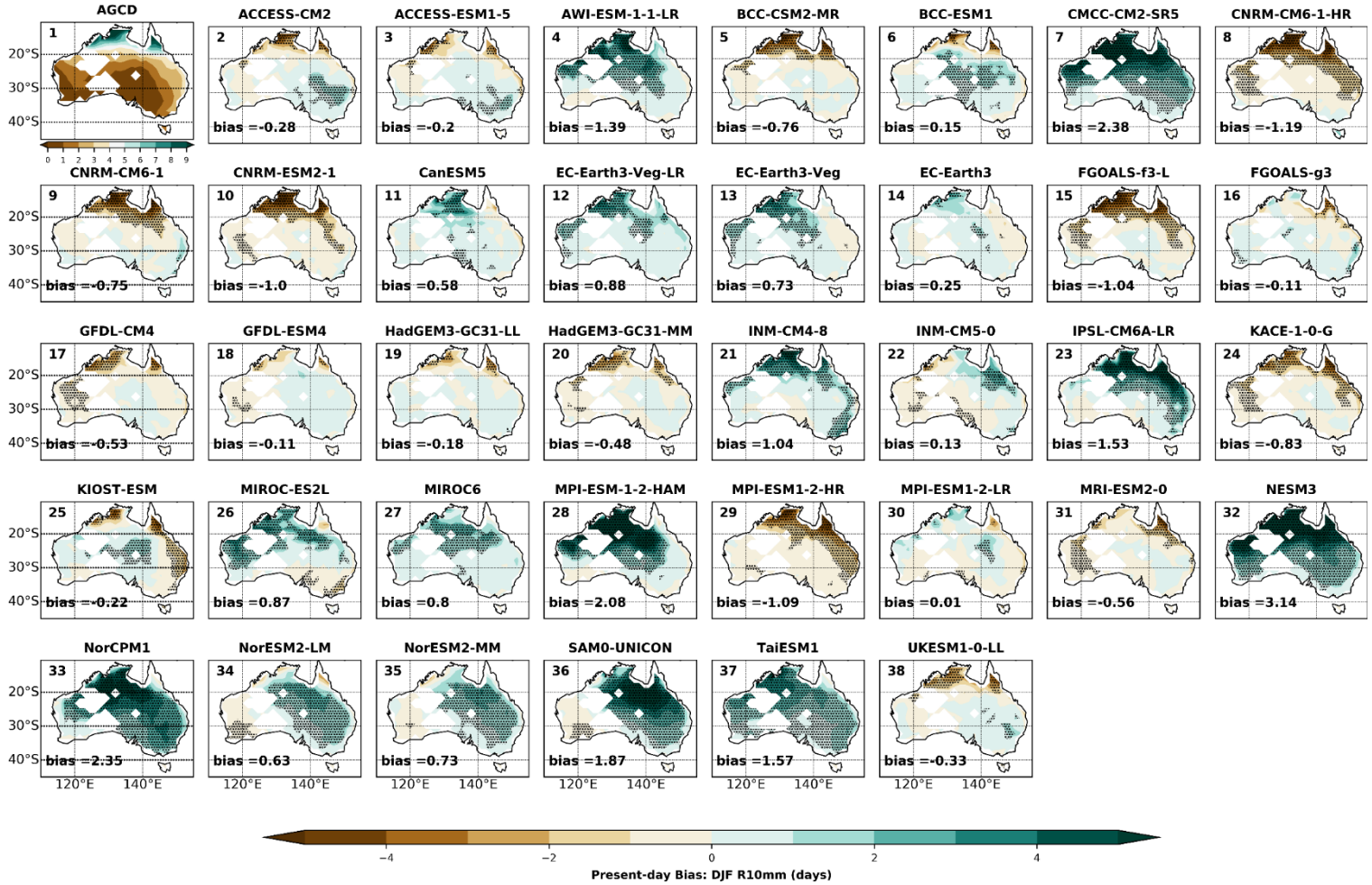

Figure S5. Climatological mean December-January-February bias in number of very heavy rain days (rain > 10 mm) (R10mm: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

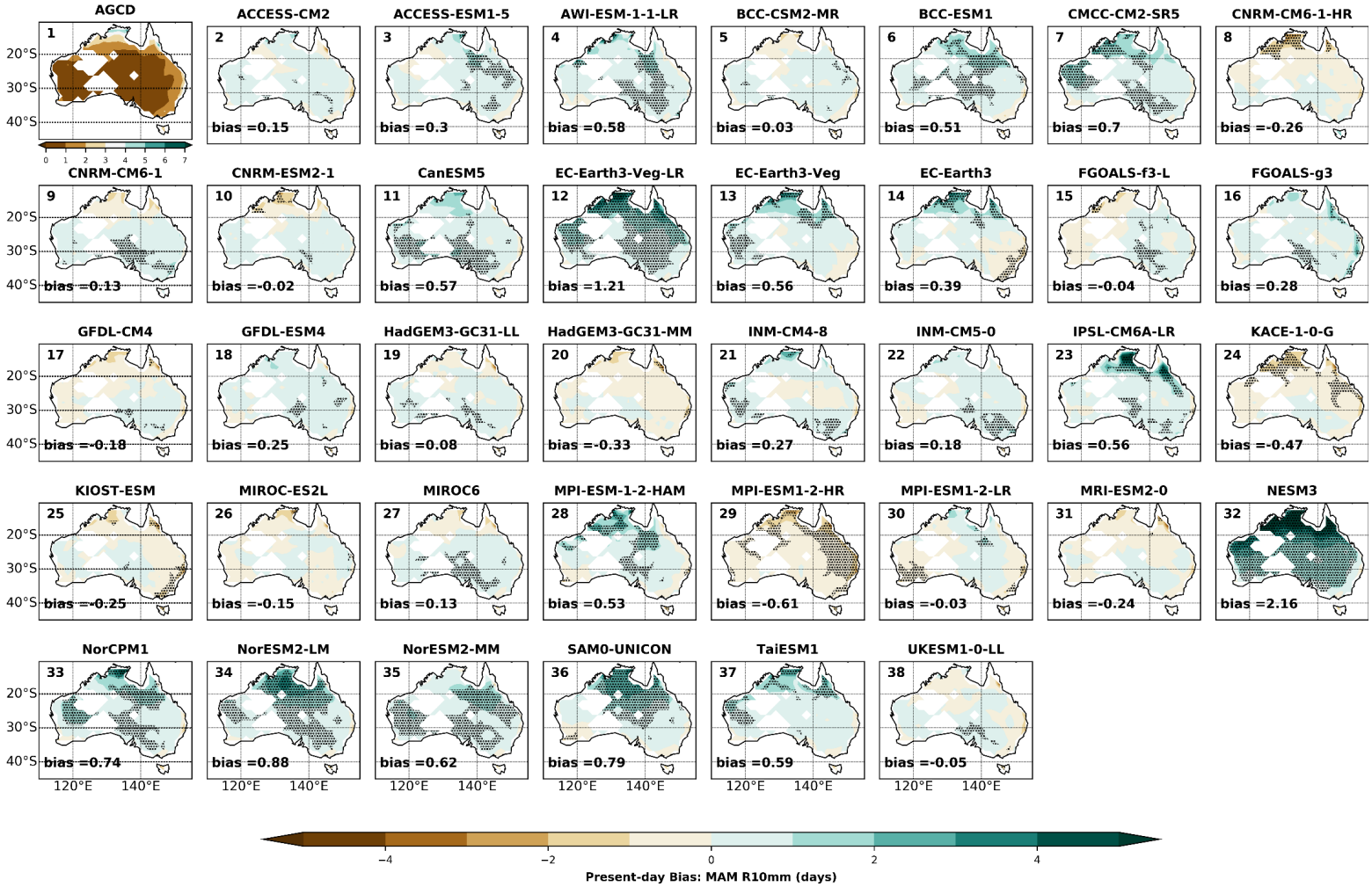

Figure S6. Same as S5 but for March-April-May.

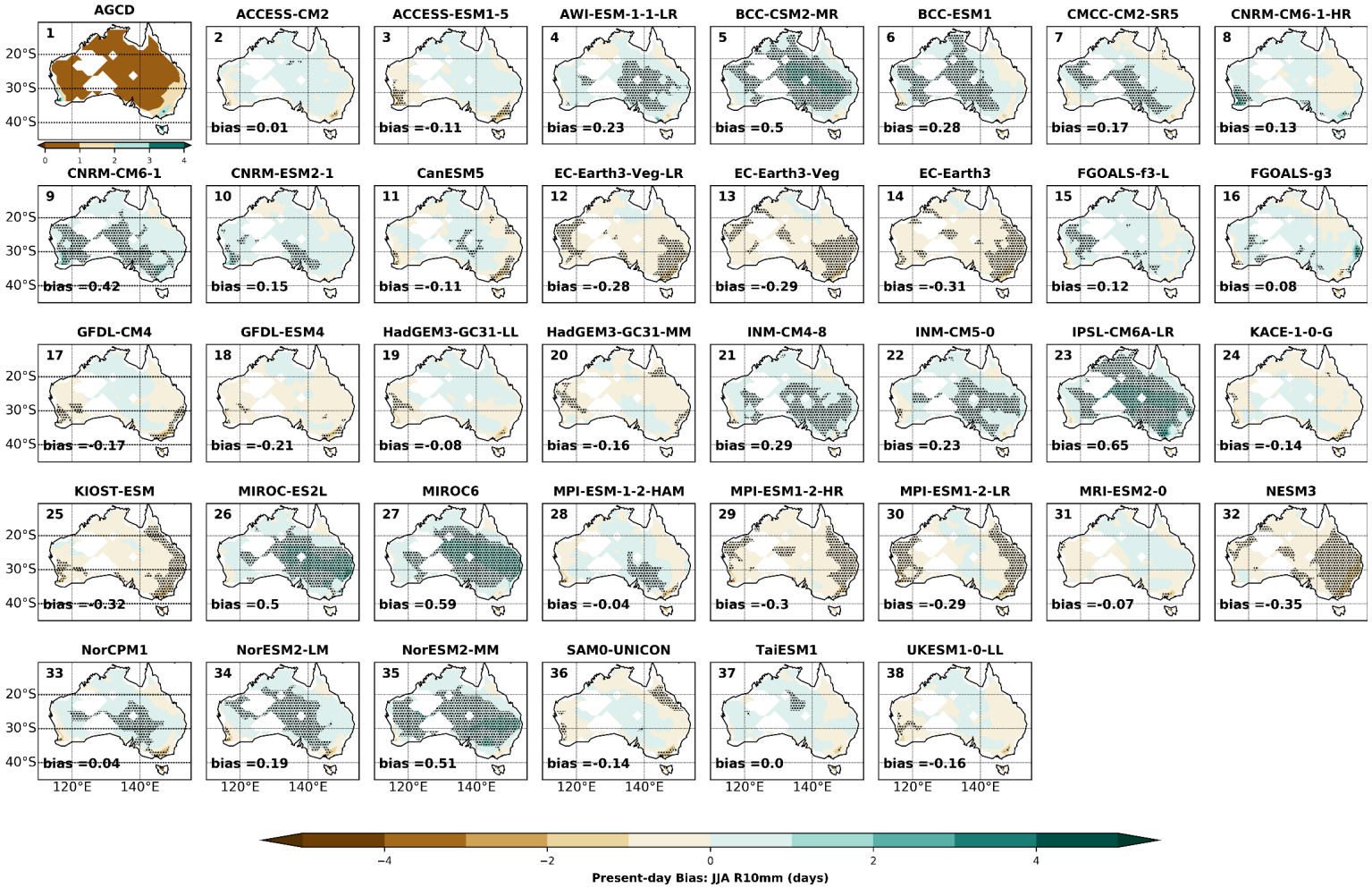

Figure S7. Same as S5 but for June-July-August.

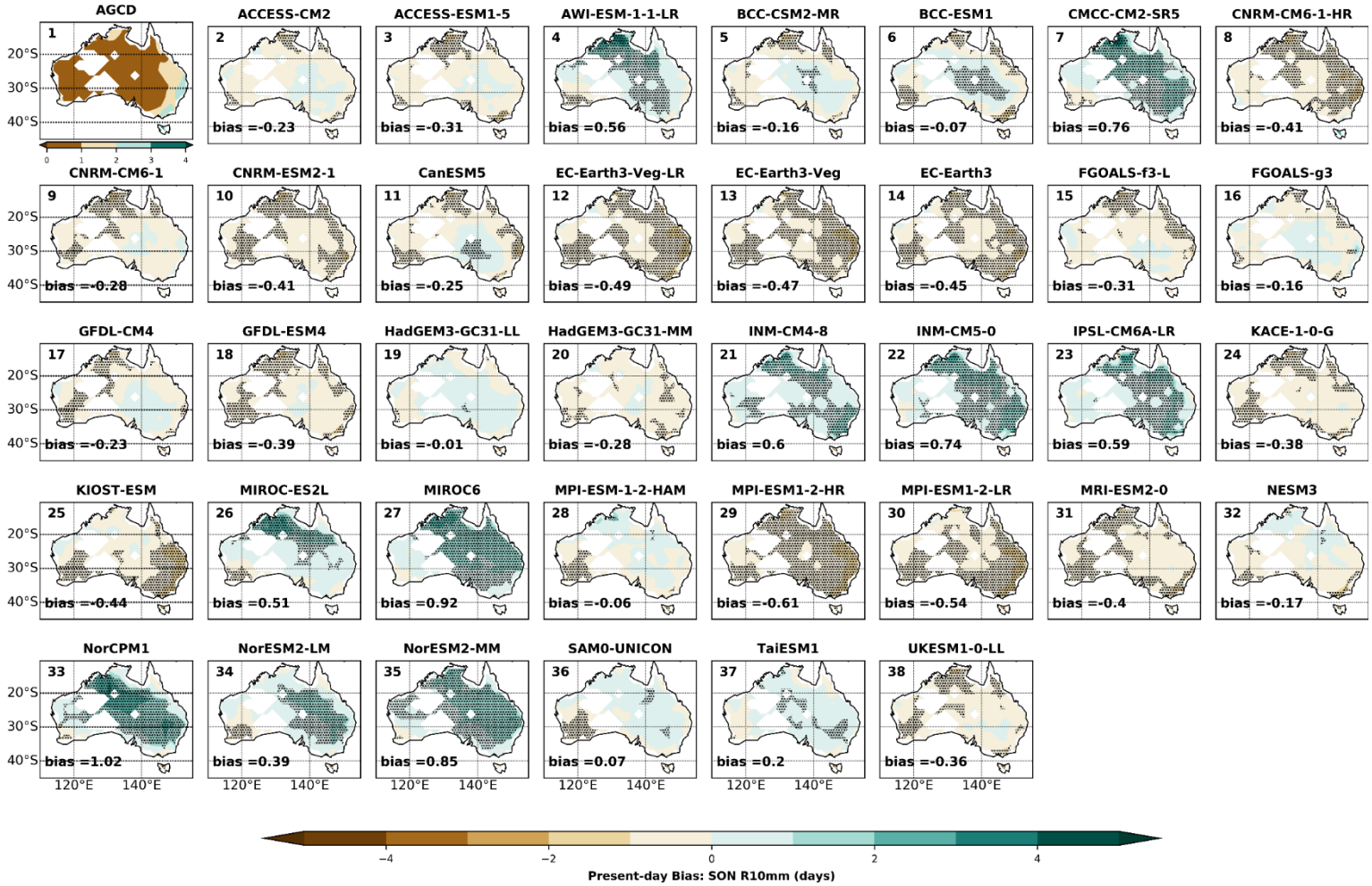

Figure S8. Same as S5 but for September-October-November.

