

Interactive comment on “How will climate change modify river flow regimes in Europe?” by C. Schneider et al.

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The submitted manuscript is of scientific value and novel. It is well written. The methodologies are scientifically proof, the used model is state of the art. I recommend the manuscript for publication, however I have 1 general comment.

General comment

It is not clear why the high mountain or alpine climate zone has not been chosen amongst the European climate zones. The authors refer to high mountain ranges and/or the importance of mountain snow and ice a few times in the manuscript - p.9195 lines 20-21, p.9205 lines 6-9, p.9206 lines 24-26, p.9207 lines 23-26, p.9211 lines 4-8.

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However, specific mountain ranges function as water towers for surrounding lowlands, and therefore the inclusion of this climate zone and the effects of climate changes on its hydrology is essential in a work describing the "effects of climate change on river flows in Europe. I refer to Vanham (2012b), where the importance of the Alps as water tower for 4 of Europe's largest river basins (Danube, Rhine, Rhone and Po) is described as well as the effect of climate chance on the Alpine mountain zone. The authors describe the high mountain ranges as local variant (p.9207, lines 23-26). However, further in the manuscript (p.9211 lines 4-8) they acknowledge that in the continental climate zone the widest ranges of change are observed, as this zone contains important European mountain ranges such as the Alps. The comparison of the Dniestr river with a typical Alpine catchment is with this respect not very justifiable.

Specific comments

p.9196 line 4: "...irrigated agriculture, the largest water user worldwide ..." comment: It is by different authors now recommended to view rainfed agriculture as the largest (green) water user worldwide. Irrigated agriculture is the largest blue water user worldwide. It is referred to Vanham (2012a).

Literature

Vanham, D. (2012a) A holistic water balance of Austria - how does the quantitative proportion of urban water requirements relate to other users? Water Science & Technology 66(3), 549-555.

Vanham, D. (2012b) The Alps under climate change: implications for water management in Europe, Journal of Water and Climate Change 3(3), 197–206, doi:10.2166/wcc.2012.032.

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