Drink. Water Eng. Sci. Discuss., 2, C127–C129, 2010
www.drink-water-eng-sci-discuss.net/2/C127/2010/

Drinking Water Engineering and Science Discussions

Interactive comment on "Online modelling of water distribution systems: a UK case study" *by* J. Machell et al.

J. Machell et al.

s.r.mounce@sheffield.ac.uk

Received and published: 10 February 2010

Thank you to the reviewer for their thoughts and queries.

>1) In this paper, the results from only one DMA from a large area comprising 16 DMAs >are presented. Do the size and complexity of the modelling area have a significant >impact on the modelling speed, required computational resources and the quality of >results?

Human resources increase proportionately as the model is extended to a wider area, with likewise increases in the computational infrastructure needed. But as this type of modelling moves from the R&D realm to a "business as usual" the resources should be manageable. The online model is running every 30 minutes on 15 minute sampled

data and takes only a minute or two to run one real-time cycle on an average spec desktop PC. Even scaling up to the larger 16 DMA model mentioned in the paper, this frequency of recalculation is feasible.

2) Since the case study focuses on one DMA from a large area. A description of the actual DMA that is modelled will be appreciated.

The text notes "The DMA used for the selected example is a semi rural DMA with customers concentrated at the north end." The following could be added:

The DMA selected consists of 269 domestic and 18 commercial properties. It has pipes made of asbestos, cement, cast and ductile iron and polyethylene, diameters from 50 to 300mm.

3) Page 5 lines 15 – 16: The authors state "During calibration, even low accuracy data will produce an apparently sensible, if not wholly accurate solution". Can the authors explain why? Is there any noise within the model that can cause this? More discussions are required here.

Calibration data is often low accuracy for industry standard built offline hydraulic models. However, this can still produce fit for purpose models (section 2). There is a recommendation for higher quality calibration data for online models.

4) Page 7 lines 24: Can the authors be more specific about the effects within the pipes? Are they the pressures and flows in the pipes? Any other effects that can be detected

These are hydraulic, i.e. pressure and flow effects within pipes, flow reversals etc. Checks against alarm levels can provide early warning on certain changes if setup for the online model.

1) Page 5 line 1: A brief introduction of the software – Aquis 1.47 (7T) - will be appreciated by readers.

Aquis is a water network simulation platform used in daily operation in 1500

cities worldwide, and is an industry standard modelling package in the UK. (http://www.7t.dk/aquis/).

Interactive comment on Drink. Water Eng. Sci. Discuss., 2, 279, 2009.