

Supplementary Materials:

Table S1. The model configuration for the three independent RCMs. Here, Yonsei University (YSU; Hong et al., 2006) and Mellor-Yamada-Janjić (MYJ; Janji, 1994) are the planetary boundary layer schemes, Kain-Fritsch (KF; Kain, 2004) and Betts-Miller-Janić (BMJ, Betts and Miller, 1986) are the cumulus physics schemes, Dudhia (Dudhia, 1989), Rapid Radiative Transfer Model (RRTM; Mlawer et al., 1997) and Community Atmospheric Model (CAM; Collins et al. 2004) are the radiation schemes and double-moment five-class (WDM5; Lim and Hong 2010) is the cloud microphysics scheme.

NARCLiM ensemble member	Planetary Boundary Layer Physics	Cumulus Physics	Surface Layer Physics	Cloud Microphysics	Shortwave/longwave Radiation Physics
R1	MYJ	KF	Eta similarity	WDM 5 class	Dudhia/RRTM
R2	MYJ	BMJ	Eta similarity	WDM 5 class	Dudhia/RRTM
R3	YSU	KF	MM5 similarity	WDM 5 class	CAM/CAM

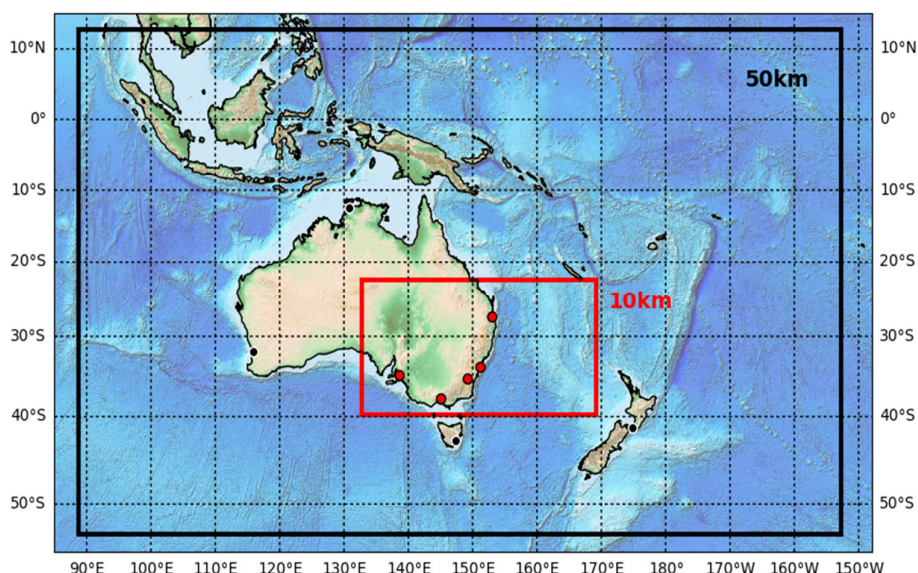


Figure S1. Domains used in NARCLiM1.0 and NARCLiM1.5. The black box is the CORDEX domain with 50 km resolution and the red rectangle is the NARCLiM domain with 10 km resolution. Red dots are locations of 5 capital cities (Brisbane, Sydney, Canberra, Melbourne and Adelaide) within the NARCLiM domain.

