

### Point-by-point authors' response to minor revisions

The authors would like to thank the editor and referees for the constructive comments. Below we present our response to the minor revisions suggested.

- 1) Elaborate more on the climate of this catchment. Can you show or produce (from your data) a kind of Walther-Lieth diagram for one or two climate stations in that area?

The authors agree that there is not a clear definition of semi-aridity. Moreover, a climate diagram was included in the manuscript showing the large rainfall variability and high potential evaporation rates characteristic of semi-arid areas. The graph contains data for four stations for approximately 10 years showing the minimum and maximum temperatures in the catchment. The reference of (Schulze, 1997) was added to the revised manuscript.

- 2) Discuss more on the general (semi-arid?) hydrology of this area. Can you show a "typical" hydrograph of the KAAP river (mean runoff, variations)? How many days without runoff/year? Include a new paragraph on the value of groundwater contributions for runoff

A new paragraph explaining the hydrology of the Kaap was added to the manuscript accompanied by Table 2, and Figures 4 and 5. Table 2 shows the physical and hydrological characteristics (including the number of days per year without runoff) of the Kaap River and tributaries while figures 4 and 5 show the annual flow regime and flow duration curves at the Kaap river and tributaries respectively. This section of the manuscript presents the large variability in flows at the outlet and tributaries and the seasonal behaviour where the flow increases during the wet season. The flow duration curves present evidence of groundwater storage at the upper section of the catchment suggesting interactions between groundwater and surface water. Further surface-groundwater interactions are added in section 5.1 (Runoff Processes in the Kaap Catchment).

- 3) Do you have any indications for quickflow contributions via the groundwater (i.e. indications of hydraulic shortcuts from infiltration to the GW-surface and further ahead towards the Channel?

Yes, quickflow from groundwater contributions are observed where shallow near-stream groundwater contributed to stream flow during events when high antecedent precipitation occurred. Further evidence of two groundwater systems and flow contributions from the semi-saturated zones in South Africa are also suggested by (Hughes, 2010). This reference and the explanation was clarified in the revised manuscript under section 5.1 (Runoff Processes in the Kaap Catchment).

## References

- Hughes, D. A. (2010). Unsaturated zone fracture flow contributions to stream flow: evidence for the process in South Africa and its importance. *Hydrological Processes*, 24(6), 767-774.  
doi:10.1002/hyp.7521
- Schulze, R. E. (1997). South African atlas of agrohydrology and -climatology. Pretoria :: Water Research Commission.