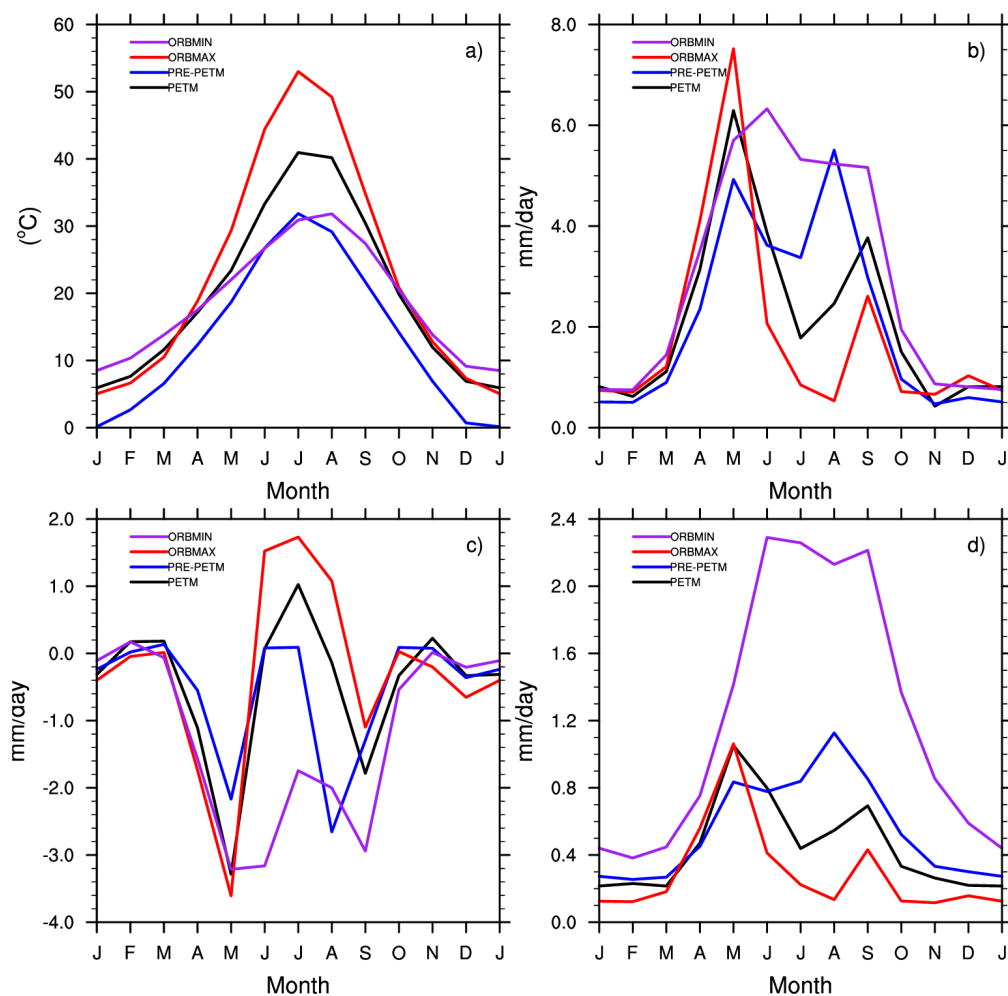


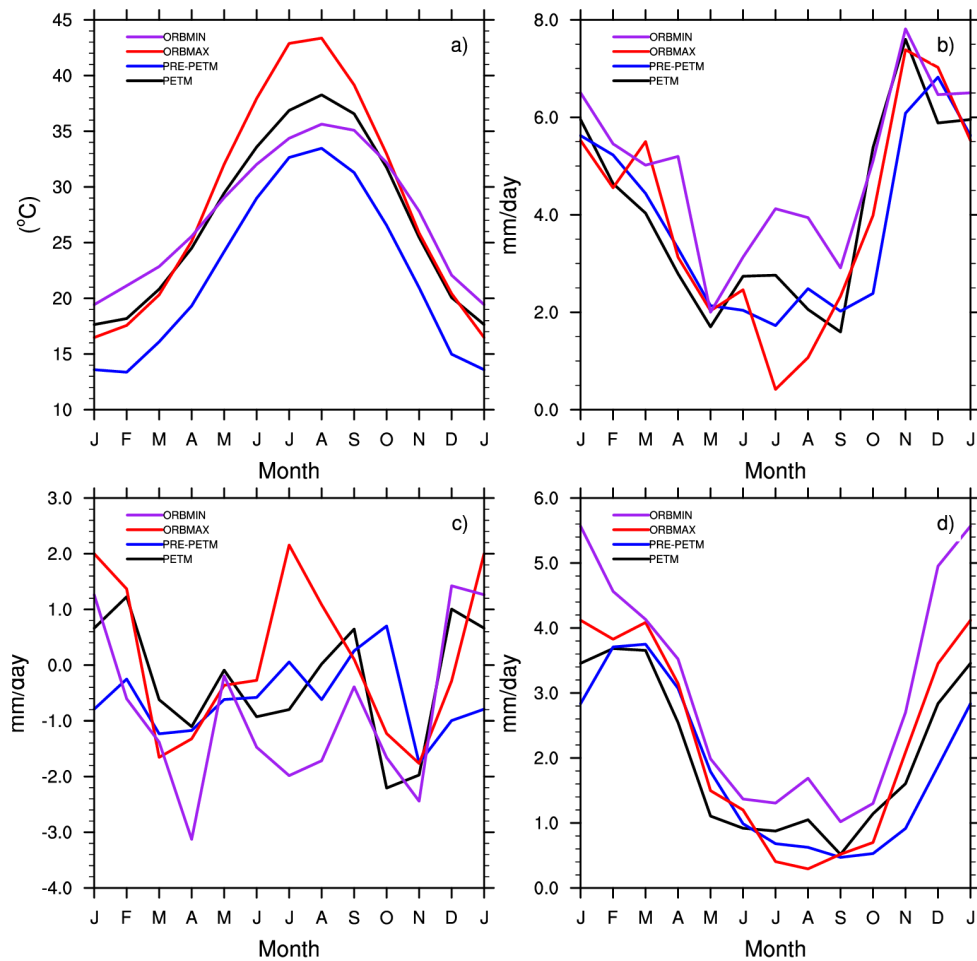
Supplementary Material

In the main body of this work the regional analysis presented differences in surface air temperature and hydrologic variables for various forcing scenarios. To provide a more comprehensive analysis for these regions we show the seasonal cycle of the absolute fields in the following figures.