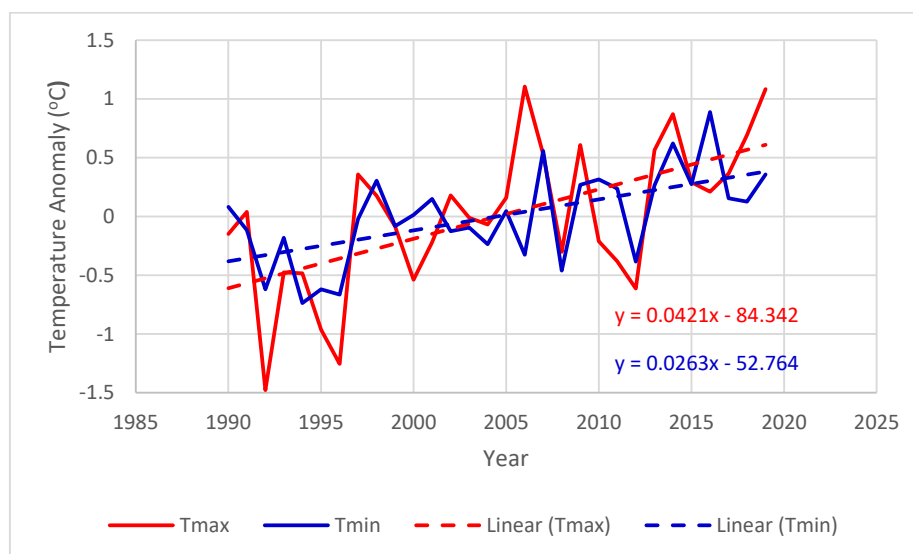
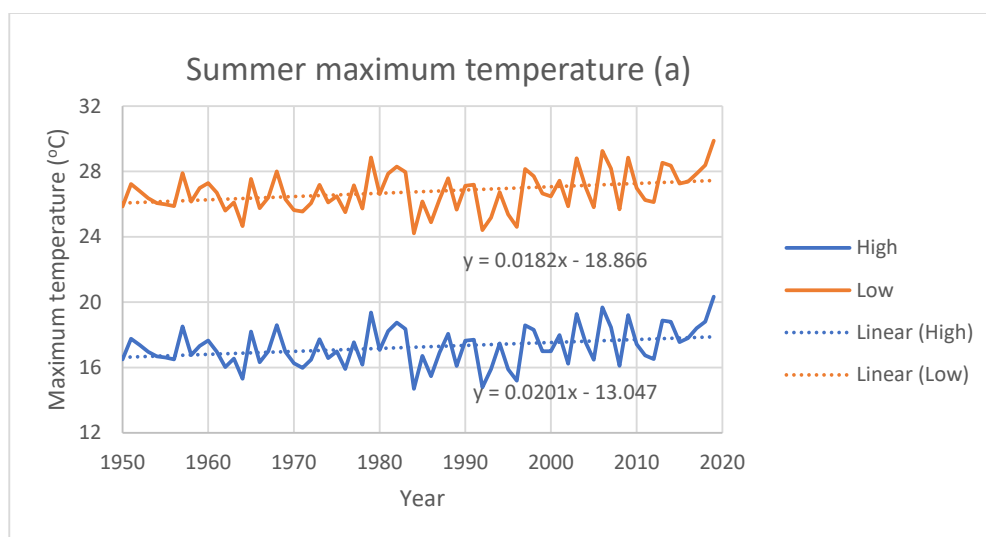


Figure S2. Anomaly of annual mean maximum and minimum temperatures and their trend for recent three decades (1990s-2010s).



