

The authors have successfully revised the manuscript. Both the objective of the study and the model setup and functioning are much clearer now and all comments given by myself and the other two reviewers were addressed satisfactorily. I would recommend publication with some final minor technical corrections.

#### Technical corrections

L25-L26: The given numbers refer to the calibration plus reference period (cf. L294-297). Add this information in the sentence (e.g. '... of annual water depletions over a 20 years reference period (1981-2000) ...')

L26-L28: It should be clarified that the increase in the contributions to the water budgets is only small (cf. your statement in L.398-399). Maybe you could add a percentage (as done in the previous version) both here and in L398-399. In addition: 'the driest years' are never mentioned explicitly elsewhere in the manuscript, so either remove the phrase here or add the information in the results/discussion (e.g. Fig. 5).

L77-L79: I would suggest to mention here that you test the model with and without the riparian compartment

L92-L93: Rewrite to: Soils of heathlands, oak and beech forests are sandy with a 3 cm deep O horizon followed by a 5-15 cm deep A horizon and a > 100 cm deep B horizon. Rewrite L98-L99 accordingly.

L95: Remove the s of increases

L104 and L108: Replace at with in

L118/19, L123, Supplement1: Recheck the formulations. It is a bit confusing if the riparian forests are a landscape unit (see supplement) or a catchment compartment (= ,bucket').

L124-L125: This sentence is not very clear to me, try to rephrase it.

L128: Maybe use the same parameter names in Tab S3

L128-131: Consider to remove or reformulate the two sentences. In the present form I only understood their meaning with the help of Tab. S3

L135: Remove calibration data (since you also use ET values for soft calibration, just mentioned in 3.3). You could even move the first two sentences of this paragraph to the next section (to L167) and avoid to mention 'calibration' in this section.

L144: Supplement 2

L171-172: It would be great if you would mention which parameters for ET were adjusted here or if you at least mention it somewhere in Supplement S3 for Tab. S4 (cf. my former comment #17 and your reply to it).

L215: Substitute text with test

L227: Substitute 1933 with 1981 ?

L256: I think the precipitation data really help to understand the streamflow behaviour better (cf. former comment #24), showing that it is an interplay between precipitation input and the season (thus ET). Unfortunately I also wouldn't agree that the streamflow is lower during the vegetative

period than during the dormant period and I would suggest you simply remove the sentence L255-256.

L269: I would call 'low flow period' the period between August and October (cf. L345-346). Therefore I would suggest to replace 'even during low flow periods (June-September), especially in 2012' with 'except at the end of the vegetative period (August-October)'

L300: You have to recalculate the percentage value. The lowest value you obtain is 826 mm/yr, which is lower than the value for your reference period and thus not 2% (which corresponds to the value of 879mm/yr, which you indicated in the previous version manuscript). Also adapt it in L396 and L425.

L304: The value for scenario RCP 8.5 percentile 0.25 is higher (8.25%)

L306: It is not possible to see this increase of days with  $ET > 0$  mm/d in Figure 5, since you only show the mean ET over the reference period (which never goes below 0 mm/d!) and not the ET for single years of the reference period. Either remove the cross-reference to Figure 5 or consider including some/all single years of the reference period in the figure.

L326-L327: This is the only sentence in the manuscript where it is still confusing what you considered as the downstream site (because the 10% riparian zone refer to the local drainage area of 4.42 km<sup>2</sup>, the model output at the downstream site integrates the flow of all the drainage area). I would suggest to rephrase it.

L335: Add: at the downstream site

L365: I would suggest to remove 'saturated'

L373: components instead of component

L378: Maybe remove 'projected for later in this century'

L390: scenario and year (cf. L306)

L419-L420: You should give the same values here as in the abstract (L25-26); additionally consider to remove 'dry'