



Prediction in Ungauged Basins (PUB)
The 'Top-Down modelling
Working Group (TDWG)



TDWG Newsletter #5

PUB and TDWG

In July, Günter Blöschl, Vienna University of Technology, Austria became the chair of the Science Steering Group of PUB. The latest PUB Newsletter (#2.3, dated September 2007 <http://pub.iwmi.org/>) includes a message from Günter.

TDWG website

The TDWG website has changed to <http://tdwg.catchment.org/>, please update links to the website.

New links have been added to the Datasets page:

- ICHARM – data for the Mae Chaem catchment in Thailand (The International Centre for Water Hazard and Risk Management, Public Works Research Institute of Japan).
- Walnut Gulch Experimental Watershed – semi-arid watershed near Tombstone, Arizona (US Department of Agriculture)
- Hydrological data for South African catchments (Department of Water Affairs and Forestry, South Africa)
- PERSSIAN dataset - near global (between +50 deg latitude) satellite derived 6 hourly precipitation (University of California, Irvine)

TDWG-related Meetings/Workshops

IUGG General Assembly, Perugia, Italy, July 2007

While the TDWG did not organise a session at this meeting there were a number of papers presented by members of the TDWG, a list of papers (not necessarily comprehensive) is given on the TDWG website (<http://tdwg.catchment.org/>).

MODSIM07, Christchurch New Zealand, 10 – 13 December, 2007

MODSIM07 is rapidly approaching. The TDWG is organising a session on “PUB: Building Towards New Hydrological Models”. We have a total of 15 papers that have been accepted:

Barry Croke (ANU): The role of uncertainty in design of objective functions

Guna Hewa (University of South Australia): How significant is the bias in low flow quantiles estimated by L- and LH-moments?

Dmitri Kavetski (University of Newcastle): Multistart Newton-type optimisation methods for the calibration of conceptual hydrological models

Hak-Soo Kim (ANU): Towards separation of climate and land use effects on hydrology: data analysis of the Googong and Cotter catchments

George Kuczera (University of Newcastle): Batea analysis for hydrologic models: evaluation of input errors using multi-site rainfall data

Lachlan Newham (ANU): Patching and disaccumulation of rainfall data for hydrological modelling



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David Post (CSIRO): Regionalising the hydrologic response of ungauged catchments using the SIMHYD, IHACRES, and Sacramento rainfall-runoff models

Julian Reichl (University of Melbourne): Developing similarity measures for predicting ungauged streamflow within a model averaging framework

Benjamin Renard (University of Newcastle): Bayesian total error analysis for hydrologic models: Sensitivity to error models

Cornelia Scheffler (Friedrich-Schiller University, Jena): Application of a distributed process-oriented model for regional modelling of a semi-arid catchment

Mark Thyer (University of Newcastle): Batea analysis for hydrologic models: evaluation of input errors using multi-site rainfall data

Neil Viney (CSIRO): Modelling the hydrological impacts of artificial drainage in the Western Australian wheatbelt

Yu-Chi Wang (National Cheng Kung University, Taiwan): Estimation of design flow in ungauged basins by regionalization

Asif Zaman (University of Melbourne): Towards the next generation of rural water demand modelling

Lu Zhang (CSIRO): Predicting afforestation impacts on monthly streamflow

Papers will be available after the conference on the MSSANZ website:

<http://www.mssanz.org.au/html/publications.html>

Future meetings

EGU General Assembly 2008, Vienna, Austria, 13-18 April 2008.

HS10.17 Quantification of uncertainties in the rainfall-streamflow model parameter regionalisation (conveners: Pfister, L.; Post, D., Littlewood, I; Croke, B.).

Description of proposed session:

Statistical relationships between rainfall-streamflow model parameters and physiological catchment properties usually are characterised by quite large uncertainties. The transposition of these relationships towards ungauged (flow) sites is thus rendered extremely difficult and hazardous. One of the sources for these large uncertainties is the data time-step that is used to derive the relationships between the model parameters and the physiological catchment properties. In certain circumstances, these time-steps might well reveal being partially or totally non-adapted for capturing the dynamics of the flow regime at a given gauged site. Since this aspect of rainfall-streamflow modelling has received little attention in parameter regionalisation studies, the TDWG (Top-down modelling working group) within the PUB initiative of IAHS has recently launched the TRUMPER project (towards reducing uncertainty in rainfall-streamflow model parameter regionalisation). Contributions to this session from the TDWG community, as well as from all other groups and networks involved in research aiming at reducing predictive uncertainty, are invited to participate in this session. The main objectives of the session will be:



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- investigate model parameter data-time-step-dependency, for ranges of catchment type (size, percentage yield, land-use, etc.) and model/modelling approach
- formulate and test different (including new) methods of model parameter normalisation, i.e. to obtain model parameters essentially independent of data time-step
- identify related model parameter regionalisation issues and, working with the wider research community (other PUB WGs, FRIEND, ERB), investigate ways of reducing uncertainty in (a) rainfall–streamflow model parameter regionalisation and (b) estimates of flows at ungauged sites obtained by that method.