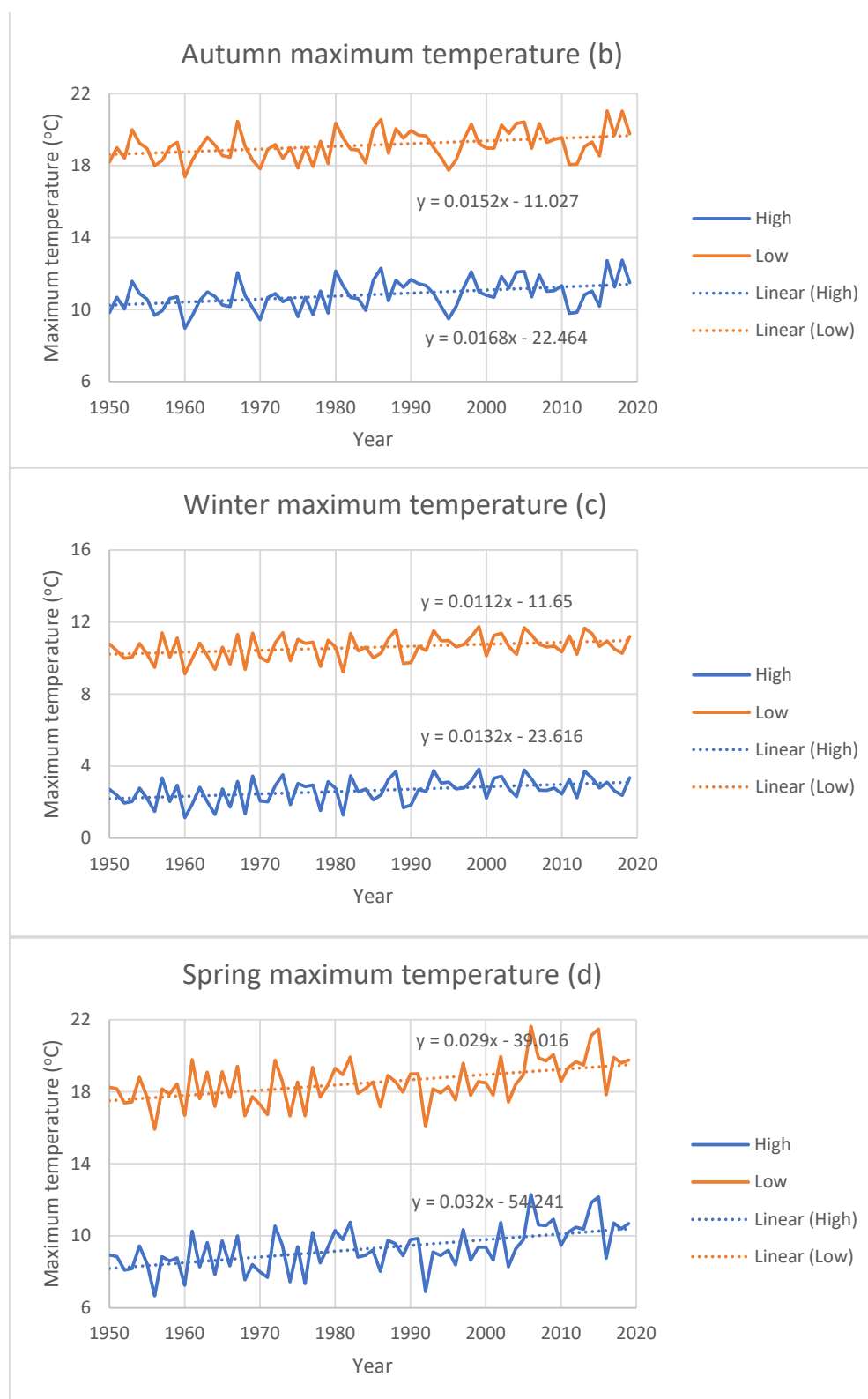
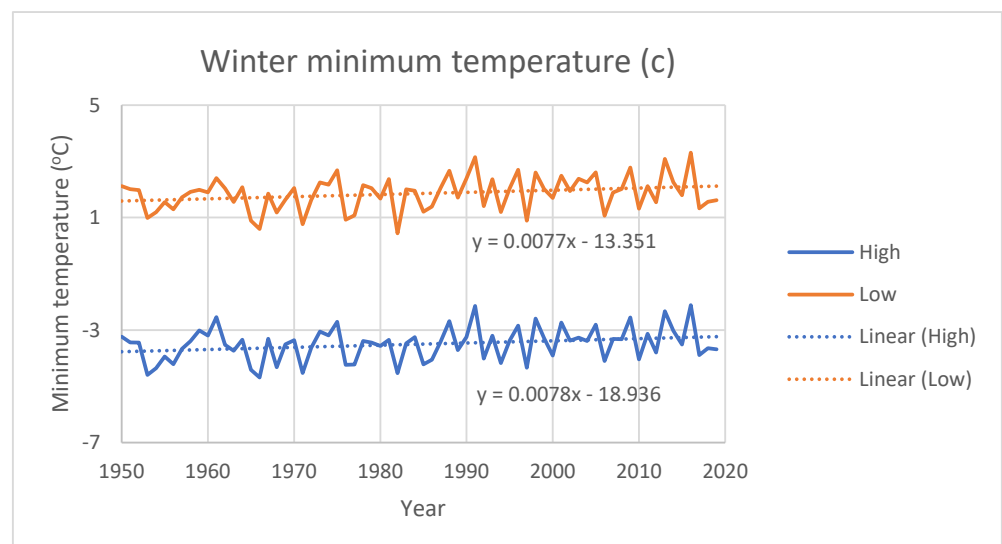