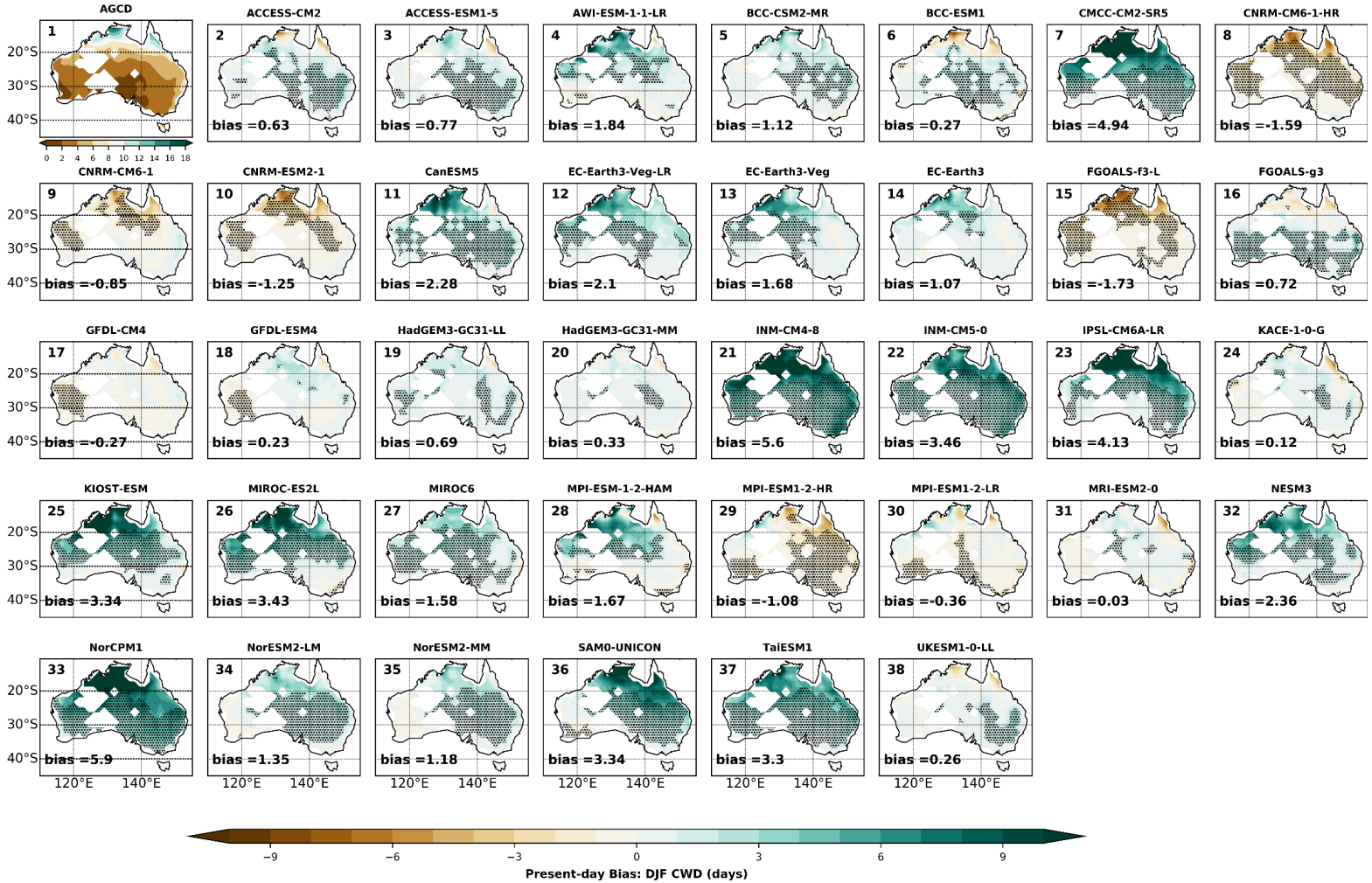

Figure S9. Climatological mean December-January-February bias in consecutive wet days (CWD: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

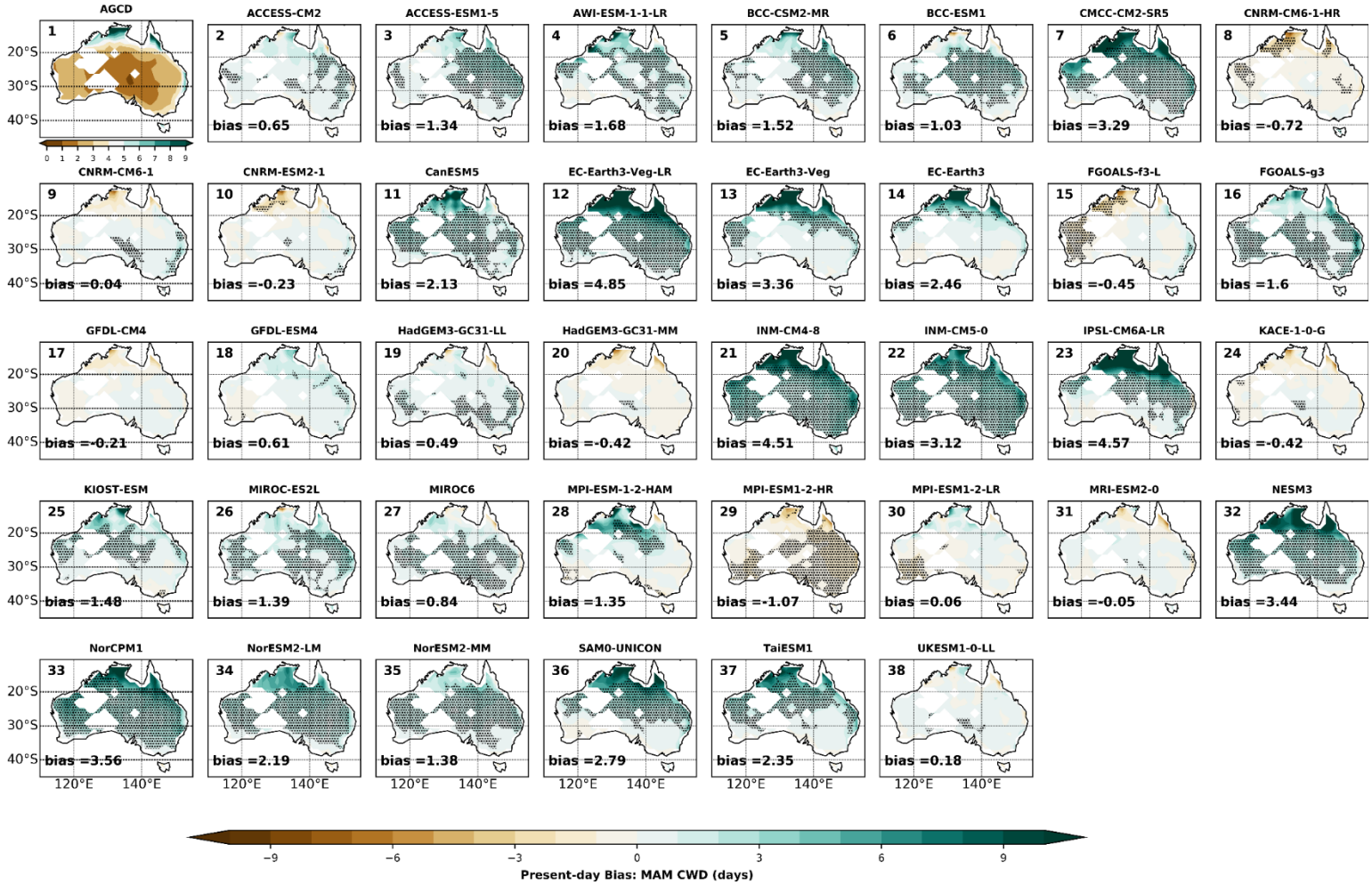

Figure S10. Same as S9 but for March-April-May.

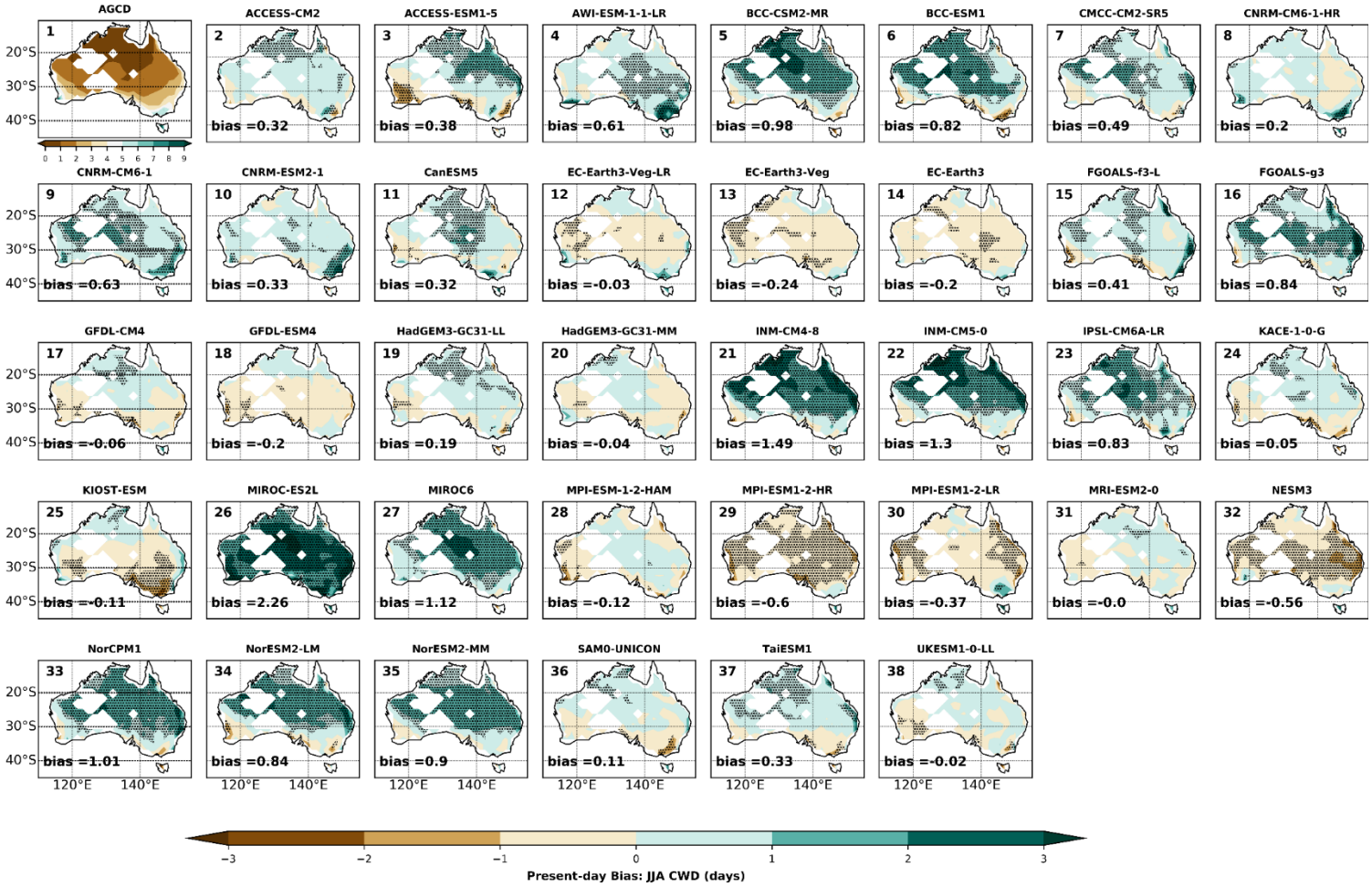

Figure S11. Same as S9 but for June-July-August.

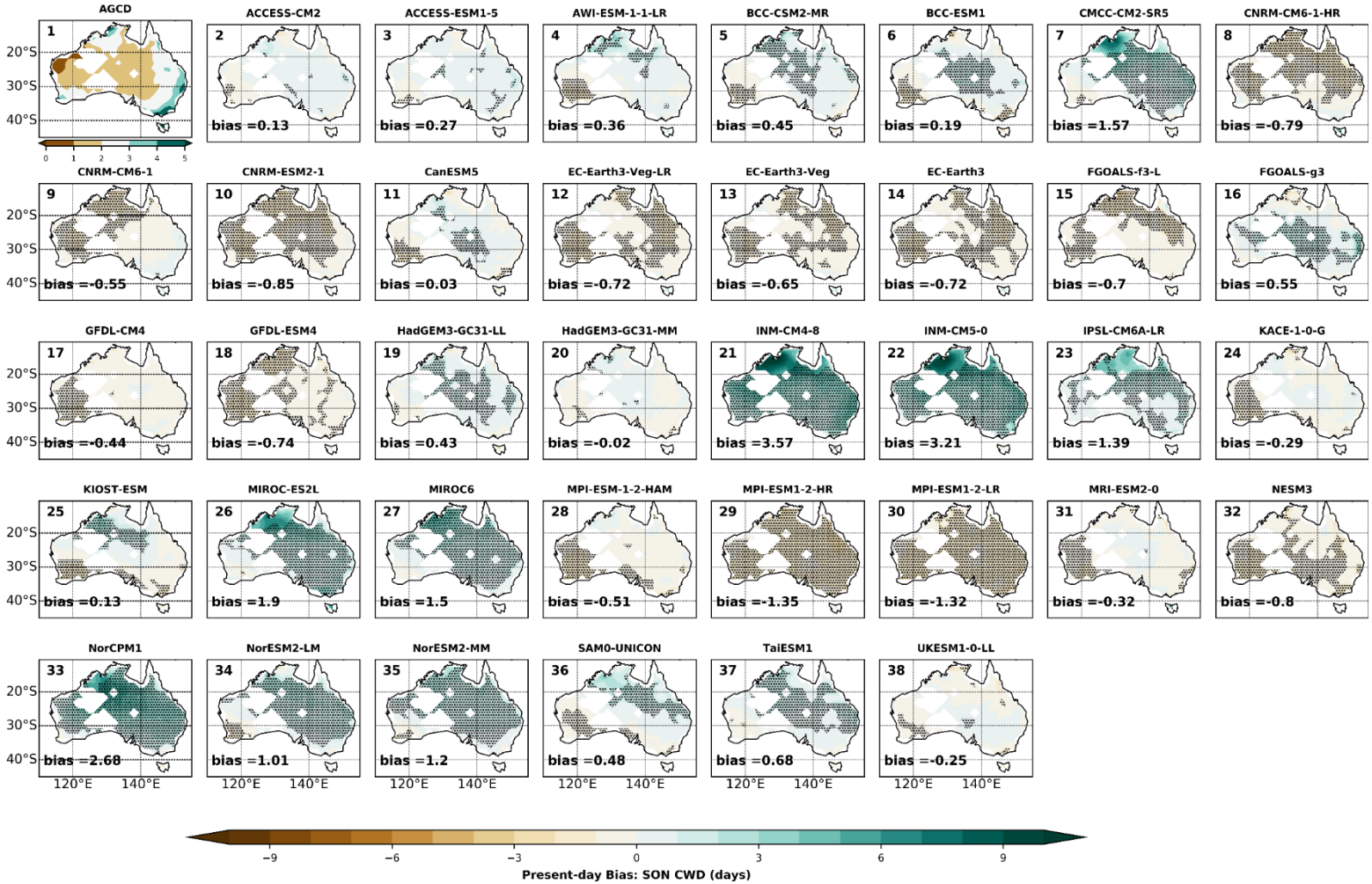

Figure S12. Same as S9 but for September-October-November.