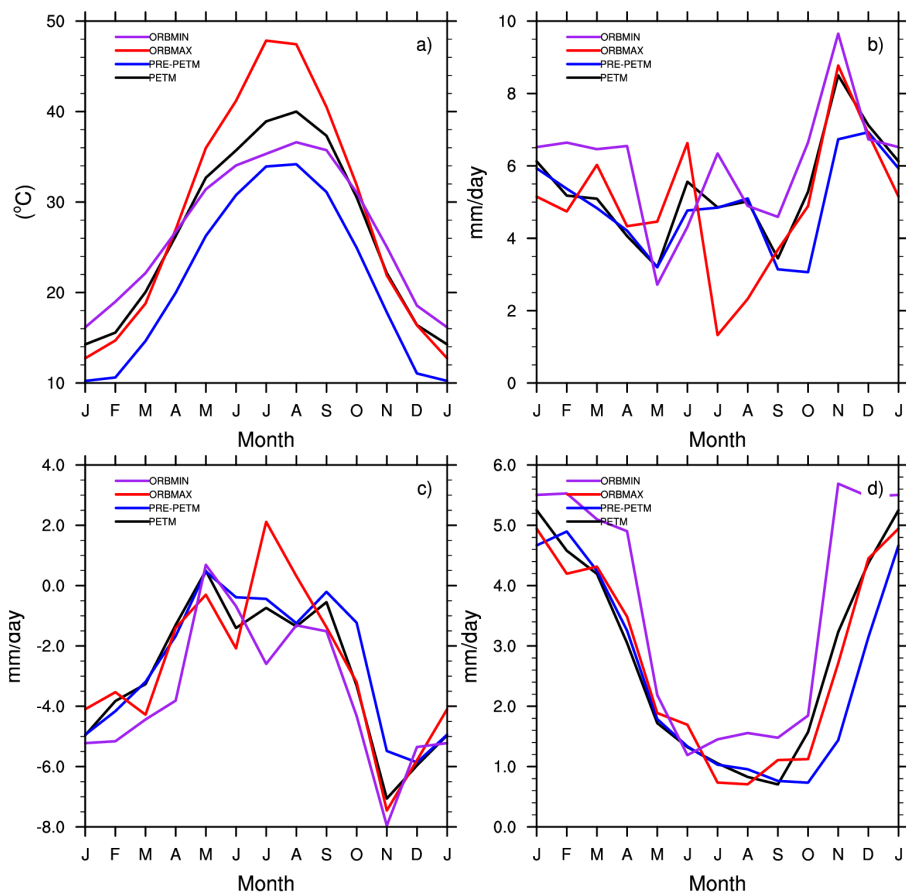
Regional Results



Supplementary Figure 1 Bighorn Basin region. Annual cycle of a) surface air temperature (°C), b) precipitation (mm/day), c) evaporation minus precipitation (mm/day), and d) river runoff (mm/day) for the following cases PETM (____), PRE_PETM, (____), ORBMAX (____), and ORBMIN (____), see Table 1 for list of cases.

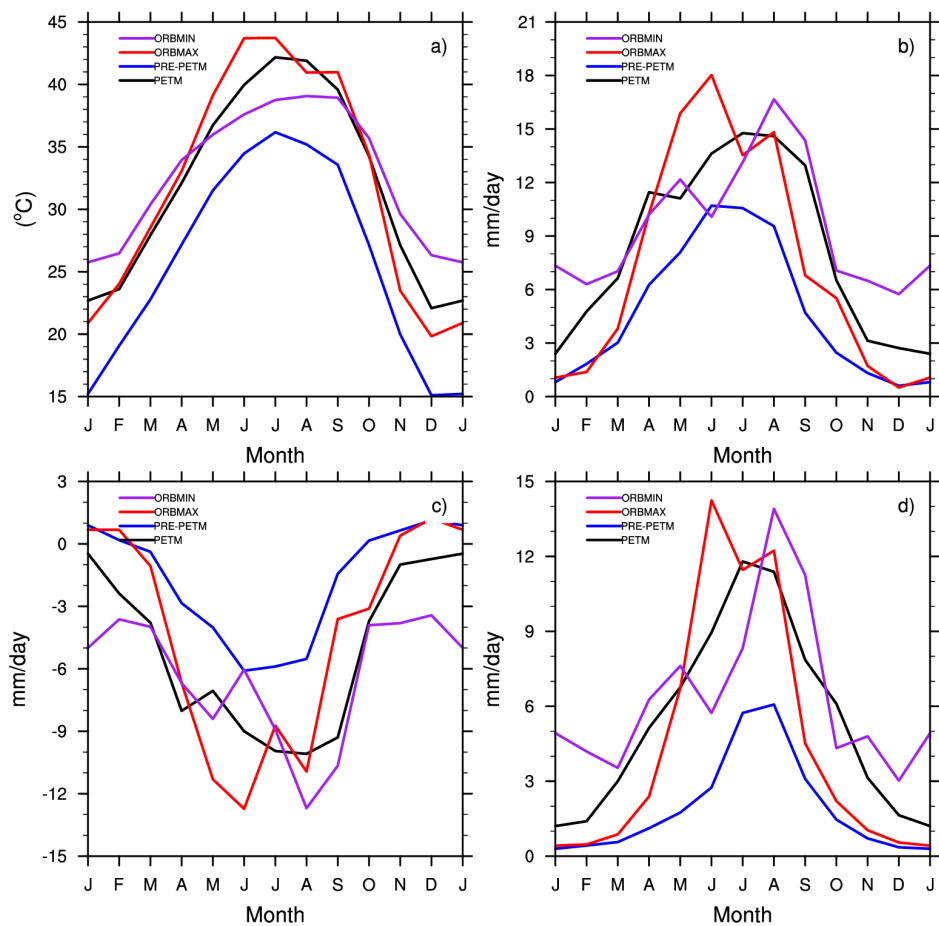


Supplementary Figure 2 New Jersey region. Annual cycle of a) surface air temperature (°C), b) precipitation (mm/day), c) evaporation minus precipitation (mm/day), and d) river runoff (mm/day) for the following cases PETM (____), PRE_PETM, (____), ORBMAX (____), and ORBMIN (____), see Table 1 for list of cases.

