

***Interactive comment on* “Evaluation of drought propagation in an ensemble mean of large-scale hydrological models” by A. F. Van Loon et al.**

Anonymous Referee #1

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Authors have addressed propagation of drought from one component to another in a interesting way. The article is based on concepts of rainfall-runoff modeling, where the lag time, meteorological variables and catchment characteristics affecting the runoff. Factors affecting the runoff will also affect the hydrological drought. Therefore the hydrological models will vary when simulating hydrological droughts due to their individual limitations. The following are my suggestions: 1. Literature review: Excellent work. 2. Drought analysis: How the authors selected meteorological and hydrological droughts. If the authors use some kind of drought indices, for example standardized precipitation and streamflow index, how it will affect the results. 3. Role of baseflow contribution to the hydrological drought to be discussed more. 4. I want to see a table showing statistics of calibration and validation of individual models for streamflow sim-

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ulation. If the individual models do not perform well then it is better to ignore them. 5. Man made activities will affect the streamflow simulations further hydrological droughts. How we can evaluate this propagation of drought in those cases? The authors can add few lines on this. 6. Provide a flow chart to demonstrate propagation of drought. 7. Make the discussion section very specific. Remove most of the references in the discussion section. You are discussing your findings, so be very specific. 8. In Figure 2, I can see range of individual model varies drastically. It is important to use a model when streamflow simulation is better. 9. Which type of drought witness higher uncertainty when simulated? 10. How do the analysis will vary by considering average precipitation in the region for meteorological drought, and streamflow at outlet gaging station for hydrological drought analysis. A cross correlation analysis can highlight roughly what is going on in the basin and need to be discussed and to be compared with currently used ensemble modelling approach.

Overall it is a good manuscript.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 8375, 2012.

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