

## ***Interactive comment on “Quantification of anthropogenic impact on groundwater dependent terrestrial ecosystem using geochemical and isotope tools combined with 3-D flow and transport modeling” by A. J. Zurek et al.***

**Anonymous Referee #2**

Received and published: 23 October 2014

I have found the ms very interesting focusing on GDE which is a complex and valuable ecosystem. Investigations carried out get indepth to deal with the topic and specifically the tools used (hydrochemistry, isotope hydrology; geophysics and modeling). These combined tools did make a good advance in the system functioning. However, I have to put forward two aspects which the authors should consider prior final acceptance.

### **1. General comments**

- Description and pertinence of the tools should be stated in the introduction – authors

C4584

should make a link with the context of the study area. Some of these aspects are included – but not in the introduction

- In most parts of the ms, authors used qualitative estimate instead giving number. I believe that quantitative estimate will be more appropriate to estimate impact.
- Sampling network should be developed in section materials and methods
- In page 5 first paragraph, authors should give the scientific basis for depth classification – is this classification related to depth of the root zone or not?
- Comments on model result are not well developed
- One striking point is the lack of discussion taking into account the isotopic, hydrochemistry and model result in term of flow exchange and contribution and validate them with the system functioning and stream flow with regard to the new pumping stress
- Abstract does not reflect main findings of the ms

### **2. Specific comments**

- A lot of style and grammatical errors – may be some revisions for the writing will help
- References in text should be in date order
- Page 7 last paragraph of conceptual model should be in this part – however, I propose to authors to add a section related to hydrodynamic in section “results” where conceptual model should be described
- First paragraph and sentence in page 9 is too long

In conclusion, the paper should be considered after moderate revision.

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 9671, 2014.

C4585