

## ***Interactive comment on “On the Flood Peak Distributions over China” by L. Yang et al.***

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I do think this study is interesting, particularly, some findings were based on good dataset. However, I do find serious issues to be address before potential acceptance. (1) What are the scientific issues or scientific assumptions to be addressed? What are the objectives of this current study? (2) As for detection of change points, results by one statistical method are not certain with considerable uncertainty. This issue was well addressed by Zhang et al. (2009), i.e. Qiang Zhang, Chong-Yu Xu, Yongqin David Chen, Jianmin Jiang, 2009. Abrupt behaviors of the streamflow of the Pearl River basin and implications for hydrological alterations across the Pearl River Delta, China. *Journal of Hydrology*, 377(3), 274-283. By the way, the assumption that only one change point can be observed in one streamflow series is not practically and theoretically correct. It is definitely wrong! (3) The authors tried to relate GEV parameters to tropical cyclones and fit GEV model to stationary series. This kind of analysis is totally wrong. I

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suggest stationary GEV model for stationary flood peak series, but nonstationary GEV, i.e. GEV with time-varying parameters, for nonstationary flood peak series. Moreover, flood peak process is not the result of tropical cyclone only, but most flood processes are by extreme precipitation. Therefore, I suggest association of peak flood flows to extreme precipitation but not tropical cyclones. Just as said, some extreme precipitations are by tropical cyclones. (4) Peak flood flows are heavily influenced by water reservoirs. Actually, it was done by Zhang et al. (2015), i.e. Qiang Zhang, Xihui Gu, Vijay P. Singh, Chong-Yu Xu, Dongdong Kong, Mingzhong Xiao, Xiaohong Chen, 2015. Homogenization of precipitation and flow regimes across China: changing properties, causes and implications. *Journal of Hydrology*, 530, 462-475. Relevant case studies can be found as: Qiang Zhang, Vijay P. Singh, Chong-Yu Xu and Xiaohong Chen, 2013. Abrupt behaviors of streamflow and sediment load variations of the Yangtze River basin, China. *Hydrological Processes*, 27(3), 444-452. Impoundment effects of water reservoirs on flood processes cannot be ignored in this study.

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