

Interactive comment on “Assessment of extreme flows and uncertainty under climate change: disentangling the contribution of RCPs, GCMs and internal climate variability” by Chao Gao et al.

Anonymous Referee #2

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Projections of future climate change impacts on streamflow, particularly of extreme flows are beneficial for decision makers in future water resources management and development of adaptation strategies of flood and drought control. However, these projections are associated with large uncertainties from various sources. This manuscript predicted future streamflow changes in the Qu River basin in China and quantified uncertainty sources such as Representative Concentration Pathways (RCPs), Global Climate Models (GCMs), and internal climate variability, using the analysis of variance (ANOVA) to quantify the contribution of different sources. The experiments were designed appropriately and the results were well interpreted. The manuscript was well written. It can be accepted with minor improvements. Here below are a few sugges-

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tions:

- 1) This manuscript only explained how to disaggregate monthly precipitation into daily precipitation considering the internal climate variability. How to downscale air temperature from monthly scale to daily scale should be also explained in the manuscript.
- 2) Section 4.2.2: Since this paper focuses on extreme flow projections, please add a short paragraph on the performance of the hydrological model in extreme high and low flow simulations in the historical period.

Minor: 1) Figure 2: Replace 'dry spell' with 'Dry spell'. 'Modium' in the table should be 'Medium'. 2) Figure 3 is not clear enough. Please enlarge the figures to improve the readability. 3) Figure 4: In each sub-figure, there is a small plot box with three curves. Please denote the plot box in the figure caption. 4) Figure 6: Replace 'DRM-MCREM' with 'SDRM-MCREM'. 5) Line 139: 'he features' should be 'the features'.

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