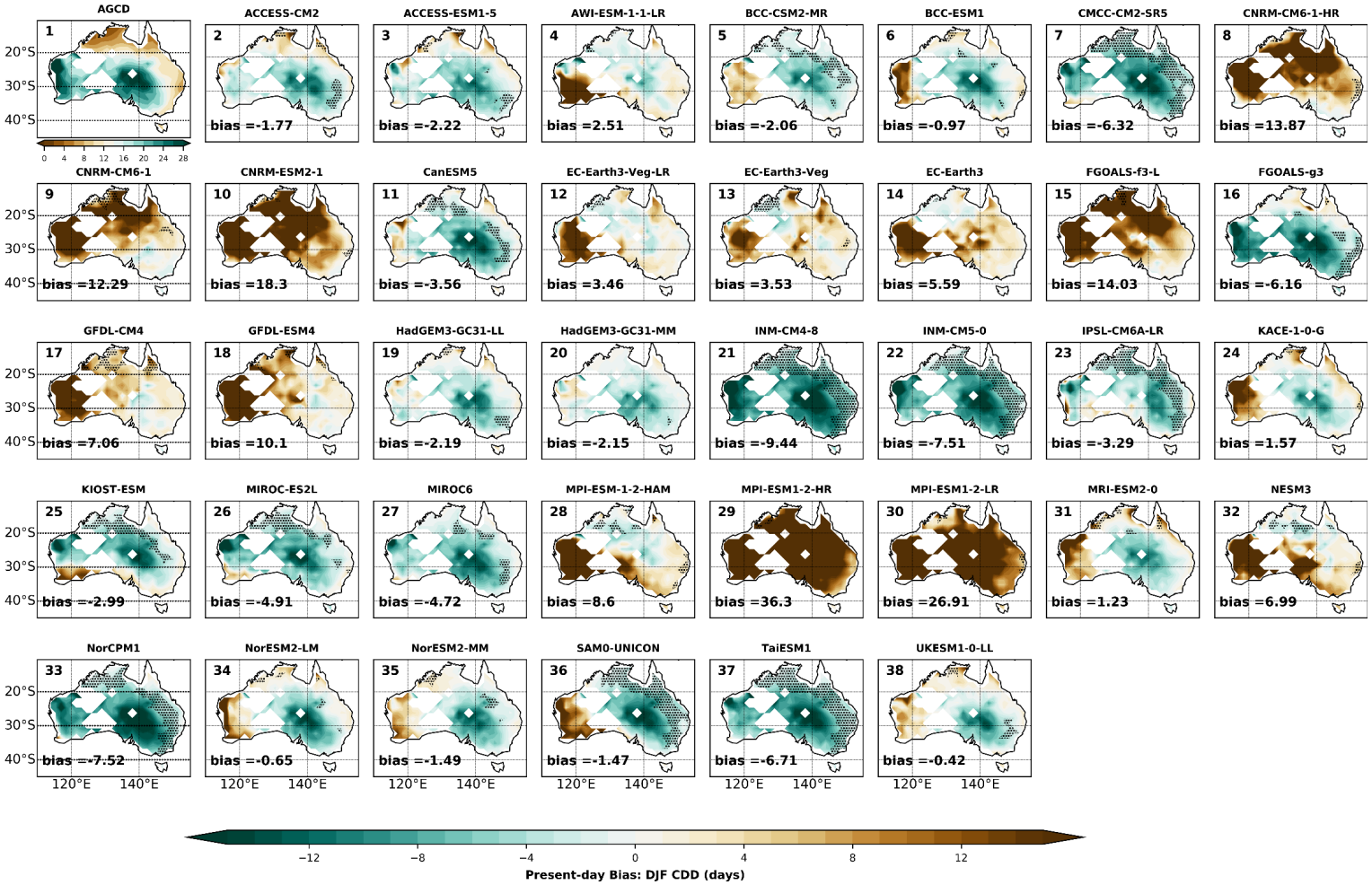

Figure S13. Climatological mean December-January-February bias in consecutive dry days (CDD: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

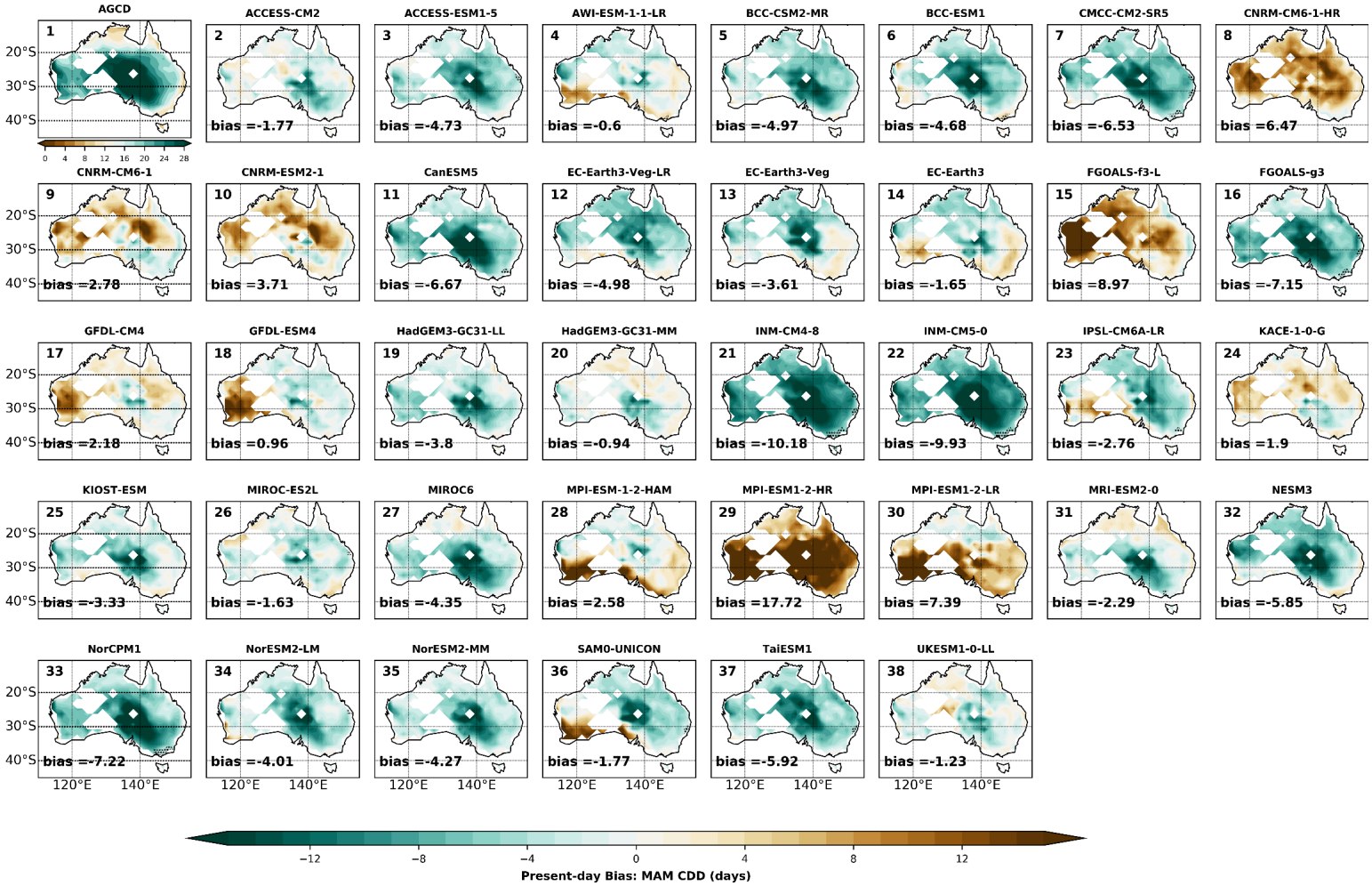

Figure S14. Same as S13 but for March-April-May.

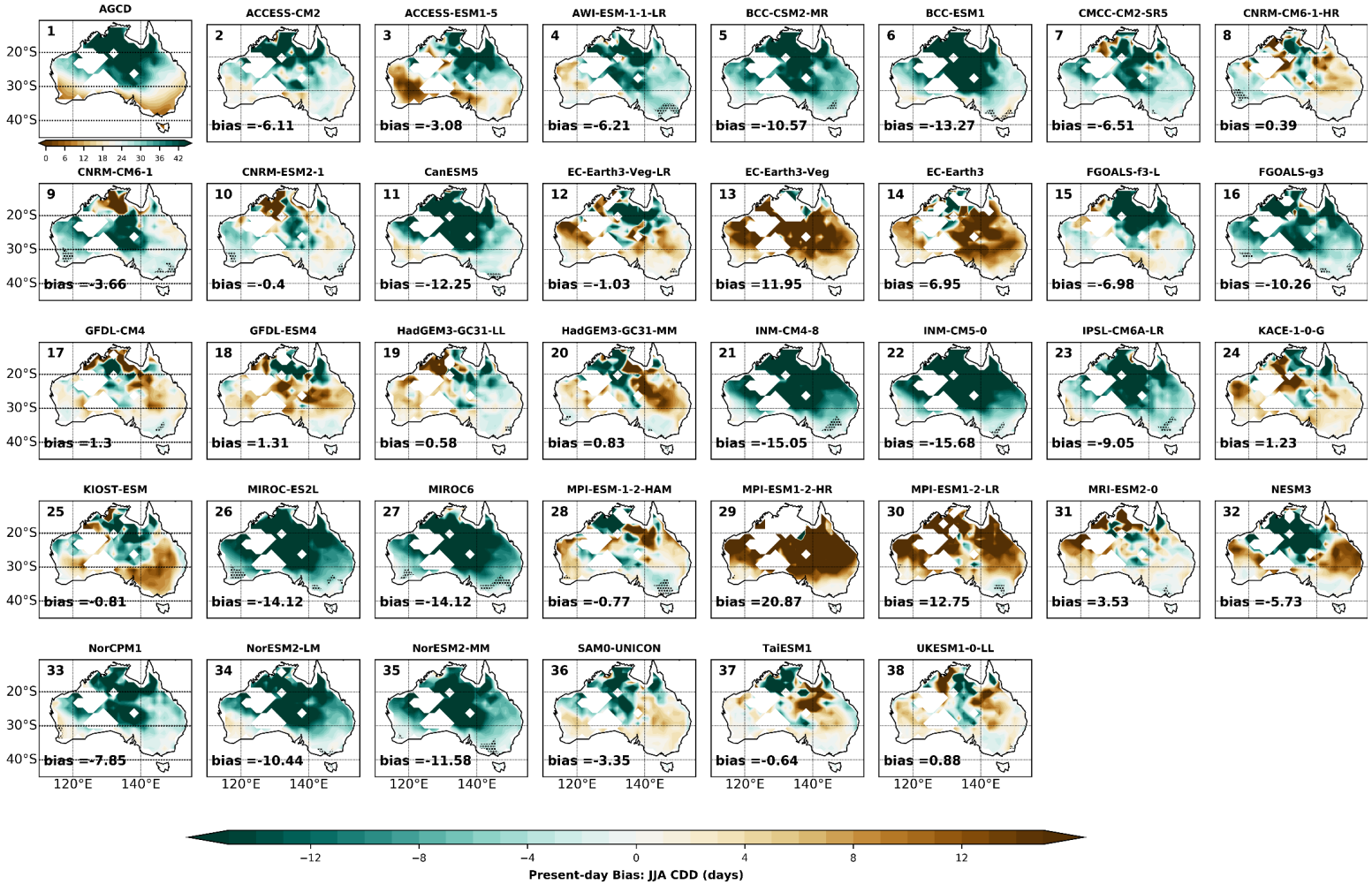

Figure S15. Same as S13 but for June-July-August.

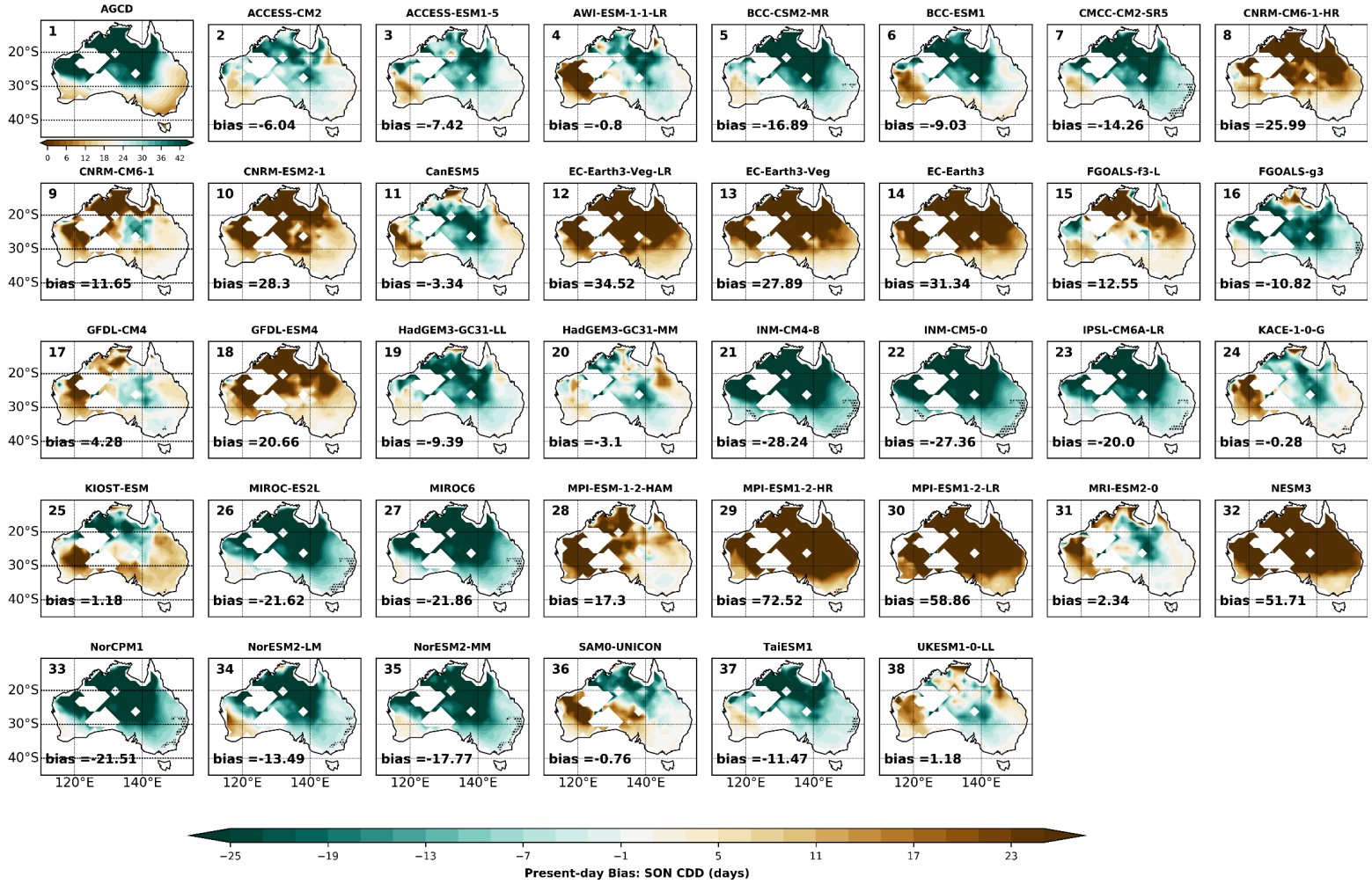

Figure S16. Same as S13 but for September-October-November.

