This manuscript presents an in-depth study on projecting future hydrological changes in China using the Joint UK Land Environment Simulator (JULES). The study focuses on high-resolution simulations (0.25 °) to assess runoff variability and flood and drought risks under medium (SSP245) and high (SSP585) emission scenarios. The results indicate significant regional variations in runoff, with wetter conditions projected in eastern and southern basins and contrasting seasonal patterns between northern and southern China. Overall, the manuscript is well written and organized, and it makes a significant contribution to understanding future hydrological changes in China. However, it should address the limitations below to enhance the reliability and practical relevance of the findings.

Major comments:

1.The study relies on a limited set of observational data for model calibration and validation, which may affect the accuracy and reliability of the simulations. Accurate calibration and validation are critical for ensuring the reliability of hydrological models. The limited data might lead to significant errors in the projections, undermining the study' s overall credibility.

2. The influence of hydraulic engineering structures, such as dams and reservoirs, on runoff patterns is not considered, potentially overlooking significant anthropogenic impacts on hydrological processes. Human activities significantly alter hydrological processes. Ignoring these factors can lead to unrealistic projections and misinform policy decisions regarding water management and infrastructure planning.

3. The study uses three selected GCMs deemed suitable for China, but a broader range of models might provide a more comprehensive assessment of future hydrological changes and reduce model selection bias. While the selected GCMs are suitable, including a wider range of models would enhance the robustness of the projections and provide a more comprehensive picture of potential hydrological changes.

4. The ERA5 dataset, known to overestimate precipitation in some regions of China, is used for downscaling, potentially leading to inaccuracies in runoff projections. The use of ERA5 data may lead to overestimated runoff, especially in northern and western regions. This can affect the accuracy of flood and drought risk assessments.

5. The manuscript lacks a detailed discussion on the practical implications of the findings for water resource management and climate adaptation strategies in China. While the scientific findings are robust, their practical application in policy and management is crucial. A more detailed discussion could help translate the scientific results into actionable strategies for stakeholders.

Minor comments:

1. Line 61-62，please specify how coarse it is.

2. Line 83, it should be Section 2.1.

3. In figure 1, it is recommended to add 10 dashed lines at present.

4. I would recommend to add the control area for the selected gauges somewhere.