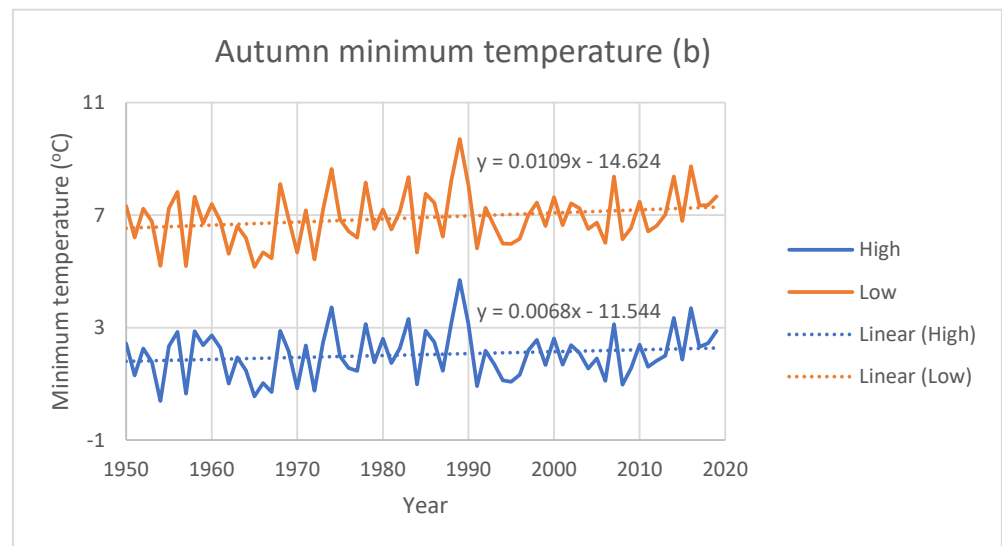
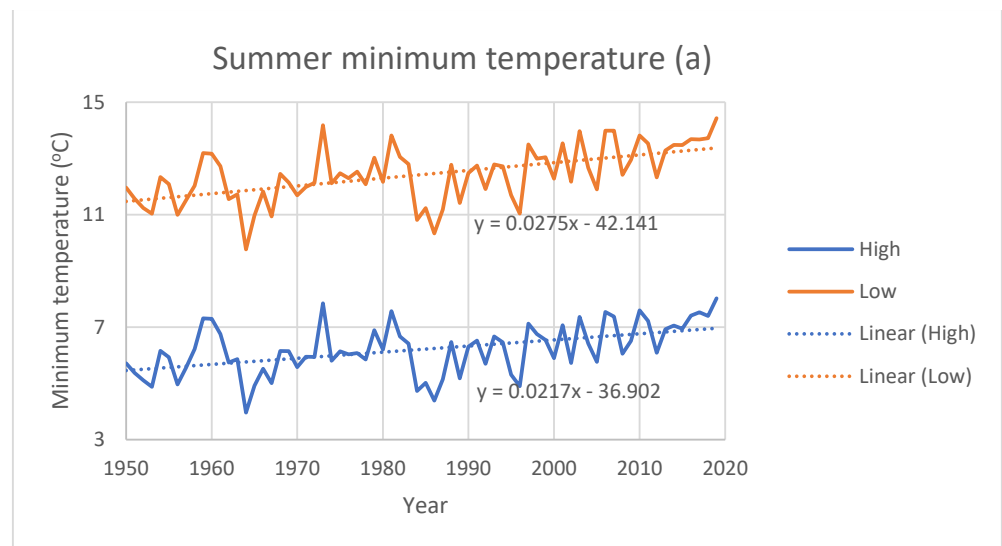


