

Interactive comment on “An approach to identify urban groundwater recharge” by E. Vázquez-Suñé et al.

Anonymous Referee #1

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GENERAL COMMENTS

The paper addresses the issue of identifying sources of groundwater recharge in an urban context; it is therefore fully within the scope of HESS, and of interest to its readership. The paper focuses on the application to a case study of a methodology previously developed by the authors; this is properly acknowledged. The proposed method employs the measured species concentrations in a given number of observation points, as well as in the potential sources, to infer the species mixing ratios. The method is applied to the city of Barcelona, providing an indication on the influence of various sources on overall groundwater recharge; apart from the specific conclusions which can in principle be drawn for each observation well, a substantial result is that, overall,

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the water and wastewater networks prove to be the most influential factors on groundwater recharge. Both the practical implementation of the methodology and the results obtained constitute an important and novel contribution. The method adopted and its assumptions are clearly outlined, albeit in a concise way; the conclusions are solid. The code used to perform the calculations is made available online, thus making results traceable. The title and abstract reflect adequately the contents of the paper. The paper structure, subdivision into sections, and language are sound; the paper cannot be shortened significantly, nor requires extensive editing. The reference section is broad.

SPECIFIC COMMENTS/SUGGESTIONS

1. The introductory section might establish a more direct link with the literature dealing with decision support systems for the management of water and wastewater networks; there is a great potential for interaction of that area of research with the material presented here. 2. Add more details on the values assumed in the calculations for all relevant quantities, such as the measurement variances and the related covariance matrix. 3. The study is restricted to a single campaign, even though more measurements are available; could results from more campaigns, set in an appropriate time frame, be linked to groundwater dynamics, based on the variation/trend in time of mixing ratios at specified locations ?

TECHNICAL CORRECTIONS

Please check for consistency or typos the following sentences: - p. 2547 lines 5-6; - p. 2548 line 14; - p. 2549 line 28; - p. 2551 line 13 (missing space); - p. 2553 lines 19-20; - p. 2554 line 14; - p. 2561 line 12; - p. 2552 line 26.

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