

REPLY TO THE COMMENTS ON THE “DISCUSSION OF : SURFACE WATER AND GROUNDWATER INTERACTION IN THE UPPER CROCODILE RIVER BASIN, JOHANNESBURG, SOUTH AFRICA, BY ABIYE ET AL. (2015)” BY P. HOBBS (2015)

T.A. ABIYE

School of Geosciences, University of the Witwatersrand, Pvt. Bag X3, P. O. Box Wits 2050, Johannesburg, South Africa
e-mail: tamiru.abiye@wits.ac.za

H. MENGISTU

Wayne County Community College District, 801 W Fort Street, Detroit, MI, United States of America
e-mail: hrmengistu@gmail.com

K. MASINDI

School of Geosciences, University of the Witwatersrand, Pvt. Bag X3, P. O. Box Wits 2050, Johannesburg, South Africa
e-mail: khulmsnd@gmail.com

M. DEMLIE

School of Agricultural, Earth and Environmental Sciences, University of KwaZulu-Natal, P/Bag X54001, Durban 4000, South Africa
e-mail: demliem@ukzn.ac.za

© 2015 December Geological Society of South Africa

Introduction

The authors would like to thank Hobbs (2015) for his keen scrutiny of some aspects of the paper by Abiye et al. (2015). Even though he used strong phrases including tenuous, irresponsible, negligent, unwitting dissemination of disputable information, we understand that it was due to a lack of understanding of the key aspect of the paper. Abiye et al. (2015) focused on the environmental isotope application in surface water and groundwater interaction, while stream discharge measurement was intended to substantiate the presence of interaction process.

Discharge data

Hobbs (2015) strongly disputed the discharge measurements published by Abiye et al. (2015) based on the results presented in Hobbs (2013). The latter is an unpublished consultancy report. We were not aware of this and other internal reports cited by Hobbs (2015) thus should not be criticized for not including these data in our paper.

We are not also sure that the discharge measurement points (P1, P2, P3, P4, P5, and P6) presented in Abiye et al. (2015) could correspond to Hobbs (2013). On the other hand, the authors do agree to the fact that the two sets of discharge data cannot give an acceptable discharge amount, but it represents the discharge on the day of measurement. However, a dedicated and perhaps

automatic flow monitoring station could be the way forward.

Environmental isotope data

It is encouraging that Hobbs has obtained similar results by using environmental isotope data in the Western Basin, but no publication was seen by the authors to appreciate or critic the findings. However, in the Abiye et al. (2015), isotope data represent the upper Crocodile River basin, which were collected since 2008 where the West Rand area has a very limited role. It seems that there is a lack of understanding in the spatial extent and coverage of different works.

Summary

It is the authors understanding that there is no dispute to the fact that mine water seeps into the Karstic aquifer. However, from the unpublished contributions listed in Hobbs (2015) which Abiye et al. (2015) are strongly criticized for not referencing, and the manner in which the discussion is structured, we are of the opinion that there is an element of being “territorial in terms of research area” on the side of the discussion paper by Hobbs (2015). Regarding the unscientific and unrealistic comments by Hobbs (2015), we prefer not to expand the discussion. However, further analysis will be performed once we have had an opportunity to study the internal reports cited by Hobbs (2015).

References

Abiye, T., Mengistu, H., Masindi, K., Demlie, D., 2015. Surface Water and Groundwater Interaction In: The Upper Crocodile River Basin, Johannesburg, South Africa: Environmental Isotope Approach: South African Journal of Geology, 118, 109-118.

Hobbs, P., 2015. "Discussion of: Surface water and groundwater interaction in the Upper Crocodile River Basin, Johannesburg, South Africa, by Abiye et al. (2015)" South African Journal of Geology.

For other references, check the reference section of Hobbs (2015).

Editorial handling: L.D. Ashwal and S. McCourt.