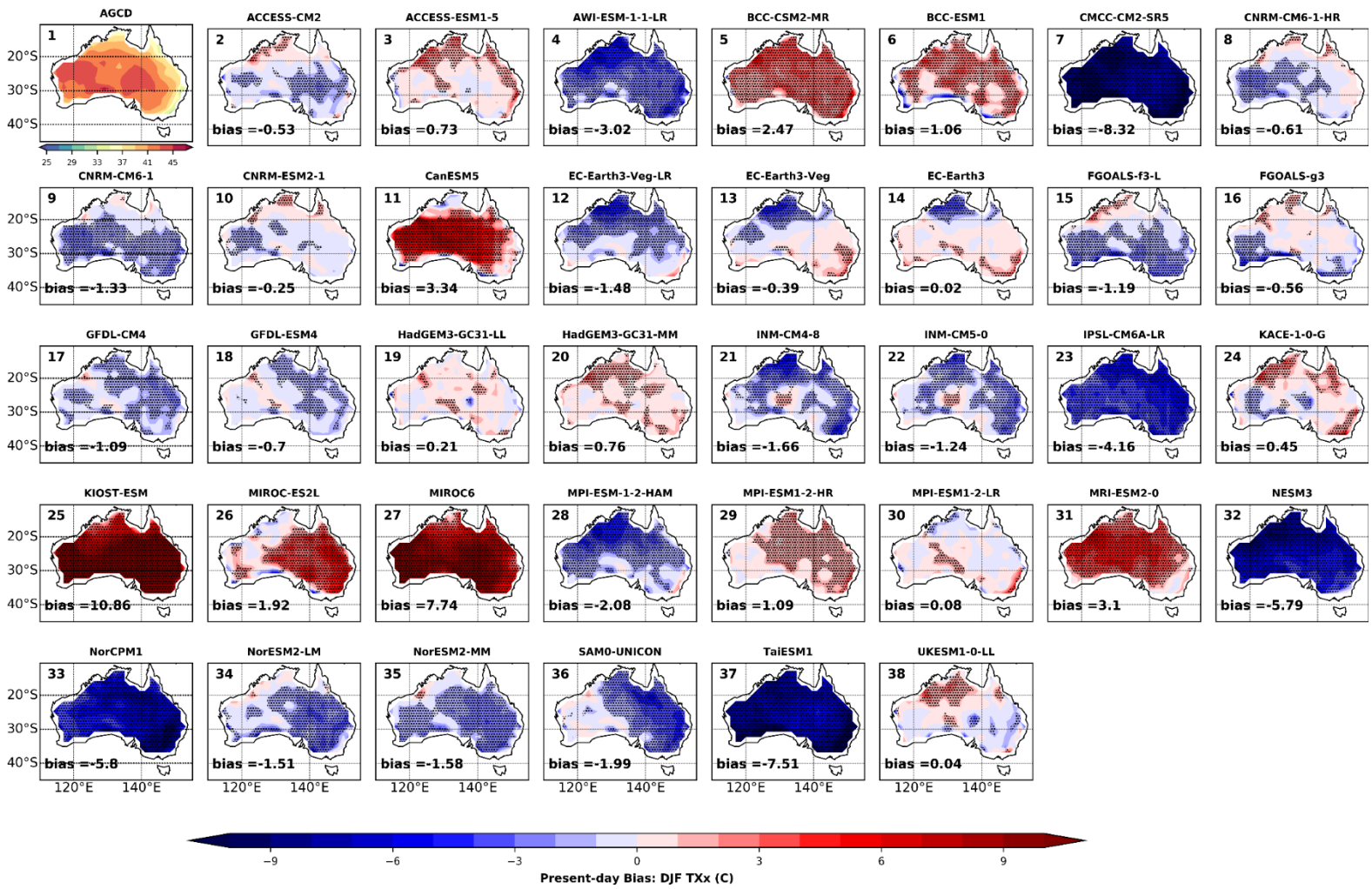

Figure S17. Climatological mean December-January-February bias in maximum maximum-temperature (TXx: °C) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

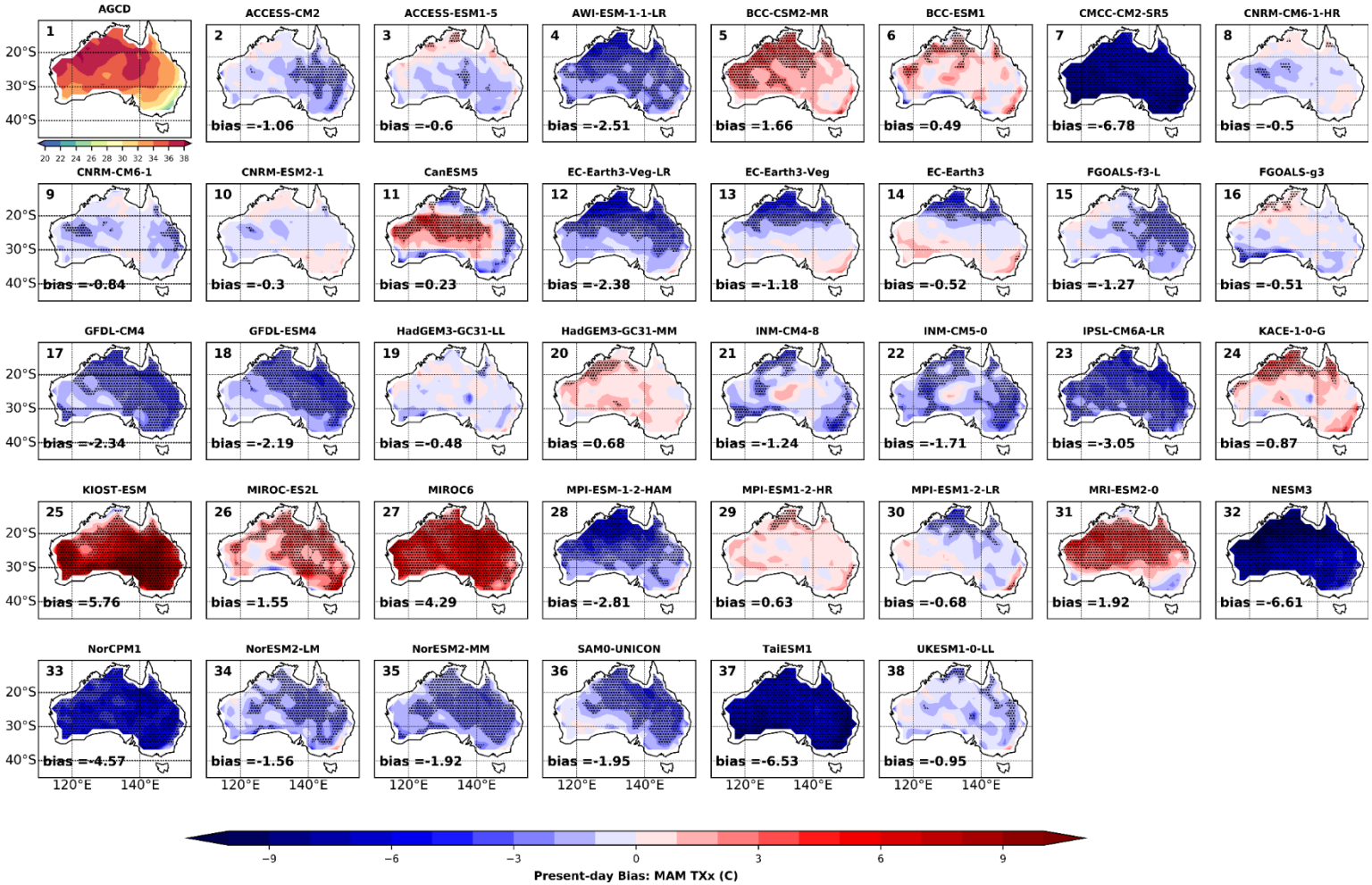

Figure S18. Same as S17 but for March-April-May.

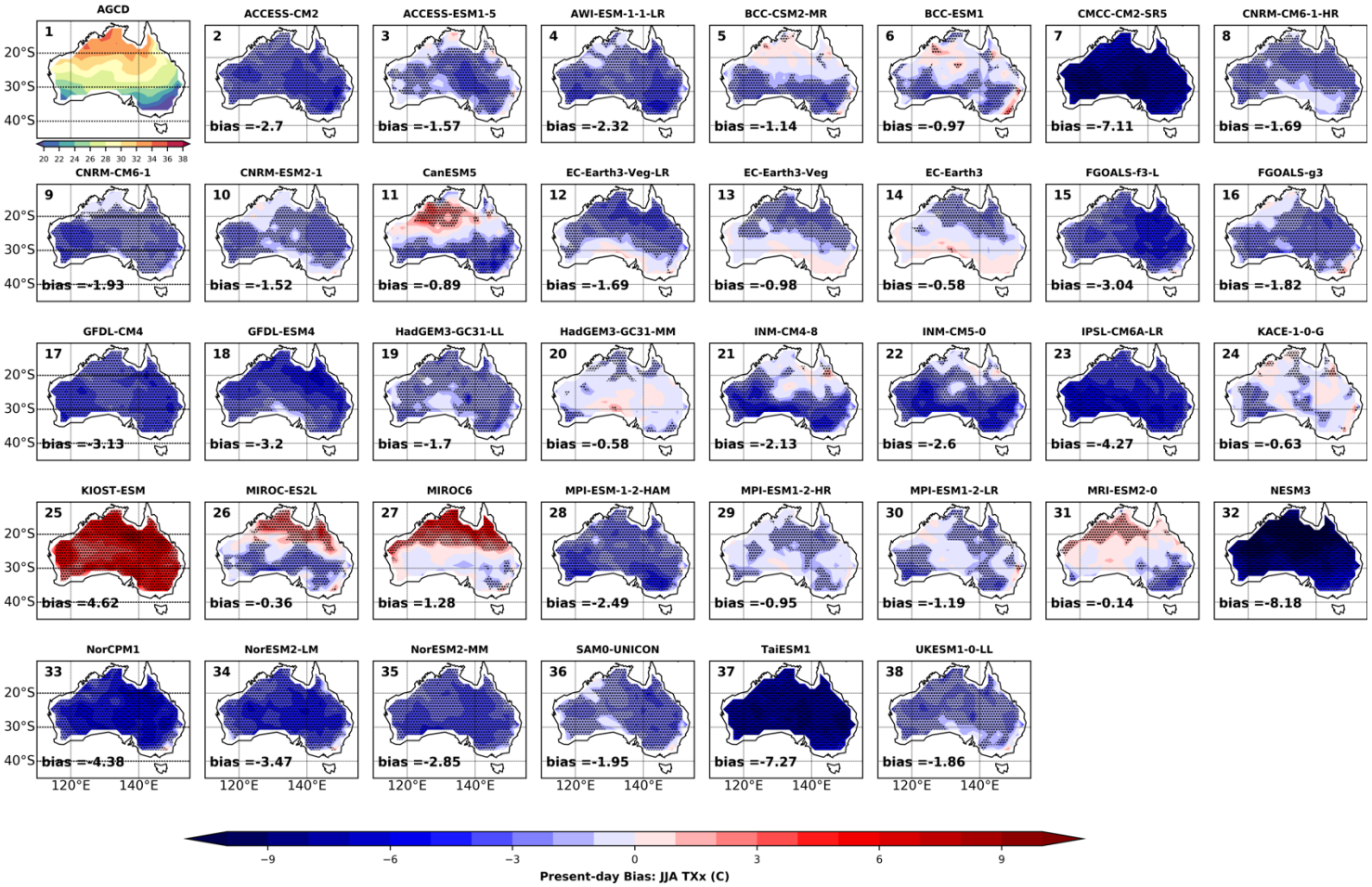

Figure S19. Same as S17 but for June-July-August.

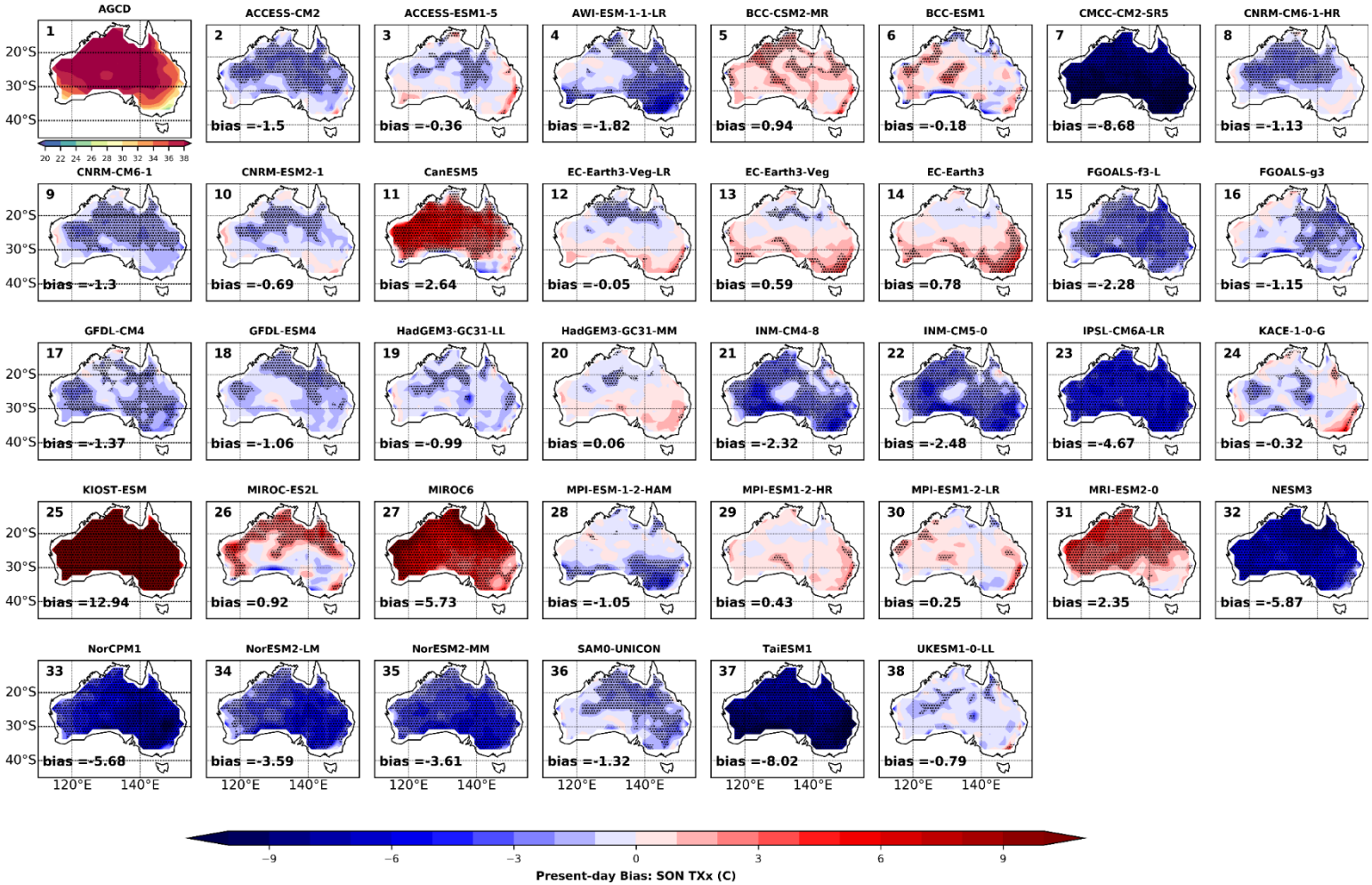

Figure S20. Same as S17 but for September-October-November.

