

## ***Interactive comment on “Understanding and seasonal forecasting of hydrological drought in the anthropocene” by Xing Yuan et al.***

### **Anonymous Referee #1**

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This paper examines hydrological drought in managed river basins in China. Based on the 29-year NMME forecasts, they compared the skill of hydrological drought forecasts between the naturalized and observed conditions. They found that human intervention out weighted the climate variability for hydrological drought forecasts. The paper is well written. I recommend to be published after minor revisions. My specific comments are listed below:

1. Statistical significance : This may be the weakness of this paper. You compared the correlation between naturalized and observed SPI or SSI. There is no statistical assessment. For example: Fig2. Some gauge like Xunhua, the differences are significant, but differences for gauge Lijin may be not. You need to add statistical significance test to results. 2. Is SSI similar to standardized runoff index (Shukla and Wood 2008) except you use streamflow? 3. Section 2.3 Please add more details For the VIC simu-

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lation, what are the sources for daily precipitation and temperature time series used to derive forcings? Did you run the VIC model for these 12 gauge sites or the whole domain? Did you use the VIC in the water balance mode ( no observed radiation terms) ? which version? 4. Drought is usually defined as persistent low flow conditions. Does naturalized drought persist longer? Please comment on the persistence of low flow (SSI) conditions. 5. You used NMME forecasts. Did you perform hydroclimate forecasts using VIC for each model separately and then took the ensemble means? How exactly did you process the NMME data? Readers need more details on that 6. You stated seasonal cycle plays a role in drought. (page 5 response time is different for summer and winter). How large is the precipitation seasonal cycle?

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