Hydrol. Earth Syst. Sci. Discuss., 9, C5683–C5685, 2012
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Hydrology and Earth System Sciences Discussions

Interactive comment on "Analysis of long-term terrestrial water storage variations in Yangtze River basin" *by* Y. Huang et al.

Anonymous Referee #1

Received and published: 7 December 2012

General Comments:

Based on 32-year ERA-Interim, GLDAS-Noah data between 1979 and 2010, this paper identified spatio-temporal variations of terrestrial water storage (including total column soil moisture and snow water equivalent) in the Yangtze River basin. The reanalysis data was validated by using Yichang gauging station data and precipitation data. Some new interesting results were achieved. It's really helpful to understand what is happening in the famous Yangtze River basin. I think this paper met the scope and standard of HESS. As there are still some unclear points which I will put forward in following specific comments, an elaborative revision is needed.

Specific Comments:

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Discussion Paper

1. As stated by the author, only two components, TSM and SWE, were included in the calculation of TWS. We still have no idea of what the impacts could be if you added the surface and groundwater which will take a large proportion in TWS. There are indeed some difficulties to do this but the GRACE data can help. At least, please add some discussions about the uncertainties caused by the calculation in conclusion part.

2. P9, L15-25, Can you explain how you make the comparison in detail? In other words, how did you deal with the point scale and pixel scale?

Which station? Yichang? You should point out the name both in the text and the figure caption.

3. P8, L20-23, I'm confusing about the word 'scale' and the whole sentence. Can you give some other specific contents instead to make it clear?

4. P10, L13-15, What's R-square value between GPCC and PREC/L?

5. P14, L26-28, Just give an equation here. It's better than so many words.

6. P16, L9-14, From Fig.8, we can see there are some upward trends for three lines after 2008. Is this a conflict in contrast with the observed drought conditions?

7. Fig. 2, What's the interval between every graduation for both X and Y axis? I have no idea about that.

8. Fig. 7, What's your definition of flood season and dry season?

9. Some confusing contents are listed below. Please make some revisions to make them clear.

P2, L12-13, What's the meaning of 'from both basin and annual perspectives'?

P6, L2

P10, L22-24

P11, L13-14

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Technical corrections:

1. P4, L23, activates => activities
2. P4, L27, ERA-Interim and ERA-Interim dataset?
3. P13, L6, soil moisture is very wet => soil is wet
4. P13, L22, land-surface interaction => land-atmosphere interaction
5. P18, L16, What's the meaning of TGR?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 11487, 2012.