Figure S3. Scatter plots of seasonal mean maximum temperature at higher elevation and lower elevation for 1950–2019.



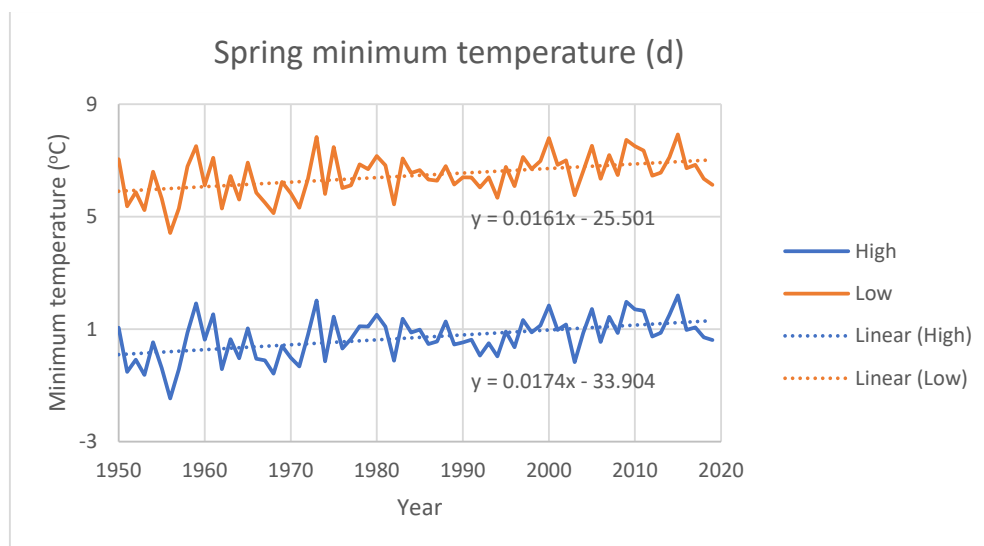


Figure S4. Scatter plots of seasonal mean minimum temperature at higher elevation and lower elevation for 1950-2019.

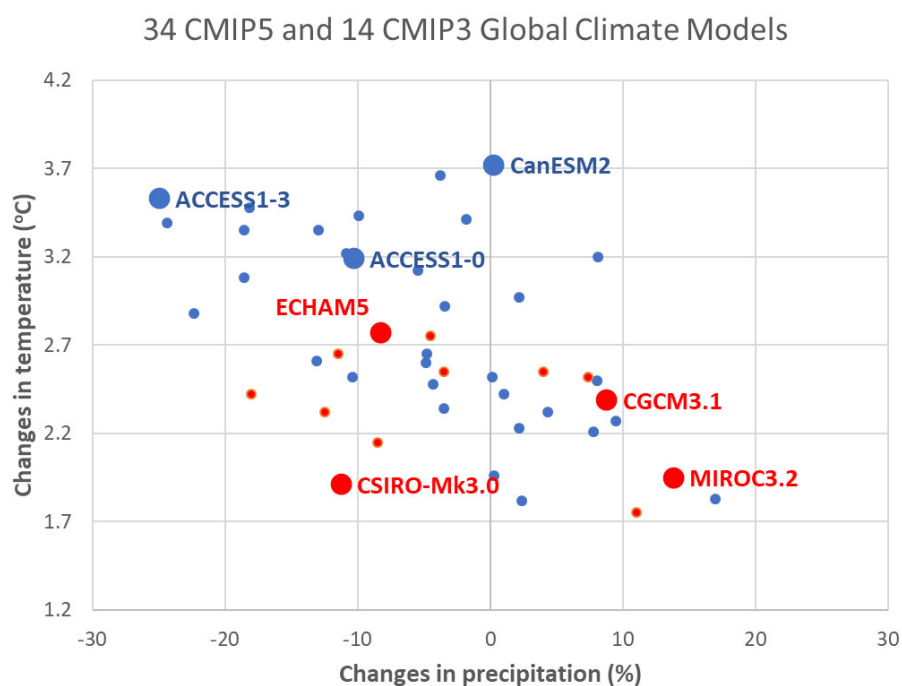


Figure S5. Scatter plot of future change (differences between 2060-2079 and 1990-2009) in rainfall and temperature over the land part of the NARcliM domain (Fig. 1) for 34 CMIP5 (blue) and 14 CMIP3 (red) GCMs that passed the performance test. Larger dots represent the three GCMs selected for N1.5 (blue) and the four GCMs selected for N1.0 (red).

