We would like to thank you for your valuable effort in evaluating our paper and also for your expert and supportive comments. Please find our reply below:

General Comments

This paper presents the relation shallow groundwater table on land surface temperature and how MODIS data could be interpreted using an energy balance model to obtain information about groundwater table depths. This paper is a follow up of another paper in which a numerical study is used to present the relation between soil surface temperature and groundwater table depth.

- The relation between groundwater table depth and soil surface temperature is very convincing showing the potential of using remotely sensed surface temperatures for groundwater table depth detection. To make this prediction, it would however be necessary to predict this relation, which was now derived from correlation between measured groundwater table depths, soil moisture contents and soil surface temperatures. Therefore, it would be interesting to see if the observed correlation could actually be predicted using a soil water and heat flow model as used in the accompanying paper.
- We will add and discuss a SHAW simulation to accompany and support the results of this paper.

- In order to improve the paper, I think that the SEBS model should be explained better.
- We will explain SEBS better.

- In the SEBS model, there is an assumption about the relation between the ground heat flux and the net radiation which has a direct impact on the estimated latent heat fluxes. In fact, the model used in the accompanying paper could be used to evaluate this assumption and its effect on latent heat fluxes.
- We will discuss this assumption and its consequences in the view of the SHAW simulation results which will be added.

- Finally, it is not so clear to me why the SEBS model would be needed to derive groundwater table depths from land surface temperatures.
- SEBS results were useful to demonstrate the spatial effect of shallow groundwater depth on surface energy fluxes. This is valuable in bringing that effect within climate studies and land surface models.

Detailed comments:

- p 7 ln 4-6 and Eq. (3): The calculation of the ground heat flux from the net radiation is an approximation and seems to be critical. I think that the impact of this approximation on the calculated evaporation rate, and the estimation of the groundwater table depth needs to be

analyzed. The simulations from the first paper could be used to evaluate this.

- We will discus this point.

- p 7 ln 7-23: I do not understand how the latent heat is derived from Eqs. 4 to 6. LE does not appear in these equations. Neither do I understand how eqs 4 and 6 can be applied for wet and dry conditions. I thought the SEB procedure estimates Rn directly from remote sensing data, H from surface temperature, wind speed, air temperature and G from Rn. LE could then be calculated directly from closing the energy balance.
- This is correct. LE is closing the energy balance (Eq. 1). However according to the way that SEBS calculates the sensible heat flux and both its wet and dry limits, it involves the calculation of the evaporative fraction (Eq. 7). Therefore, the latent heat flux is implicitly updated for every iteration step (Eq. 8). We understand that SEBS needs to be presented in a clearer way and we will do that.

- p9 ln 5-10: I do not understand this paragraph. What is for instance ILWIS?
- ILWIS is a special Geographical Information System for handling remote sensing data. Its abbreviation was defined in a previous paragraph (P6 ln 5). We will simplify this paragraph.

- p12 ln 6-8: 'Whereas the effect of latent heat flux was clear at daytime due to the relatively high potential evaporation under the prevalent dry and sunny conditions' The pan A measurements of potential evaporation where 2.4 mm/d. Can this be considered as a high potential evaporation? Maybe for the winter season but I doubt whether it can be considered high when looking at an entire year.
- This is true. If we look at the entire year this value is not high (at summer time, this value may rise up to 14 mm/d in this region). Nevertheless, this value can be considered relatively high for the winter time. And it was sufficient to bring out the effect of latent heat flux.