

Interactive comment on “The effect of changes in rainfall on the response of the water table to a major alley farming experiment” by S. L. Noorduijn et al.

Anonymous Referee #2

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Investigating effect of climate change on hydrology is a very important issue. The author estimated influences of rainfall changes and different alley and tree belt settings on groundwater table dynamics in the agroforestry site. The rainfall decrease is regarded as a primarily cause for decline of the groundwater table. Vegetation belt takes a significant influence on changes of the groundwater tables under a same climate setting. The paper can be published with following revisions:

(1) Title of the manuscript is focused on how climate change influences groundwater table variations. But contents of the paper's introduction are primarily about present

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situation of the vegetation effect on groundwater table variations and less about effects of climate change.

(2)Page 4570, “In 2007 this had increased to 1.45 m b.g.l which has a possible association to the impacts of vegetation and. . .”. It contradicts balance between precipitation and evapotranspiration in Table 3. In Table 3, because the total of precipitation of 796mm during 2006 and 2007 is less than the total of evapotranspiration (801 mm), groundwater table should be declined.

(3)Page 4570, line 17, “the water table in the trail piezometers (post 2000) was on average, 0.9 m deeper than in the control pieometers (Fig 4)”. Is this difference related to topographic variations? The authors should describe the topographic variations. If the control pieometers and the pieometers in the tree belt are not located at same elevation of ground surface, the difference of water table depths between the trail piezometers and the control pieometers may be caused by topographic variations as well.

(4)Page 4571, line 23, “the difference in biomass between a belt 38 m and 138 m are minor (approximately 2kg m-2)”. No such belt width of 38 m was listed in Table 4.

(5)Is this a farm area? Does any irrigation influence water table variations? The authors should state it.

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