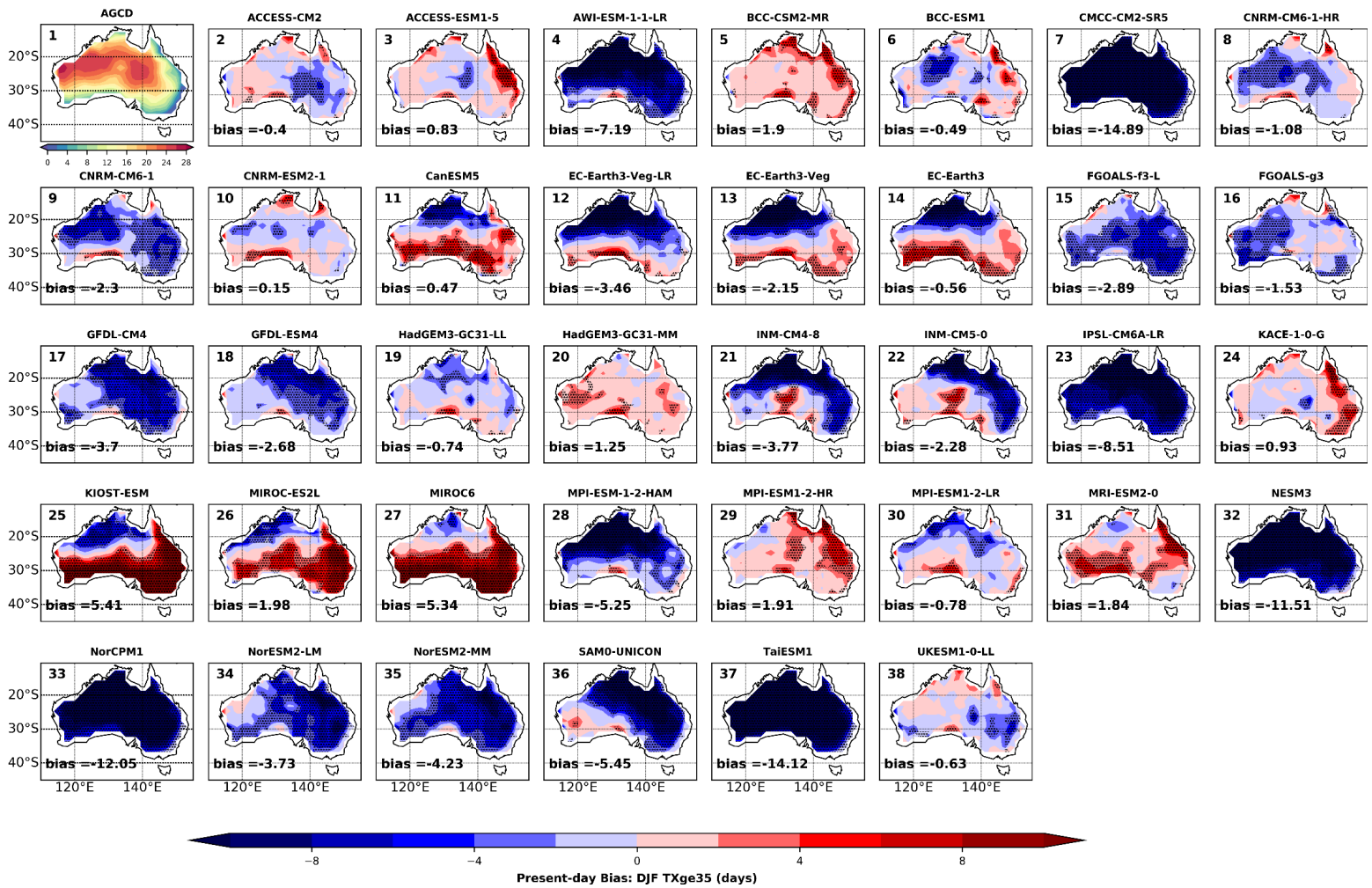

Figure S21. Climatological mean December-January-February bias in number of days when maximum temperature is greater than 35 C (Txge35: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

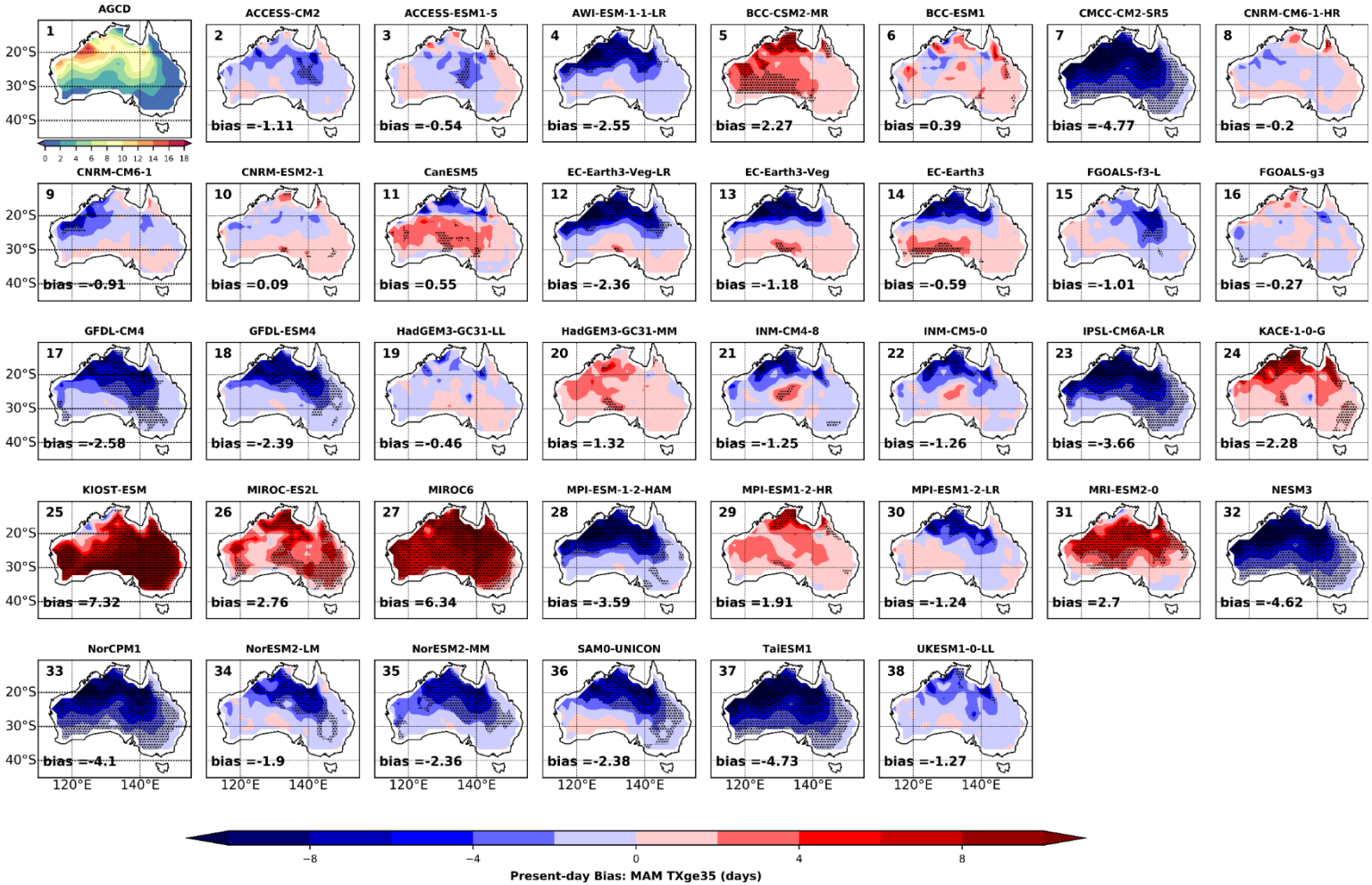

Figure S22. Same as S21 but for March-April-May.

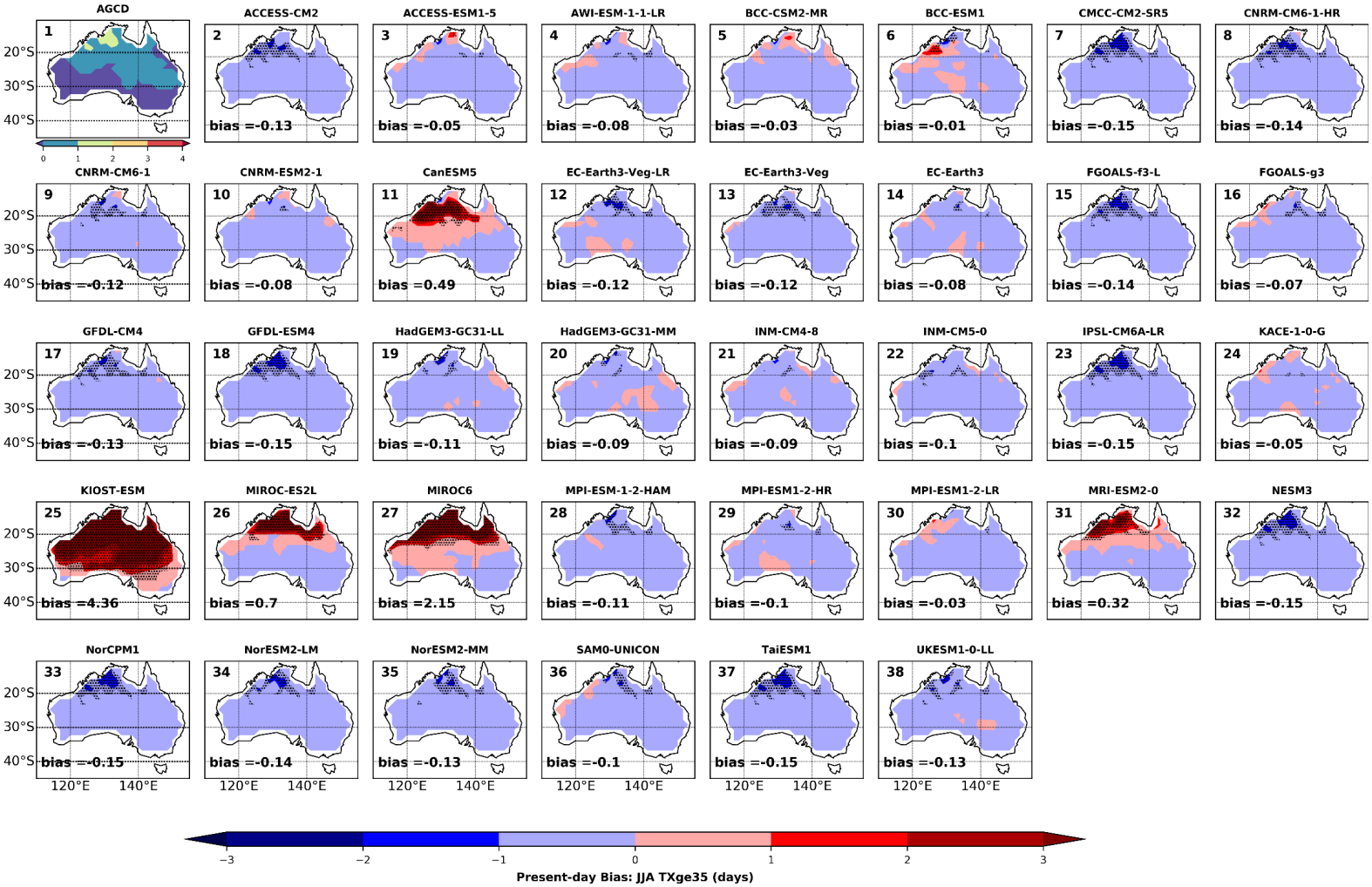

Figure S23. Same as S21 but for June-July-August.

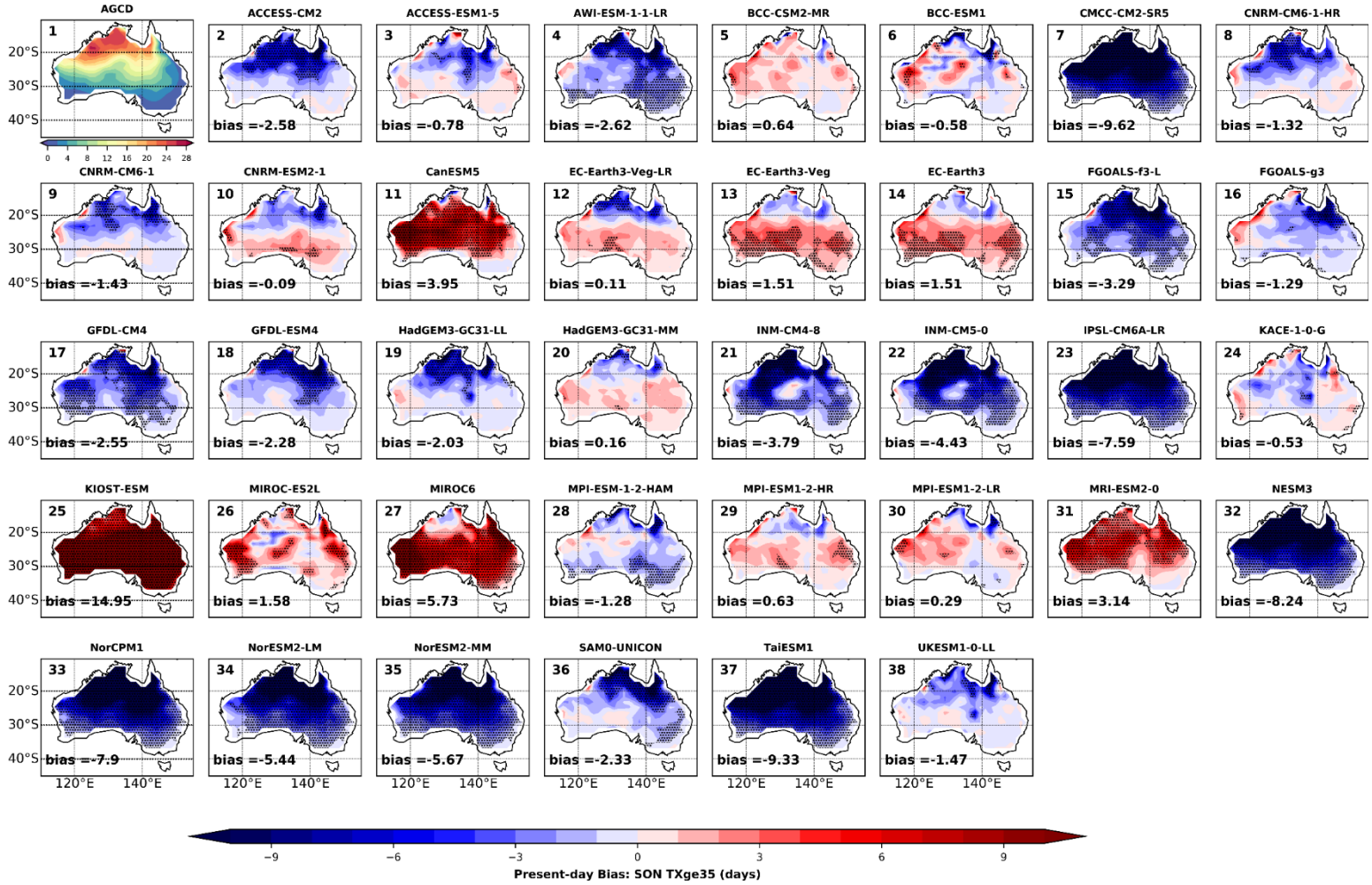

Figure S24. Same as S21 but for September-October-November.

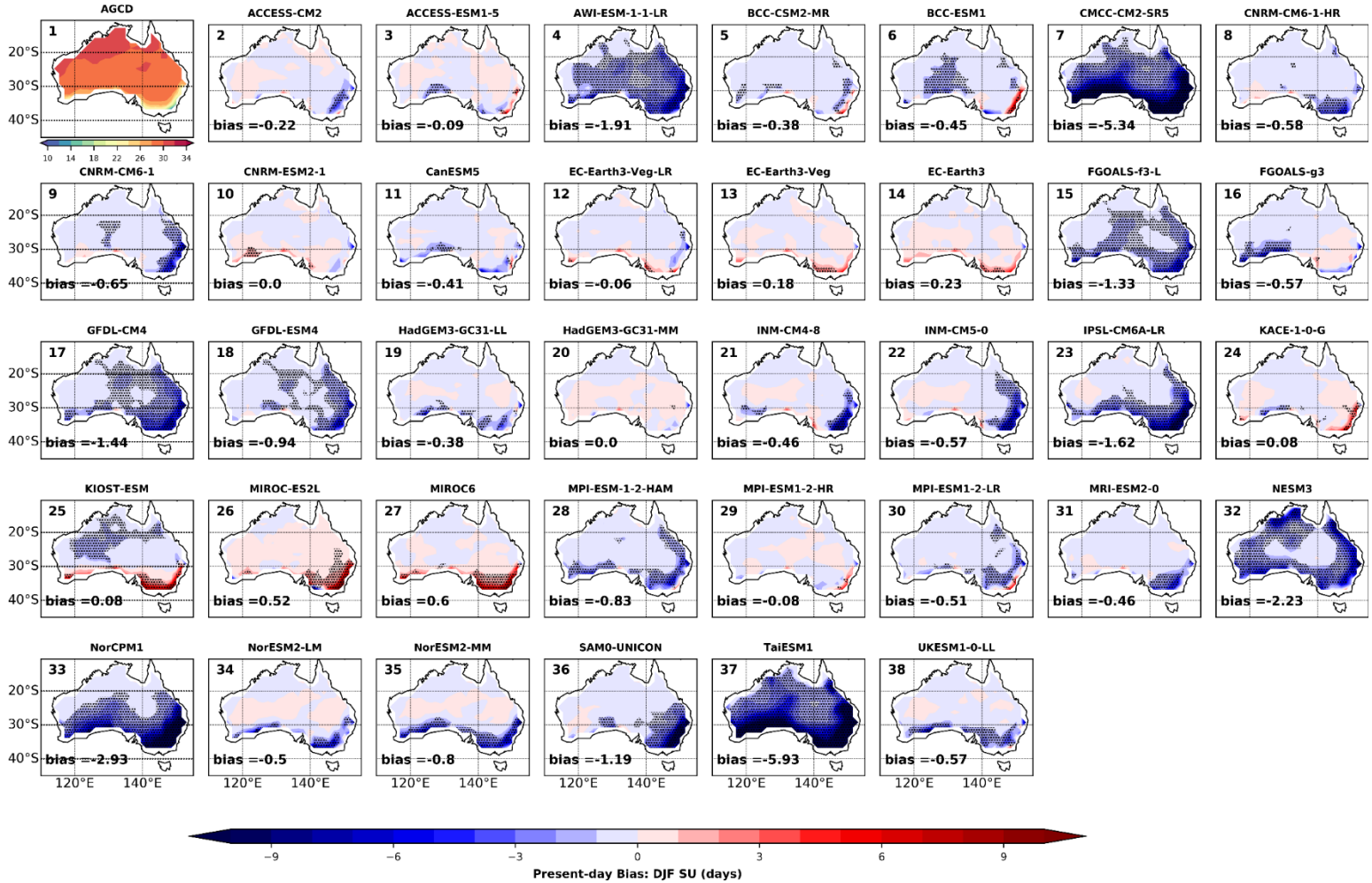

Figure S25. Climatological mean December-January-February bias in summer days (number of days when maximum temperature > 25 °C) (SU: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