Abstracts should be submitted by January 14th, 2008.

iEMSs2008, Barcelona, Spain, 6-10 July, 2008

The 4th Biennial meeting of the International Environmental Modelling and Software Society will be held in Barcelona in July 2008. This meeting will follow the successful format of the iEMSs2006 meeting in Burlington, Vermont, with a combination of sessions and workshops. The TDWG and the Uncertainty Working Group (leaders: Thorsten Wagener, Jim Freer and Erwin Zehe) will be running a workshop entitled Evaluating the impact of data and associated uncertainty on hydrological model predictions (workshop organisers: Barry Croke, Thorsten Wagener, David Post, Jim Freer and Ian Littlewood).

Description of proposed session:

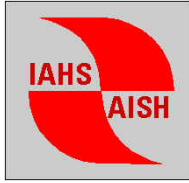
The inclusion of additional information in a model should improve its performance and reduce associated uncertainties. The additional information may take the form of higher temporal and/or spatial resolution of data already used, or additional (potentially soft) data. However, additional data is not necessarily equivalent with additional information, or with information that can be used by a particular model. Consideration of the information-to-noise ratio is needed in order to evaluate whether the information will indeed improve the model's ability to simulate the system. Evaluating the information-to-noise ratio and the information content of data in general are difficult, but one possible approach is to compare the performance and uncertainty of a model with and without the additional information. This session/workshop will focus on the use of additional information in improving the performance of and reducing the uncertainty in hydrological models. This includes consideration of the uncertainty in datasets as well as techniques to evaluate the effectiveness of the additional information in improving models.

A position paper for the workshop will be prepared (available on-line January 1, 2008), and abstracts for the workshop should be submitted by January 27, 2008. The conference website is <http://www.iemss.org/iemss2008/>. Contact Barry Croke for further information.

12th ERB Biennial Conference “Hydrological Extremes in Small Basins”, Kraków, Poland, September 18-20, 2008.

See <http://www.geo.uj.edu.pl/konferencja/erb2008/> for important deadline dates.

This Conference is co-sponsored by IAHS and PUB. Many of the Conference sub-themes (listed below) are likely to be of interest to TDWG members. The 7th sub theme, “Model data-



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time-dependency ...”, was prompted by the TDWG TRUMPER initiative introduced in this TDWG Newsletter and on the TDWG website.

Conference themes

1. Prediction of hydrological response based on different quality measurement data;
2. Hydrological model calibration for extreme conditions;
3. Hydro-chemical and geomorphological response to hydrological extremes;
4. Surface water – groundwater interaction under extreme conditions;
5. Extreme value statistics;
6. Extreme streamflow prediction in ungauged basins;
7. Model data-time-step dependency on basin size, landuse and modelling approach;
8. New ideas, monitoring and model developments, experiences in small basin research.

TDWG Membership

In February, 2008 the membership of the TDWG was revised, creating an active membership, and a distribution list. There are currently 30 active TDWG members from 12 countries. For a list of current active members see “TDWG membership and contact points” on the website. Would members please let the organisers know if their details are incomplete or incorrect. It was decided to not show email addresses, initially at least. Would members who wish their email addresses to appear in the List of Members please email Barry to give permission for this. Your email address will not appear in the website List of Members unless you give your permission explicitly. Since an important objective of the TDWG is networking we hope that most members will agree to their email addresses appearing on the website.

As the TDWG develops further we envisage that individual members will be willing to be associated with particular tasks or functions. Ideas along these lines are always welcome.

Publications

The TDWG is maintaining a list of relevant publications (or at least citations) on its website. Any members with publications they would like to have included on the website, please contact Barry.

Best regards

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Ian Littlewood, TDWG Co-organiser, UK (ianlittlewood505@btinternet.com)
David Post, TDWG Co-organiser, CSIRO, Australia (David.Post@csiro.au)

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