

Editorial

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This month's *Water Management* journal contains an eclectic mix of interesting and well-written papers, which were originally submitted to the journal office in the latter part of 2012. Papers go through a period of peer review, amendment, final assessment then copyediting, typesetting, proofreading, online publication and allocation to a specific issue of the journal before they appear in print. The process normally takes between 12 and 18 months although occasionally a paper may be brought to publication within a period of about 6 months if it happens to fit a previously planned issue. The editorial panel is doing all it can to keep the period between submission and publication as short a period as possible. To help with this, prospective authors are encouraged to check their original submission carefully not only with regard to the accuracy of its content but also with regard to its readability.

In last year's November issue of the journal, Duan *et al.* (2013) reported on infilling the sometimes rather patchy historic rainfall record for the south-east UK so that best use could be made of regional hydrological and climatological data for project planning. In this issue, Muñoz *et al.* (2014) take on the complexity of the 4668 km² Laja basin in the mountainous area of the Andes in south-central Chile (289–3534 m above sea level), a region which is subject to not only the orographic effect of the high mountains but also snowmelt and El Niño/La Niña episodes. They investigate the reliability of applying global gridded climatological data (GGCD) to this area where recorded data are scarce. They conclude that although the GGCD sets underestimate rainfall peaks of the Andean areas and do not totally recover the orography, models using gridded datasets could be applied successfully elsewhere, where there is a more gentle topography, such as the central valley of south-central Chile.

The second paper in this issue (Baranya *et al.*, 2014) describes the application of a computational fluid dynamics model to estimate the scour at cylindrical bridge piers. The authors employ a nested grid approach which reduces the computational requirement but allows high spatial resolution near the pier. Data on the flow and the local scour around single and multiple circular cylinders in a laboratory channel with a movable bed were obtained and compared with the results of the numerical model. The authors conclude that the three-dimensional numerical model is capable of predicting local scour around one and two cylinders with reasonably good accuracy, particularly on the upstream side of the piers. They indicate that the numerical method provides an appropriate investigation tool for real river engineering problems and the nested grid provides significant computational time savings compared with structured grid solvers.

Taken together, the March 2013 and February 2014 issues of the

journal included six papers on scour around obstructions in a movable bed and I hope this latest paper will encourage authors to contribute to discussion of this subject.

Savic *et al.* (2014) have re-examined the hydraulic design of a shaft spillway with a constriction at the upstream end of the vertical bend. They present new expressions for the crest overflow discharge coefficient, the deflector discharge coefficient and the velocity coefficients at the downstream end of the vertical bend and at the tunnel exit section. A design procedure, applicable for preliminary design of a shaft spillway, is also proposed. The authors point out that the air–water implications of the design were not considered in the small-scale models employed but should be a topic for future study.

The fourth paper, by Savage *et al.* (2014), examines the impact of non-standard wing-walls and incorrectly placed staff gauges on the predicted flow rate of a standard Parshall flume. By employing a 61.0 cm Parshall flume in the laboratory and studying the effects of non-standard design and incorrect measuring locations on this physical model and relating these to a numerical model, the authors provide the basis for re-assessing historical data from flumes where design or measurement was non-standard. The commercially available software program Flow-3D was used in the numerical model. The authors consider that it is possible to use this software to model and correct discharge ratings for other sized Parshall flumes that exhibit differing head measurement locations and entrance conditions. They also suggest that a better understanding of the changing water surface profile in a Parshall flume should motivate users to ensure that flumes are installed with standard wing-walls and head measurement locations.

The estimation of parameters for use in the non-linear Muskingum flood routing model continues to receive attention. Recent papers include those by Geem (2011), Xu *et al.* (2012), Karahan *et al.* (2013), Orouji *et al.* (2013) and Easa (2013). In this issue of the journal, Easa (2014) reports on the development of a new four-parameter model.

Easa concludes that many researchers have focused on developing new algorithms to improve the performance of the model with an exponent parameter for the weighted storage, but the improvements attained by these algorithms have generally been of the order of 1% or less. This conclusion motivated the current research work, which aims to modify the structure of the model to produce more degrees of freedom in model calibration.

The proposed model is based on the assumption that the relationship of the weighted storage is a power function rather than the

linear function normally assumed. Although the proposed model has more parameters than the traditional non-linear Muskingum models, the author suggests that the additional complexity could result in a substantial improvement in model fit. He recommends that future research should explore implementation of the proposed model for more complex flood problems with multiple tributaries meeting at a common confluence or with lateral inflows and seepage. Contributions to the journal, discussing this paper, would be welcome.

The final paper in this issue addresses the issue of the willingness of consumers to pay for potable water in Trinidad and Tobago (Peters *et al.*, 2014). Trinidad is not a water-scarce country by accepted definitions, yet it is struggling to meet set objectives of satisfying public demand for potable water. Previous willingness to pay (WTP) studies there showed that households are not averse to paying more for improved water supply services. The study used the contingent valuation method to estimate the level of WTP in four different socio-economic communities. For payments through a fixed or metered method, most households were prepared to pay substantially more than what they are now required to pay. The authors found that, with about 25% of households prepared to change from unmetered to metered charging, the water authority could introduce household water meters on a voluntary basis. More widespread metering would find some households with lower water bills and some with higher bills. This could impact negatively on the lower income and/or socially vulnerable groups and the question of stepped tariffs comes into play. The authors indicate that the water authority should consider using a method of cost-benefit analysis for metering that incorporates particularities in customers' socio-economic conditions. They also suggest that any future charging structure should incorporate relief for households that have already invested in storage facilities and encourage the installation of storage facilities at properties where the water authority is unable to satisfy demands.

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