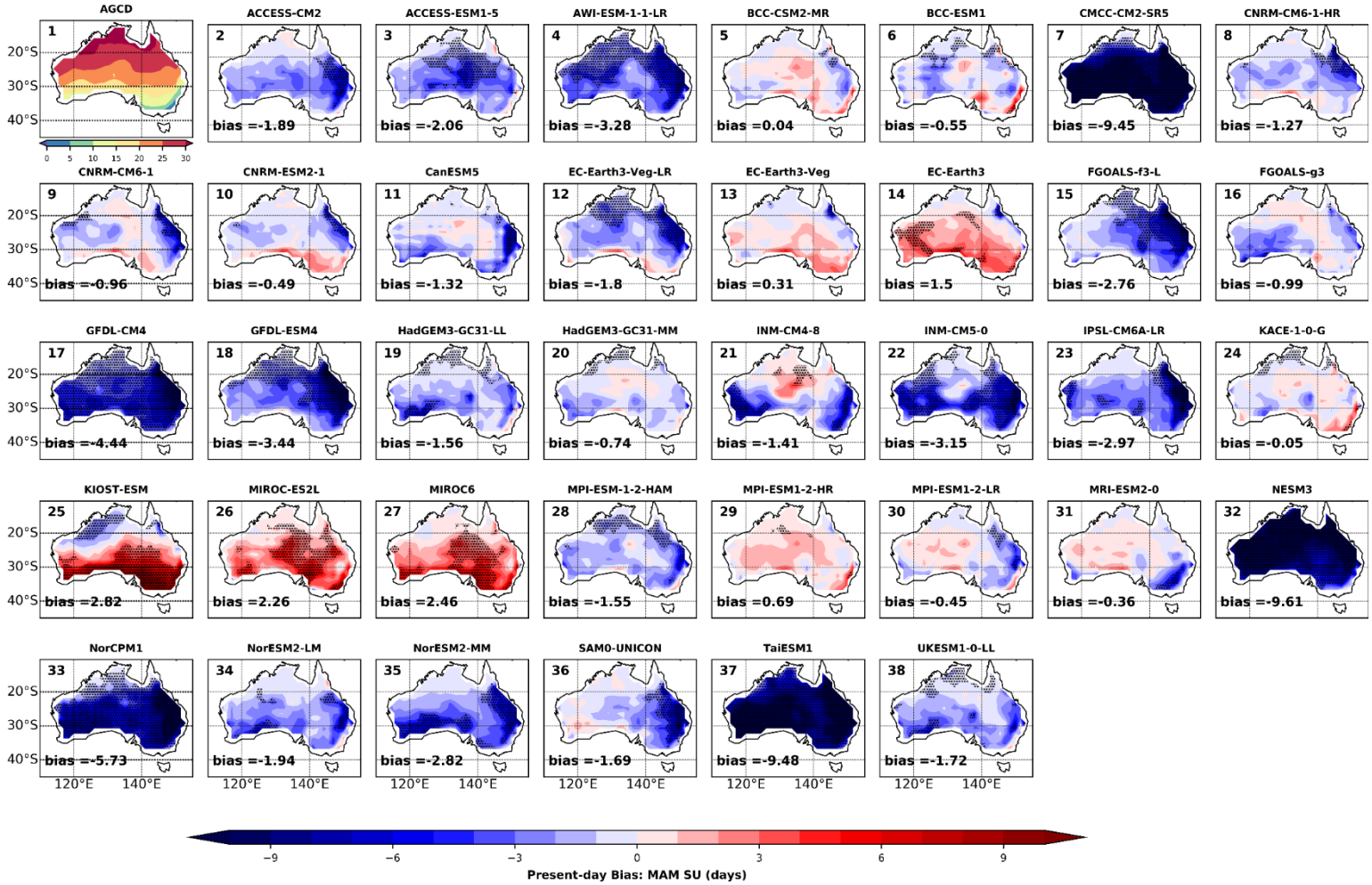

Figure S26. Same as S25 but for March-April-May.

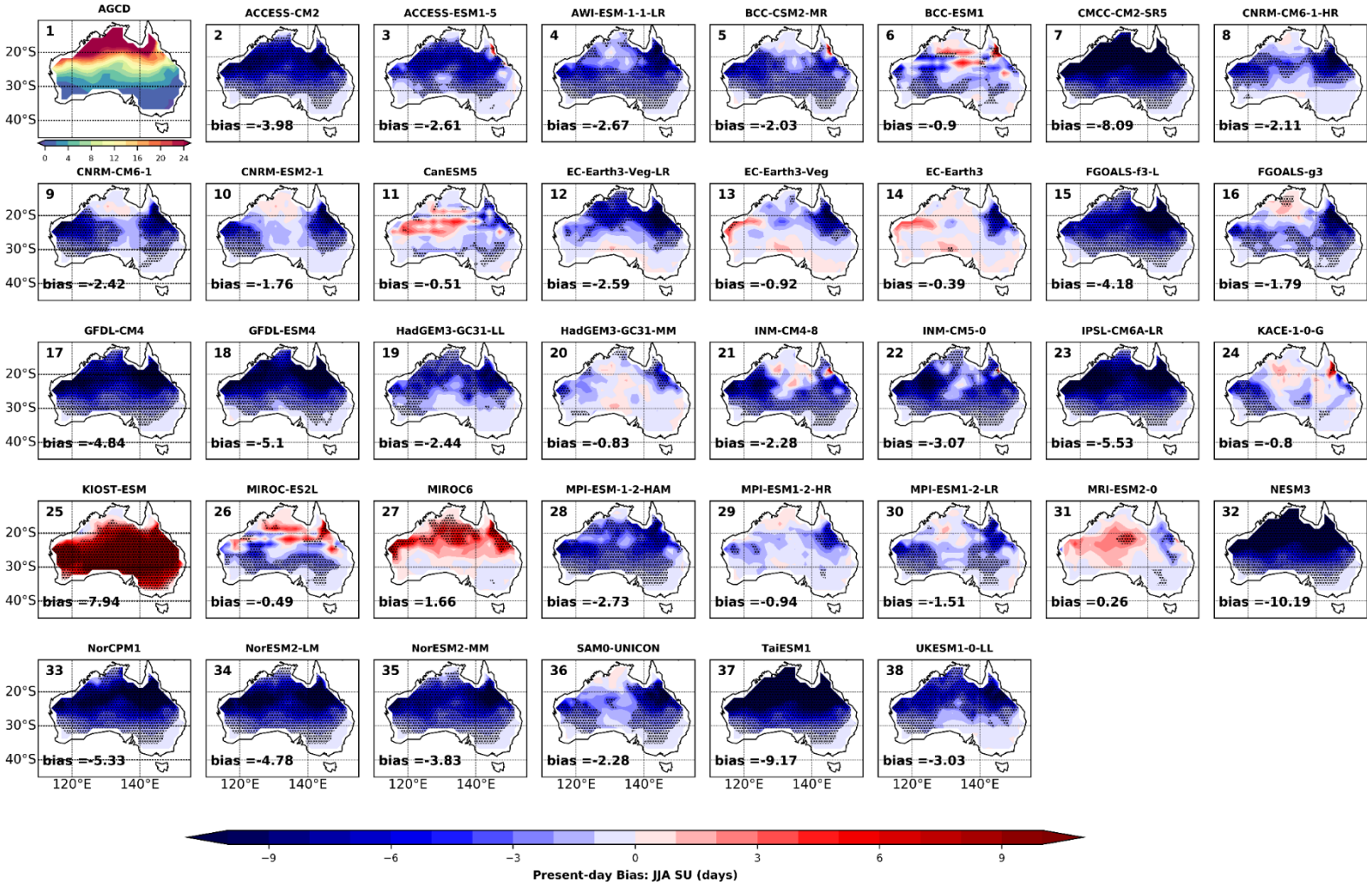

Figure S27. Same as S25 but for June-July-August.

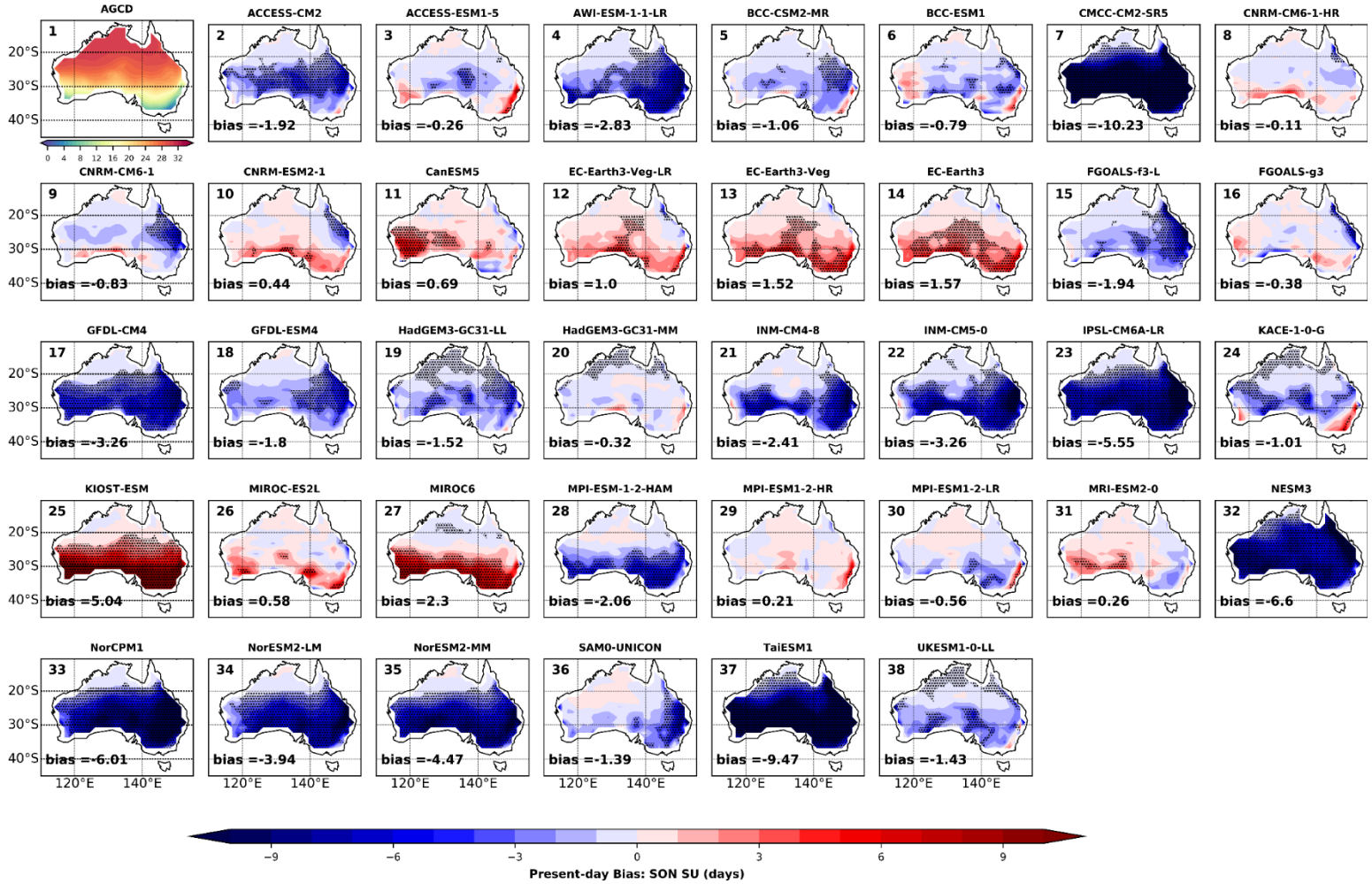

Figure S28. Same as S25 but for September-October-November.

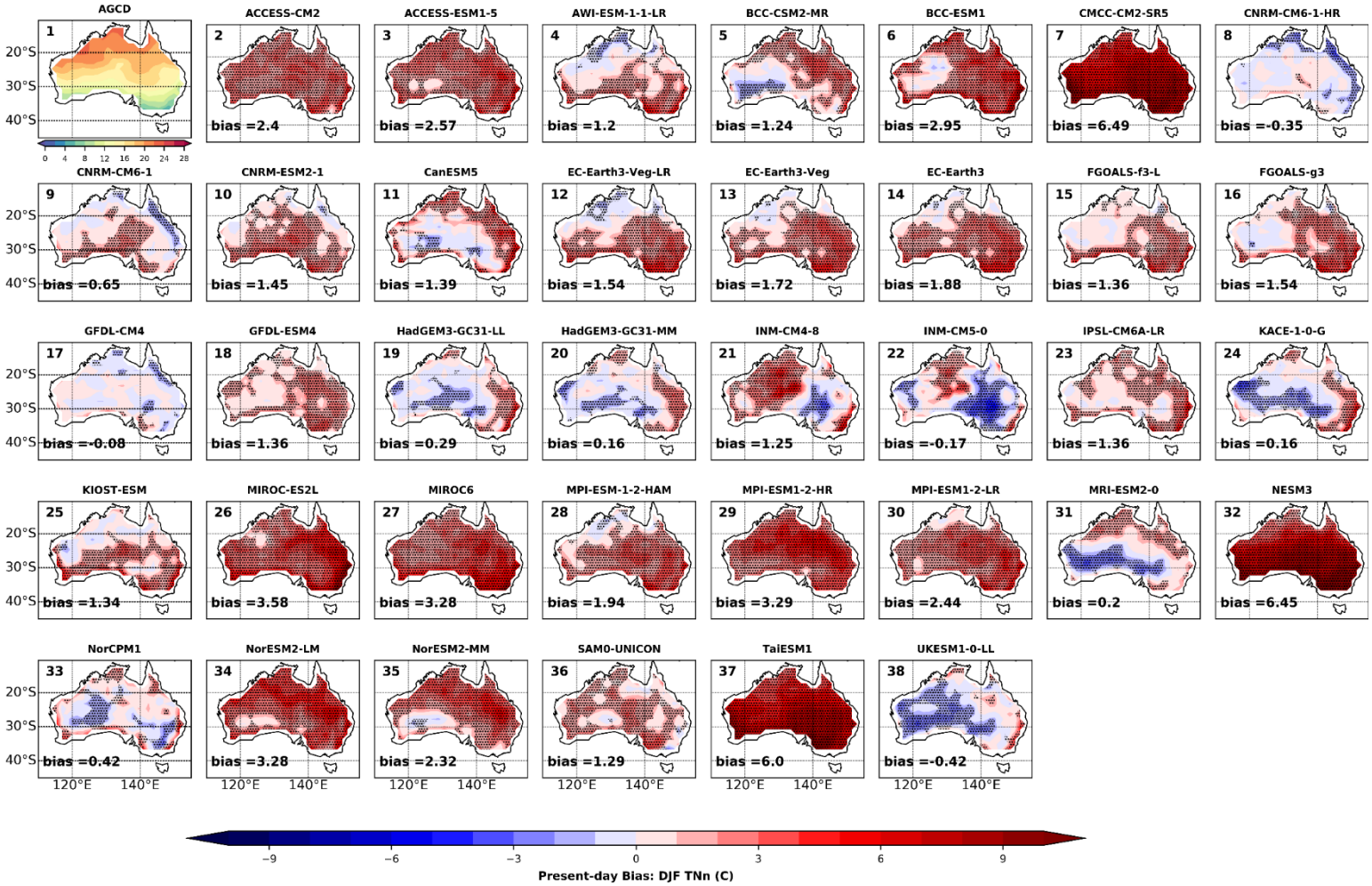

Figure S29. Climatological mean December-January-February bias in minimum minimum-temperature (TNn: °C) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

