The manuscript ‘Meteorological Drought Projections for Australia from Downscaled high-resolution CMIP6 climate simulations’ presents the future drought features (SPI and SPEI) based on the downscaled precipitation and potential evapotranspiration data. The work is well-presented. However, there are some issues that need to be clarified further before the publication.

1. This study utilizes various drought characteristics, including duration, frequency, percent time (Figure 2), and shifts in the moving average, to predict future droughts. However, since the downscaling is applied only spatially, all temporal analyses could be conducted using GCM data. Yet, only Figure 10 presents a spatial map. What is the rationale for using downscaled data in this context?

2. Why did the author choose to use downscaled data from the Conformal Cubic Atmospheric Model (CCAM)? What advantages does CCAM offer compared to other downscaled datasets? Additionally, how can you demonstrate that drought characteristics derived from the downscaled data are more reliable or accurate than those based on raw GCM data?

3. Is there any result about the comparison between the downscaled data and original data (such as precipitation and potential evapotranspiration) to evaluate the downscaling methods' performance?

4. The study area was divided into four distinct regions—Eastern Australia, Northern Australia, the Rangelands, and Southern Australia—based on climatic and biophysical characteristics. However, the specific climatic and biophysical parameters used for this classification were not explicitly defined. Including detailed information on climate patterns (e.g., precipitation regimes, seasonal variations), dominant vegetation types, and temperature ranges could enhance the clarity of the classification framework. Such specifications would facilitate a more comprehensive interpretation of the analytical results by providing critical contextual information about regional environmental variations.

5. The discussion's comparative analysis of the SPI and SPEI offers valuable methodological insights. However, stronger integration with region-specific climatic and biophysical drivers would benefit the interpretation. Additionally, the spatial specificity of distinctions between SPI and SPEI across sub-regions remains insufficiently delineated, limiting the granularity of conclusions.

   Can more spatiotemporal visualizations (e.g., seasonal or interannual variability in drought indices in different regions) be incorporated to elucidate sub-regional heterogeneity clearly?

   The discussion should also explicitly articulate linkages between index disparities and potential localized environmental drivers, such as land cover status.