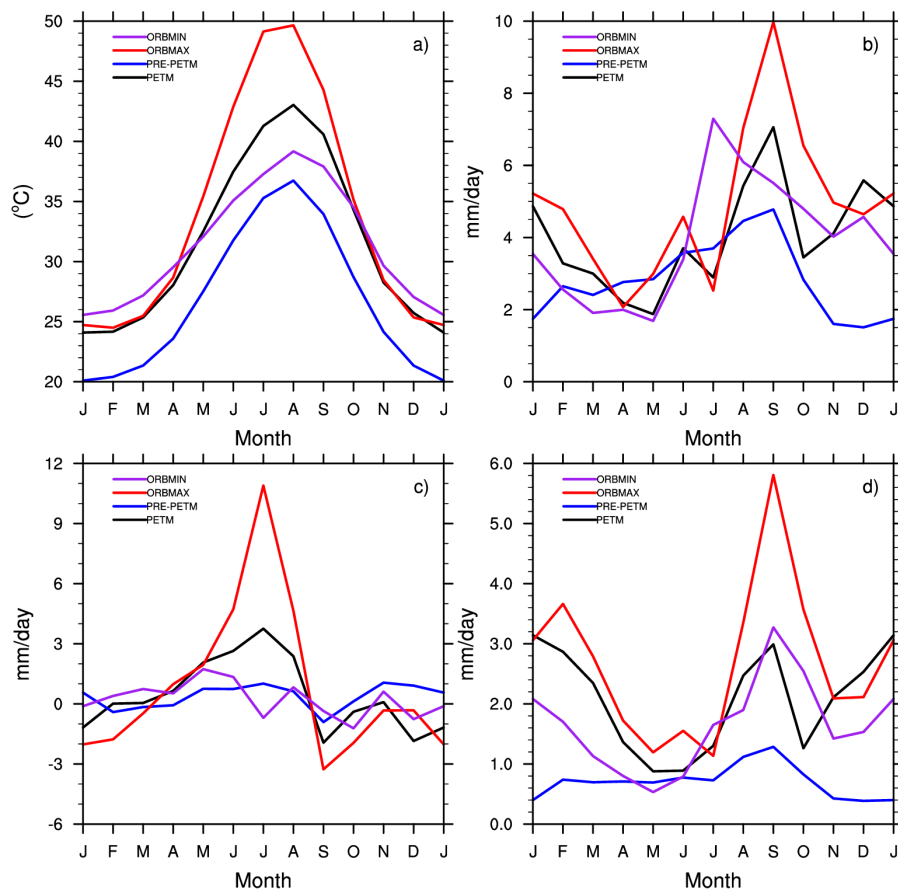


Supplementary Figure 3 Maryland region. Annual cycle of a) surface air temperature (°C), b) precipitation (mm/day), c) evaporation minus precipitation (mm/day), and d) river runoff (mm/day) for the following cases PETM (____), PRE_PETM, (____), ORBMAX (____), and ORBMIN (____), see Table 1 for list of cases.

China



Supplementary Figure 4 China region. Annual cycle of a) surface air temperature (°C), b) precipitation (mm/day), c) evaporation minus precipitation (mm/day), and d) river runoff (mm/day) for the following cases PETM (____), PRE_PETM, (____), ORBMAX (____), and ORBMIN (____), see Table 1 for list of cases.



Supplementary Figure 4 Spanish Pyrenees region. Annual cycle of a) surface air temperature (°C), b) precipitation (mm/day), c) evaporation minus precipitation (mm/day), and d) river runoff (mm/day) for the following cases PETM (____), PRE_PETM, (____), ORBMAX (____), and ORBMIN (____), see Table 1 for list of cases.