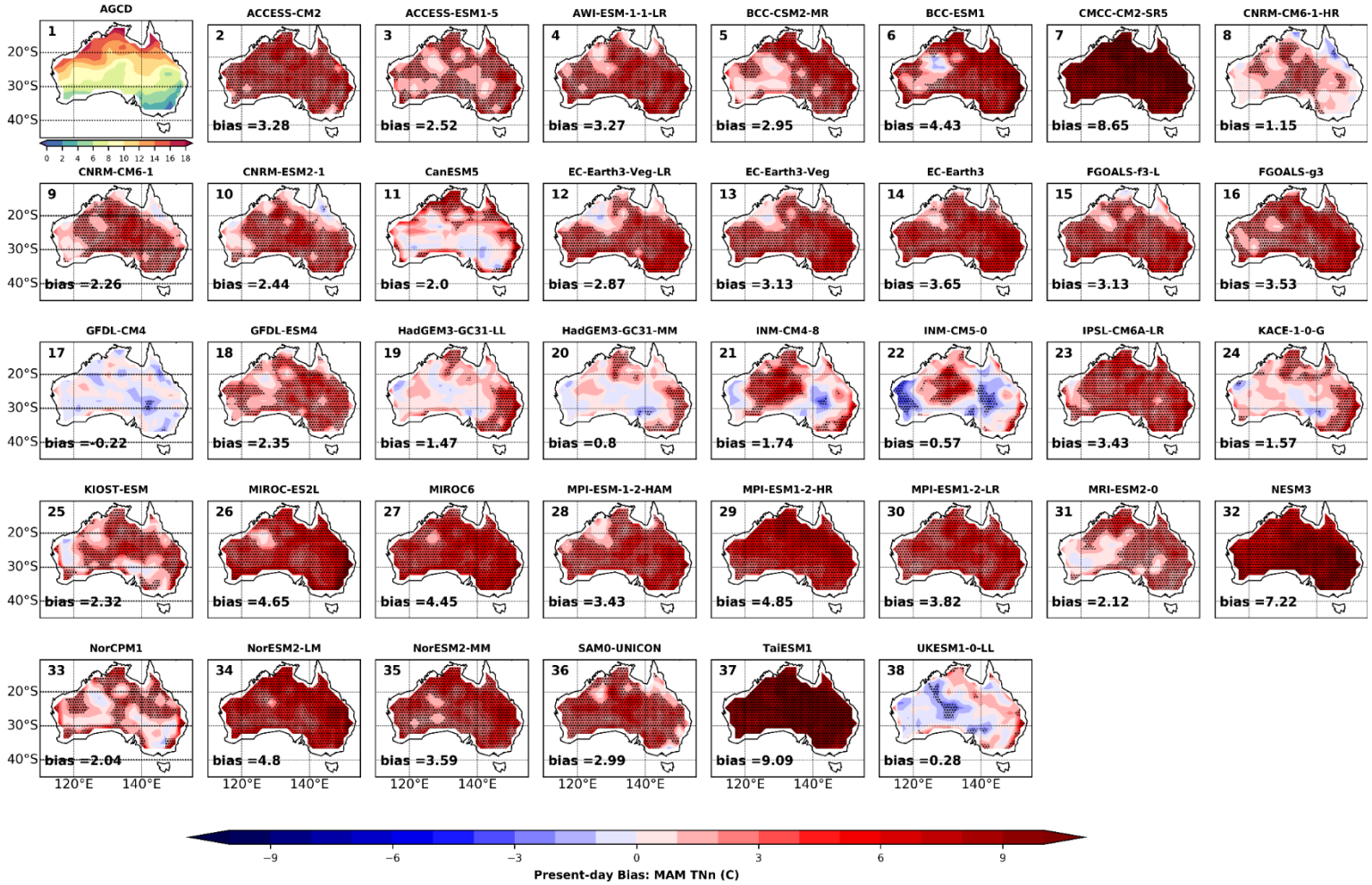

Figure S30. Same as S29 but for March-April-May.

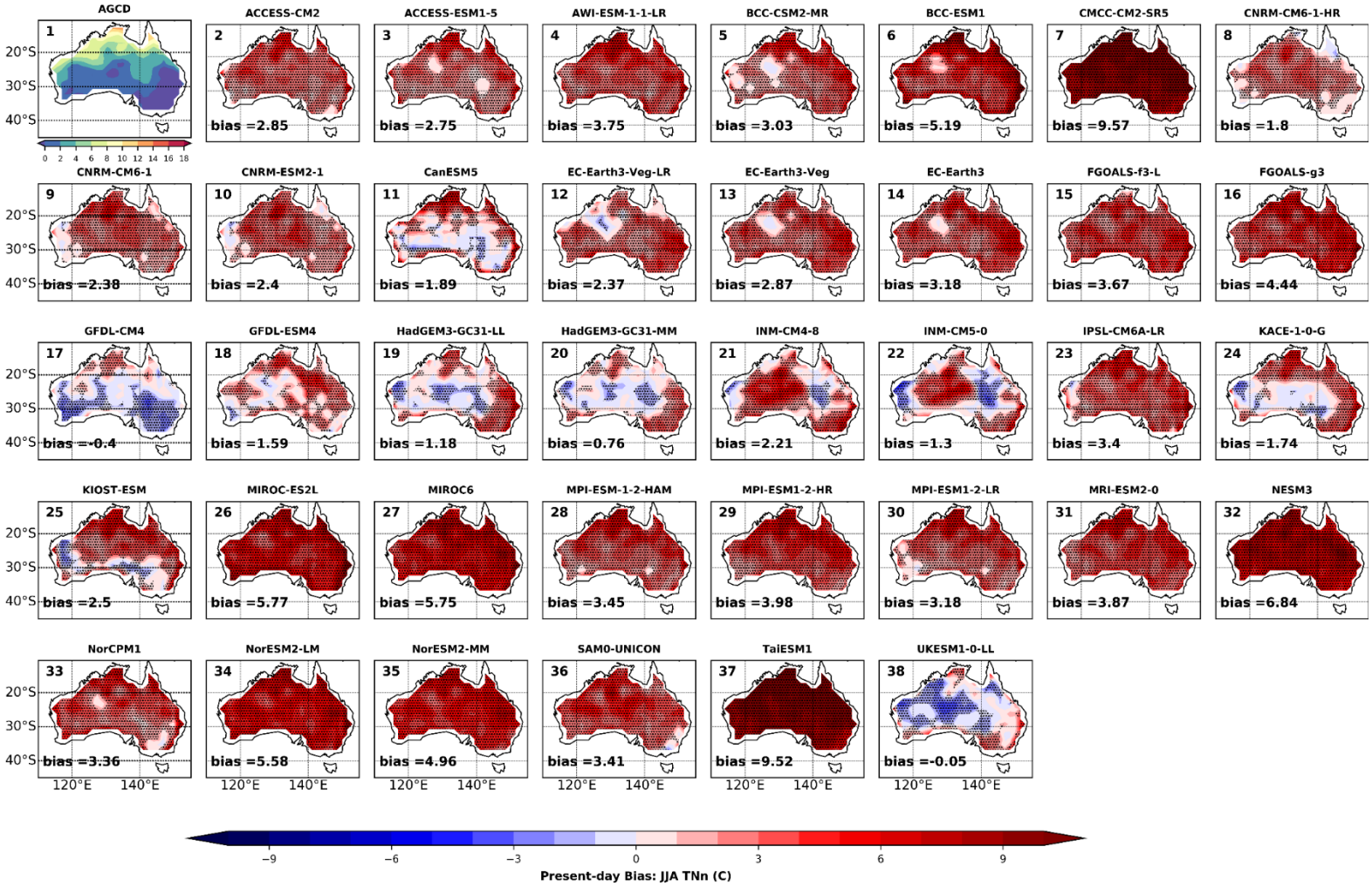

Figure S31. Same as S29 but for June-July-August.

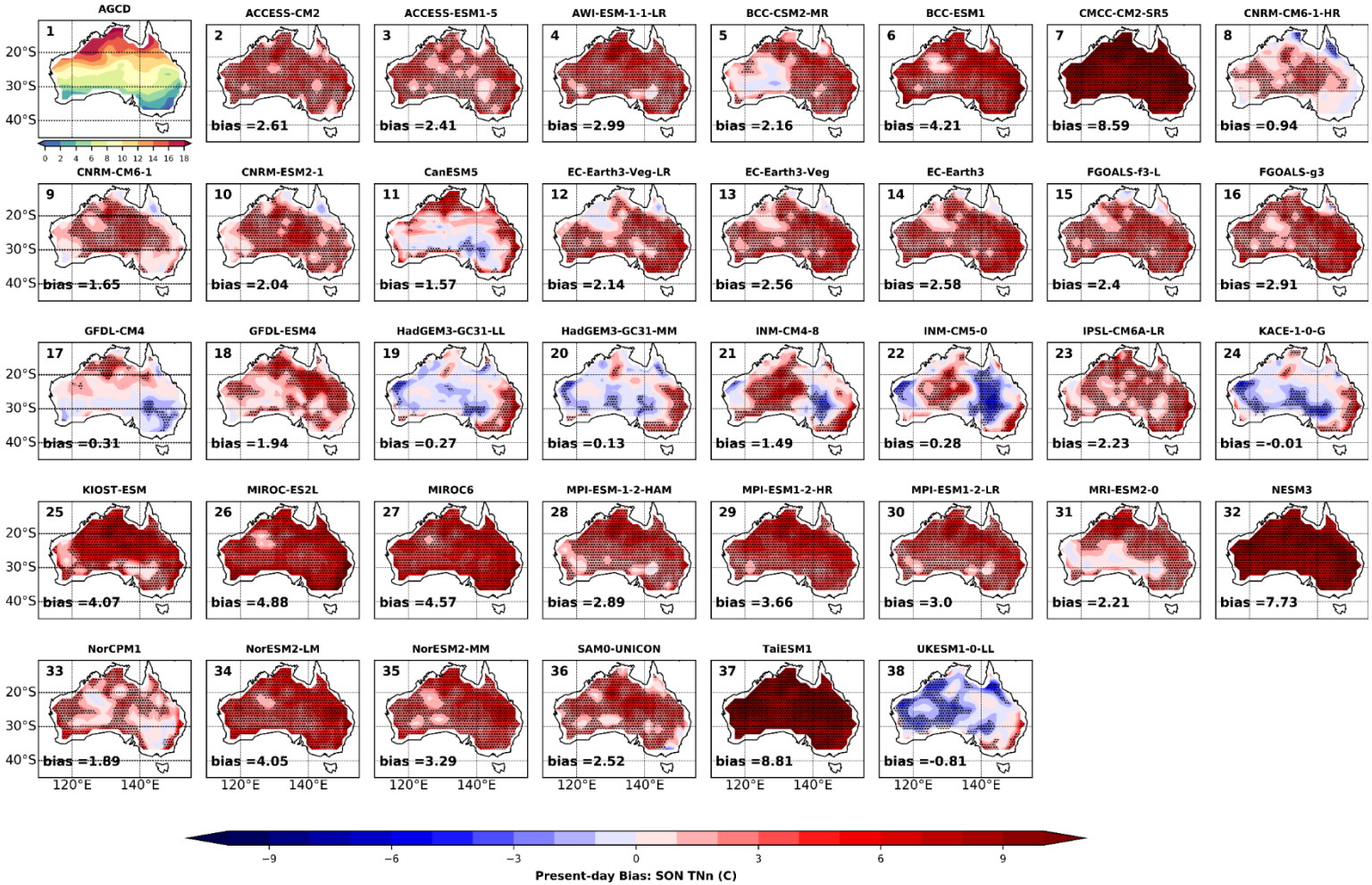

Figure S32. Same as S29 but for September-October-November.

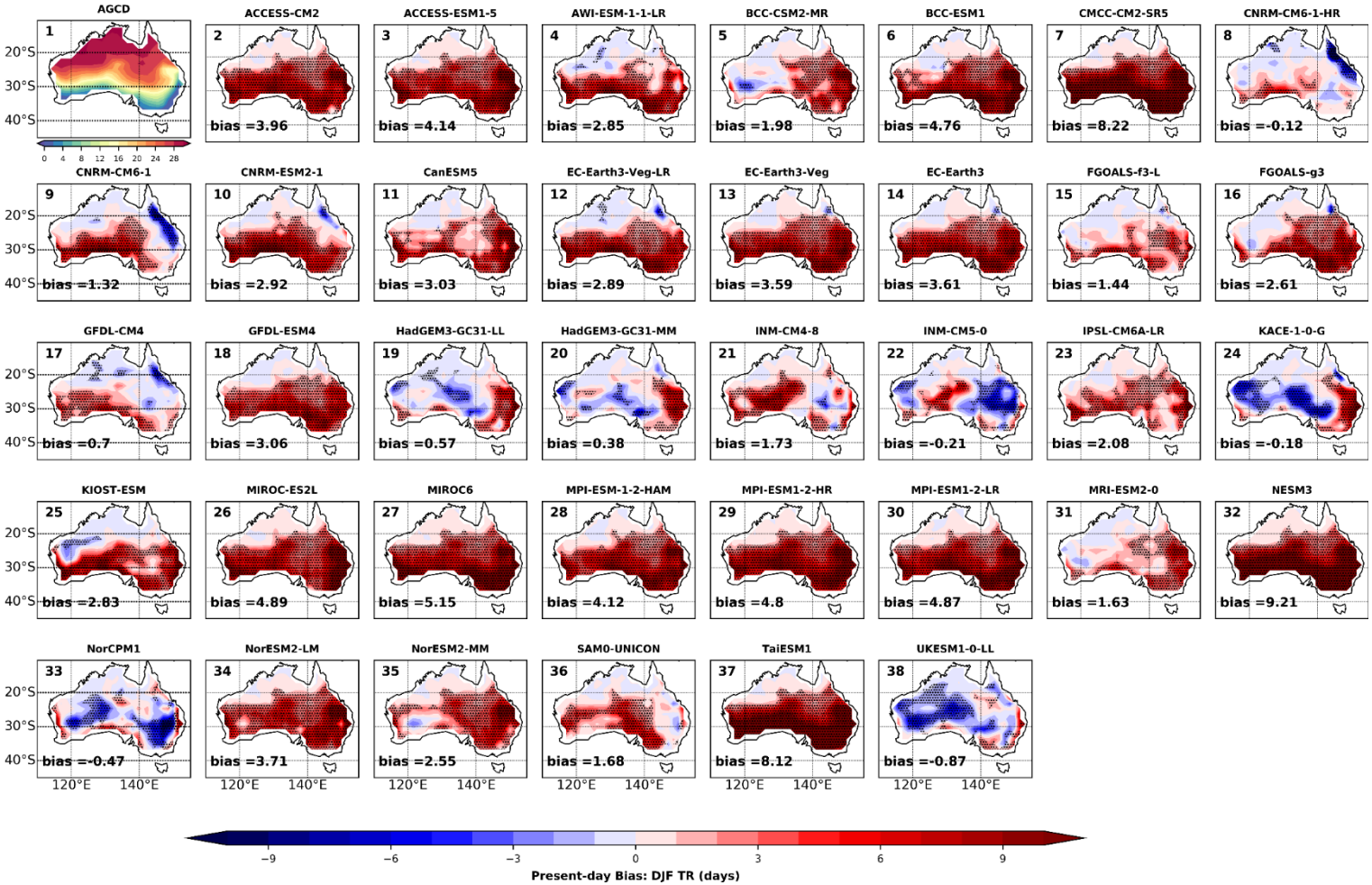

Figure S33. Climatological mean December-January-February bias in tropical nights (number of days when minimum temperature > 20 °C (TR: days) relative to Australian Gridded Climate Data dataset (AGCD; panel 1), for the individual CMIP6 GCMs (panels 2-38). Data spans 1951—2014. Stippling indicates statistically significant differences using a student's t-test at the 95% confidence level. The white mask in part of the inland domain are the regions with no station data.

