

Interactive comment on “Recycling of moisture in Europe: contribution of evaporation to variability in very wet and dry years” by B. Bisselink and A. J. Dolman

Anonymous Referee #1

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In this paper, the authors investigate the climatic variables that drive recycling variability in Europe during 2003 (a dry year) and 2006 (a wet year). Interestingly, the authors find that recycling variability is driven by evaporation during the dry year, but precipitable water and moisture fluxes dominate in the wet year. The work is thorough and certainly a useful contribution to the journal *Hydrology and Earth System Sciences*. However, I have several comments that need to be addressed by the authors before I can recommend publication.

Comments:

The writing needs to be streamlined and the grammar improved, and there are several parts where the discussion is repetitive. There are many mistakes (too many for me to

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point out). Please have the entire manuscript proof read.

Is the data providing evaporation or evapotranspiration? This is important to differentiate.

Figure 2: The data for 2006 is incomplete please complete figure.

Line 6 pg 3306: I don't see how to interpret the deficit of 69mm from the figure you are showing. Please include a cumulative rainfall figure.

I believe the authors have an interesting hypothesis regarding the mechanism to trigger precipitation through a combination of increased moisture in the air and sensible heat in the land. This is a large part of the abstract and conclusions, but the mechanism, however, is not clearly defined or supported by data. Is it due to enhanced sensible heat? Latent heat? Both, and their heterogeneity in space? The authors should include additional data such as sensible heat, and some measure of atmospheric instability (CAPE?). This would make the argument much stronger.

Line 26 of page 3316 – “recycling promotes precipitation”...is this really what you want to say? I would think it is the land surface conditions.

Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 6, 3301, 2009.