Manuscript Review – HESS

Title: Global Hydrobelts: Improved reporting for water-related issues

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This manuscript describes a new (hierarchical) classification of the global terrestrial hydro-system. The manuscript falls within the scope of HESS. The manuscript is very well written. I can see an enormous amount of work has been done to undertake the classification.

My main scientific query related to water resource development. In particular, how was development handled in the underlying source runoff data (i.e. Fekete et al 2002 in Table 2)? This needs to be described in more detail. For example, were the runoff classifications (in Table 1) based on actual observed flows, or the so-called "naturalised flows"?

I was especially interested in the whole question of development because I was looking forward to seeing a map and summary table of the available surface water (i.e., runoff) per person in each of the 29 hydroregions. I think this would give a very different perspective and would love to see it added as an additional example of the application of the approach. (It would be an excellent example of the utility of your classification!) Even better would be a map (and Table) that distinguished between current water extractions per person and the total available surface water that could be extracted per person. This would, at a glance, identify those regions that are water stressed and those that are not. Of course to do that requires detailed knowledge of existing development. I accept that this type of data may not yet exist but it sure would be interesting to see such a map.

Minor Comments

1. Groundwater was not dealt with? Perhaps some comment on that might be useful. It will certainly be an important water source in some hydroregions.

2. Line 104. Replace **damming** with **dam construction**

3. Page 9. When describing the datasets here (and elsewhere) it would be useful to give the typical spatial resolution in km as well as the geographic distances (minutes of arc).

4. Line 300. I did not understand the comment ….. "During at least one of the Quaternary ice ages …." . This was also a footnote to that effect in Table 3 as well. Do you mean something like …. In one of the last x ice ages? Please elaborate on the significance.

5. Line 397. Instead of L/km2/yr why not the same units throughout (mm/yr)?

6. Line 482. ETP? More generally, your data are for Prec and Runoff, e.g. in Tables 3 and 4. Your estimates of ET given a few times throughout the text are for steady state conditions (i.e., Prec – Runoff). Why use ET at all – why not just use Prec and Runoff?

7. Line 539. NML is much colder then SML because of continentality as you mentioned but I suspect that elevation probably plays a major role as well. More generally, elevation was not really used as an attribute. I wonder if it would be useful to consider it.

8. Table 4. What are the units of Runoff?

9. Figure 2. I was very pleased to see NZ lumped in with the AUS continent. (The editor may not like that!).

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