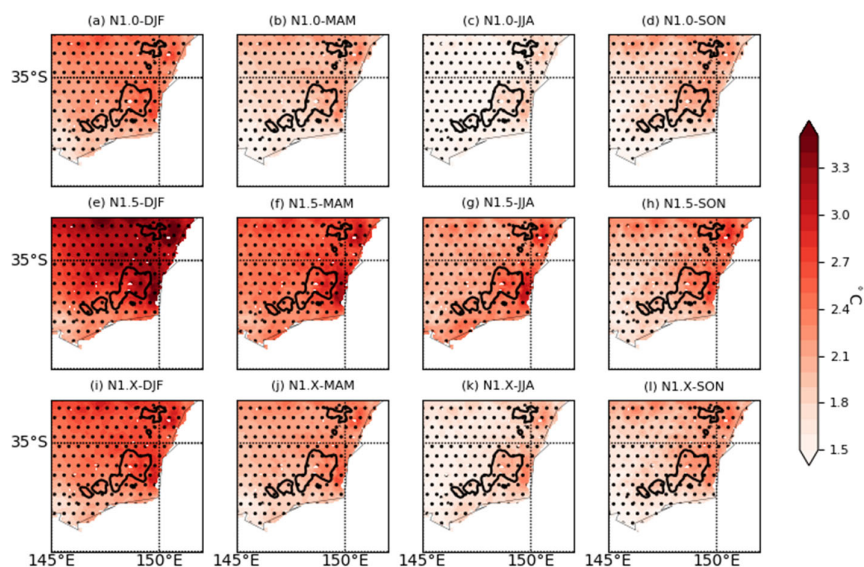


Figure S6. Projected changes in seasonal mean minimum temperature for N1.0, N1.5 and N1.x for 2060-2079 relative to 1990-2009. The black solid lines are the 1200m contour where the high elevation areas are.

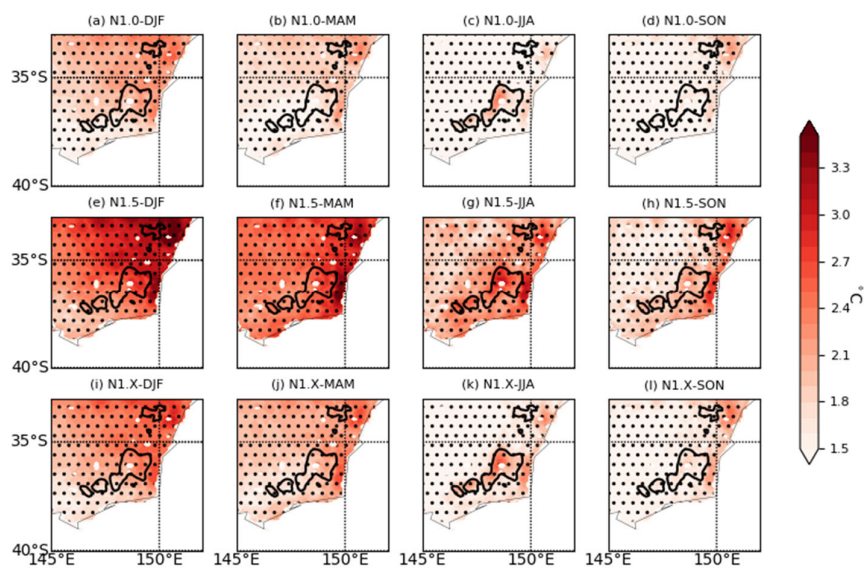


Figure S7. Projected seasonal changes in TNn for N1.0, N1.5 and N1.x for 2060-2079 relative to 1990-2009. The black solid lines are the 1200m contour where the high elevation areas are.