

Interactive comment on “All-in-one model for designing optimal water distribution pipe networks” by Dagnachew Aklog and Yoshihiko Hosoi

Anonymous Referee #1

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The manuscript is well-written and the exposition is clear. I would like to suggest only few minor corrections.

In this study, the authors are mainly interested in heuristics methods for optimal design of water distribution networks (WDNs). As a consequence, the "near-optimal solutions" computed by LP, GA and OBORM optimizers have no guarantee of optimality. I suggest the authors make this clear in the introduction, so that the reader is not confused by the use of expressions like "optimal solution".

In addition, it would be nice to include in the literature review previous work on optimal design of WDNs by mathematical programming approaches, eg:

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[Discussion paper](#)



Bragalli, C., D'Ambrosio, C., Lee, J., Lodi, A., & Toth, P. (2012). On the optimal design of water distribution networks: A practical MINLP approach. *Optimization and Engineering*, 13(2), 219–246. <http://doi.org/10.1007/s11081-011-9141-7>

Finally, I have a couple of technical remarks on Section 4:

-page 6, line 6: the problem in study is not to be considered a "fairly huge problem". Adjectives like large and huge are usually reserved for problems with several thousands of variables - see also some of the case studies in Bragalli et al (2012).

-page 7, line 19: In order to avoid confusion, I suggest the use of the expression "best-known solution" instead of "global optimal solution", as the considered methods do not guarantee convergence to global solutions.

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