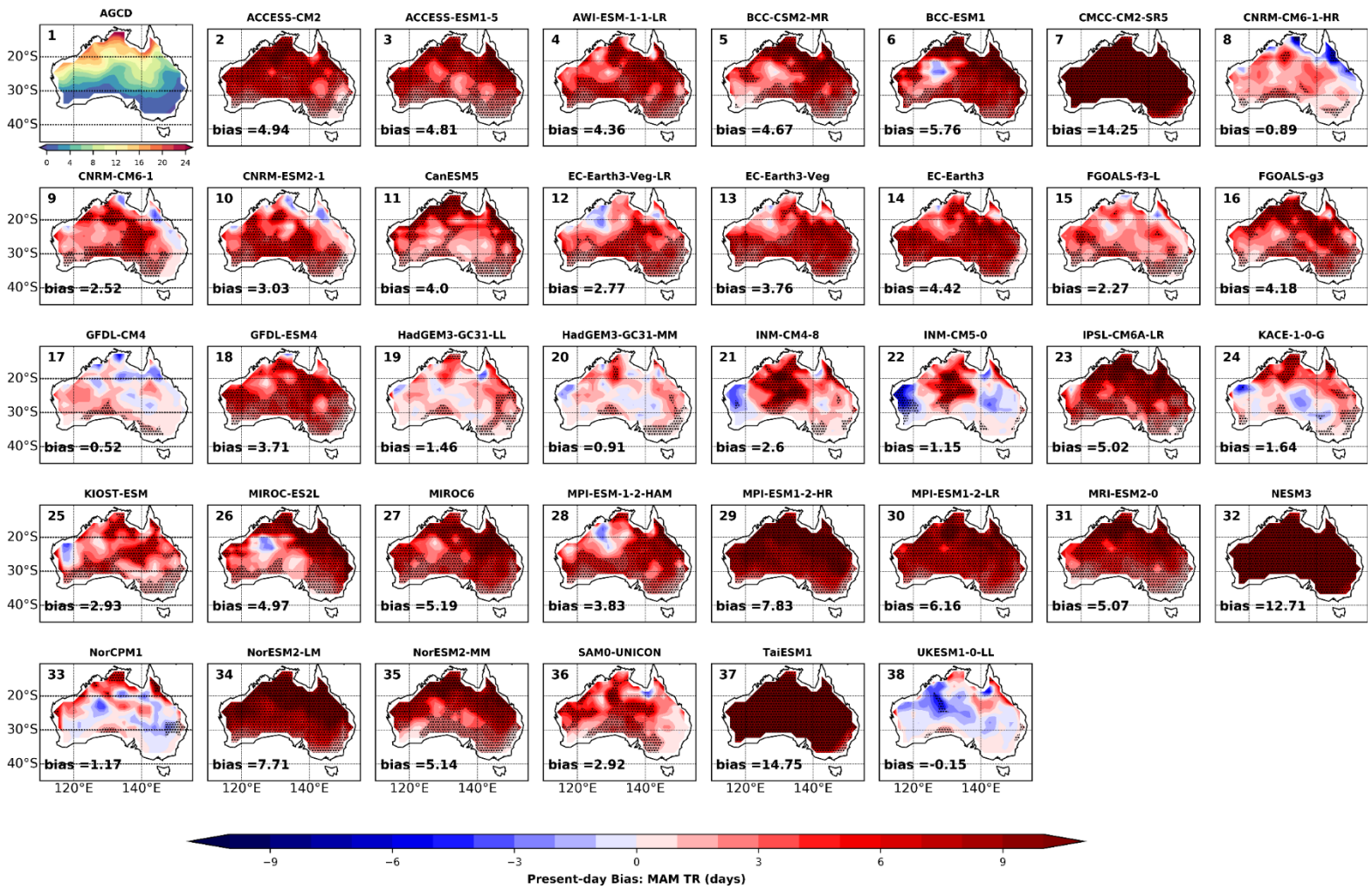

Figure S34. Same as S33 but for March-April-May.

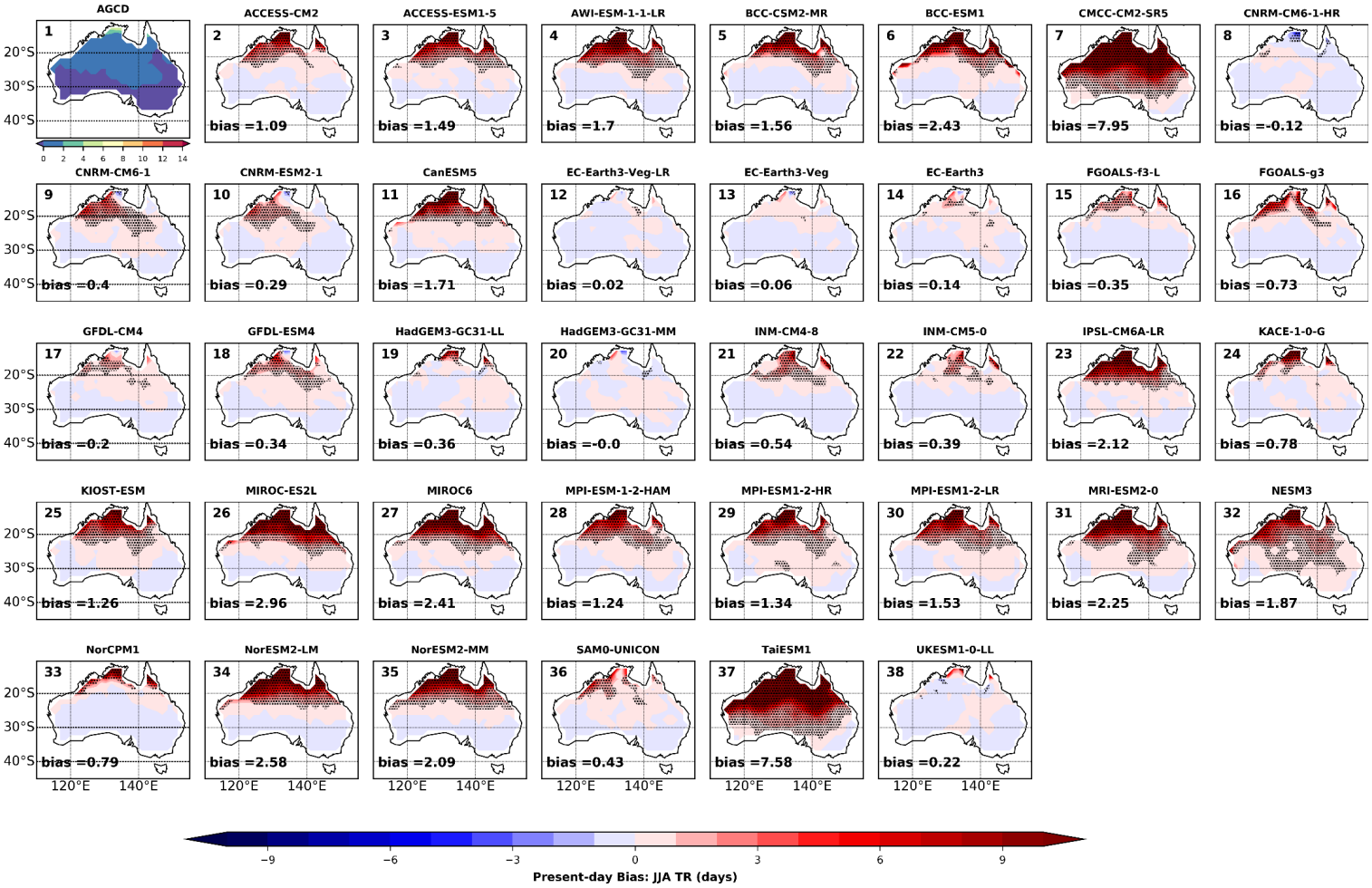

Figure S35. Same as S33 but for June-July-August.

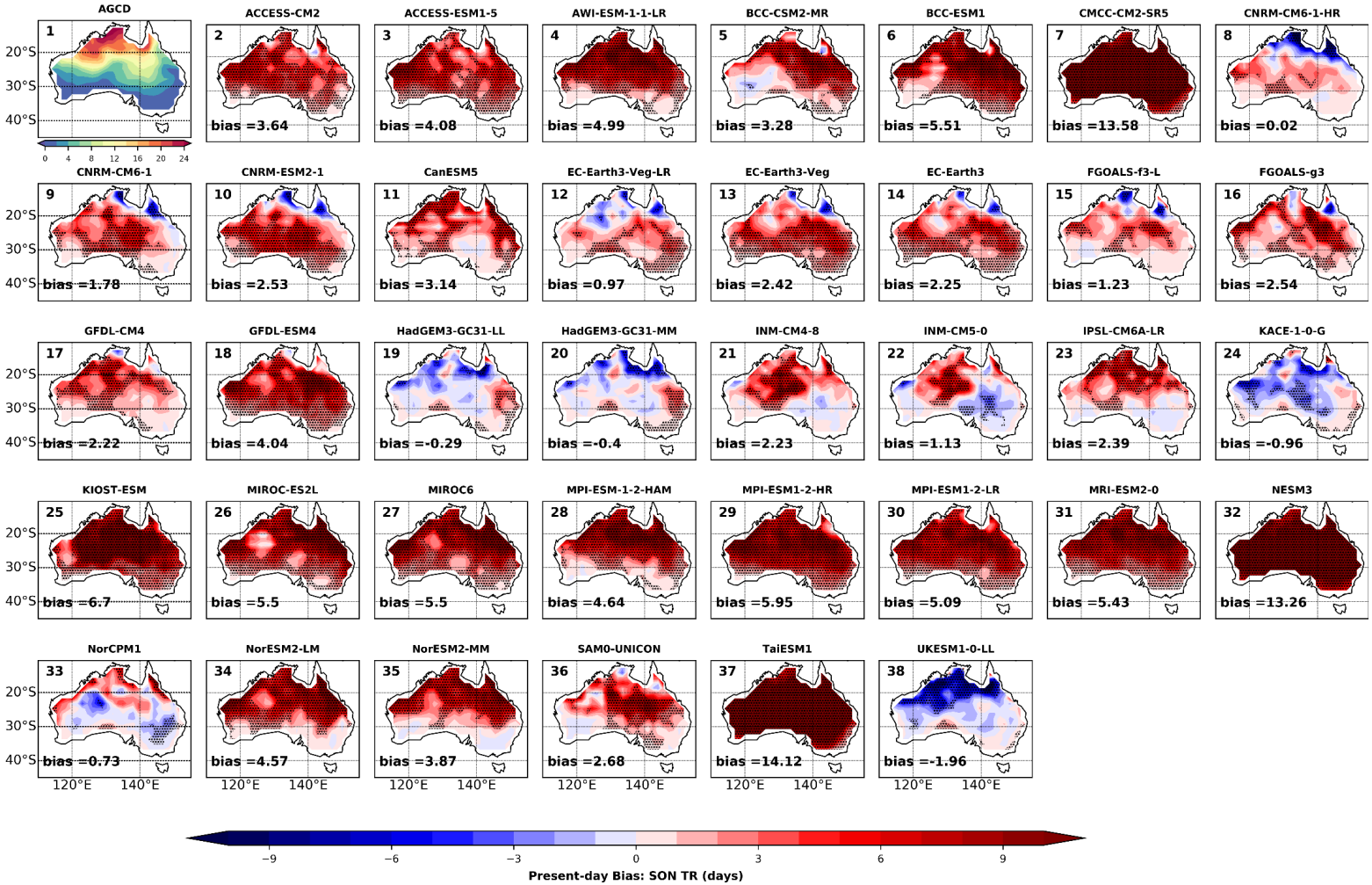

Figure S36. Same as S33 but for September-October-November.

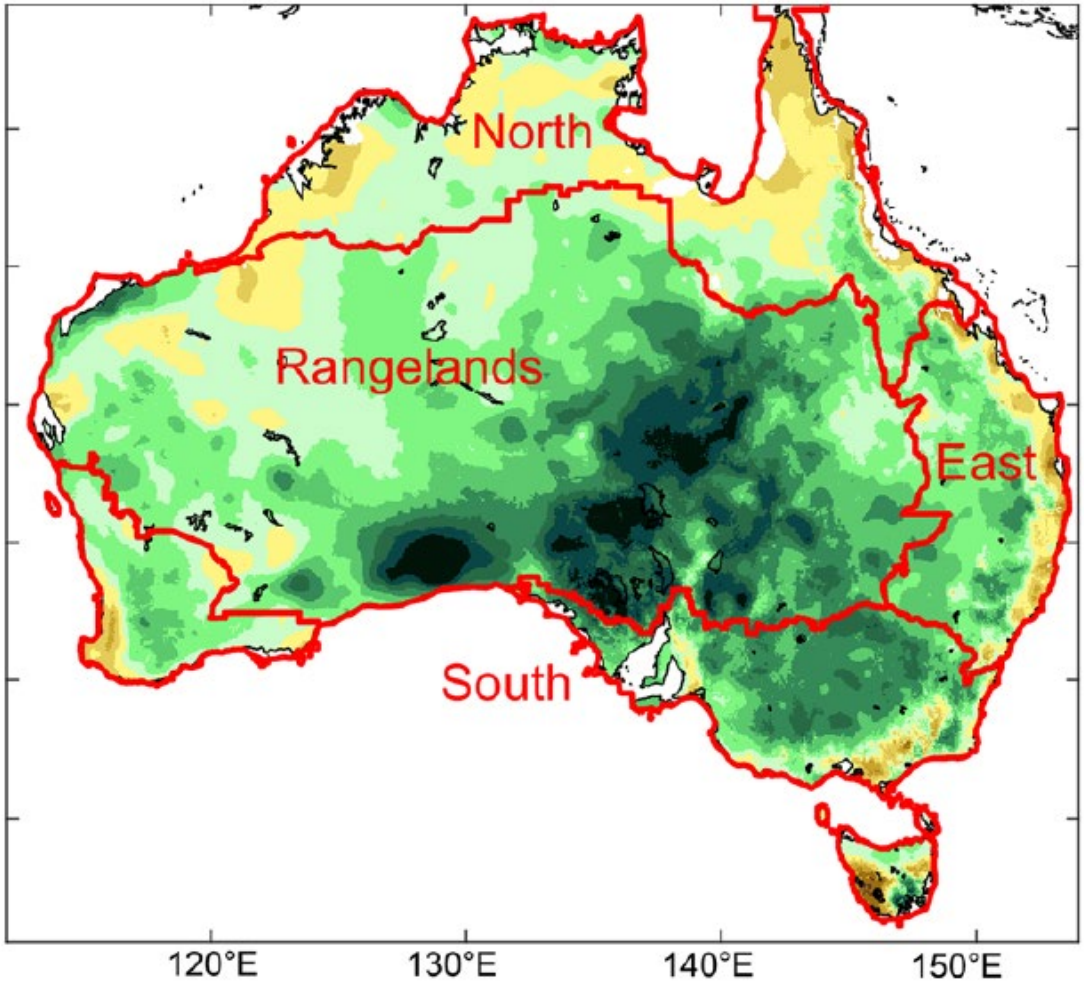

Figure S37. (Figure 3 from Grose et al. 2020). Here red lines indicate the borders of the four "supercluster" averaging regions: Northern Australia (North), Rangelands (Centre), Southern Australia (South), Eastern Australia (East). Given that there is a substantial distinction between the coastal (temperate) East, versus the semi-arid inland East.