

## **General:**

The reviewer is very glad to see this manuscript, which addresses a significant scientific issue, has been improved considerably in terms of structure and presentation. The methodology on multi-scale modeling and analysis is clarified and systemically introduced, and the results are interpreted and discussed in a clear and consistent way. The study made comprehensive analysis on the draught events of the Poyang Lake in recent decade and provided insightful views on the causes of draughts (intensity and severity) with solid evidences from multi-scale water budget models. In particular, the study provided quantitative and qualitative evaluation on the influences of the Three Gorges Dam (TGD) on water deficit of the Poyang Lake Basin, which is a helpful to ease recent debates on the role of TGD (e.g., Guo et al., 2012, Feng et al., 2014, Song & Ke, 2014). The authors should be applauded for their efforts in improving the clarity and overall impact of the manuscript, which is not easy as there involves analyses on multiple spatial scales, treatments of multi-sources data, and link of ideas from different perspectives. From the reviewer's standpoint, there are several issues (mostly about language) that need to be addressed before final publication.

## **Specific comments:**

Line 137: 'Feng et al. (2012) used 250-m satellite images·····' this sentence is mainly a repeat of the sentence in line 103. It is better to start with 'Feng et al. (2012) quantified the drought severity of Poyang Lake in 2011 and showed that the drought was primarily due to····· '

Line 203: 'in the case of ···' should be 'in case of'?

Line 380: 'It has several difficulties to perform·····' awkward phrase. It is better to be replaced with "It has been difficult to perform·····"

Line 382: 'the lake has a remarkable surface variation·····' What kind of surface variation? Use clear expression as 'the lake inundation area shows remarkable variation'

Line 402: is 'annual variability' correct here? It seems to be 'seasonal variation', as it is about how to obtain monthly data from yearly mean data.

Line 545: ‘Concerning water budget for a drought event, it was……’ remove concerning and start the sentence with ‘The water budget was ……’

Line 561: ‘While the inflow reduction generated from combined hydroclimatic change’ Note that a sentence should follow the word ‘while’ and re-consider the use of ‘generated from’. Revise it to ‘While the inflow reduction was caused by (resulted from) combined hydroclimatic change’

Line 599: ‘the water deficit increased……’ Re-consider the use of ‘increased’. It is better to use ‘worsened’ or ‘enhanced’?

Line 676: Replace ‘However’ with ‘Overall’

Line 678: Remove ‘Overall’ and start with ‘The findings of this study ……’

Line 679: Re-phrase the sentence. The meaning is not clear. What is ‘droughts in the changing climate and anthropogenic influences’?

Line 680: what the word ‘It’ refer to?

Line 680-682: These sentences need to be modified to make clear statements on the potentials of this research.

## References

Feng, L., Hu, C., & Chen, X. (2014). Dramatic Inundation Changes of China’s Two Largest Freshwater Lakes: Natural Process or Influenced by the Three Gorges Dam? A Revisit. *Environmental science & technology*, 48, 2088-2089

Guo, H., Hu, Q., Zhang, Q., & Feng, S. (2012). Effects of the three gorges dam on Yangtze river flow and river interaction with Poyang Lake, China: 2003–2008. *Journal of Hydrology*, 416, 19-27

Song, C., & Ke, L. (2014). Recent Dramatic Variations of China’s Two Largest Freshwater Lakes: Natural Process or Influenced by the Three Gorges Dam? *Environmental science & technology*, 48, 2086-2087