19 July 2019

MSSANZ Digest

Past digests are now accessible from the MSSANZ website (http://www.mssanz.org.au/weekly.html).

1. MODSIM 2019 News

A reminder of our invitation to you to submit full papers and extended abstracts to the 23rd International Congress on Modelling and Simulation (MODSIM2019). Email queries to modsim2019@mssanz.org.au

There is now **less than two weeks** until the submission **closing date of 31 July**.

2. Society Noticeboard

Scholarship or Employment Opportunities

- Lincoln Agritech Modelling Scientist, Environmental Water Research (Applications close 27 July 2019).

- Interdisciplinary PhDs to develop decision support tools for complex health and social issues are being offered by CSART (Computer Simulation and Advanced Research Technologies), Applications close 30 August 2019). For further information, email contact@csart.com.au.

Conferences, workshops or training events

- The 'Data Science Down Under' workshop will be held in Newcastle, 8-12 December 2019, and will feature an excellent line-up of national and international speakers on a variety of topics related to Data Science and Machine Learning. The workshop consists of a boot camp, with the theme 'Randomised Numerical Linear Algebra' and a 'Recent advances' component which will include a diverse range of cutting edge research results on theory and application of Machine Learning. Further information is available at https://carma.newcastle.edu.au/meetings/dsdu/ and in the attached workshop poster.

- The Sydney Institute of Agriculture at The University of Sydney are conducting a workshop on SWAT+ and SWAT-CUP in November 2019. Further information and links to the registration are in the attached flyer.

3. Feature Sessions at MODSIM 2019

We have 98 sessions for the MODSIM 2019 conference and will highlight different sessions over the coming weeks. Click the hyperlinks below or see the full list at http://www.mssanz.org.au/modsim2019/streams.html.

C2. Emerging technology in DSS for agriculture	D2. Workflows and modelling software: opportunities, best practice and case studies	F3. New trends in modelling and simulation of future mobility
H3. Enhancing real-time rainfall information: retrievals, analyses and forecasts	I4. Climate change and health – risks, health metrics and alerting	J8. Modelling and decision making under uncertainty
K4. Meeting the simulation challenges of Northern Australia	K16. Integrated urban water cycle modelling	J3. Modelling for action: how can we make ourselves heard?
K14. Understanding and quantifying uncertainties in hydrologic and environmental models	K15. Advances in water quality modelling and analysis	K28. Understanding hydrological processes in a changing environment

THE UNIVERSITY OF SYDNEY
Institute of Agriculture

Everything you always wanted to know about SWAT, but never dared to ask

Workshop on SWAT+ and SWAT-CUP

Organised by:

The Sydney Institute of Agriculture, The University of Sydney: A/Prof Willem Vervoort, A/Prof Thomas Bishop, Dr Floris van Ogtrop, A/Prof Tiho Ancev

Description of the workshop:
This workshop aims to introduce new developments in the SWAT model framework and highlight experiences with the SWAT model in Australia. It consists of three parts:
1) An introduction into SWAT+ (https://swat.tamu.edu) and QSWAT+, the new QGIS based SWAT model framework (November 18-19); 2) A workshop with presentations highlighting the use of SWAT in Australia (November 20); and 3) An introduction into calibration and uncertainty process of SWAT using SWAT-CUP (November 21-22).
The presenters at the workshop are from the SWAT development group from the USDA at Temple, Texas and Texas A&M University. The SWAT+ framework is a completely revised version of the SWAT model. SWAT+ provides a more flexible spatial representation of interactions and processes within a watershed.
Over the past 25 years, the Soil and Water Assessment Tool (SWAT) has become widely used across the globe. The large numbers of applications across the globe have also revealed limitations and identified model development needs. Numerous additions and modifications of the model and its individual components have made the code increasingly difficult to manage and maintain. In order to face present and future challenges in water resources modelling SWAT code has undergone major modifications over the past few years, resulting in SWAT+, a completely revised version of the model. Even though the basic algorithms used to calculate the processes in the model have not changed, the structure and organization of both the code (object based) and the input files (relational based) have undergone considerable modification. This is expected to facilitate model maintenance, future code modifications, and foster collaboration with other researchers to integrate new science into SWAT modules. SWAT+ provides a more flexible spatial representation of interactions and processes within a watershed.

Presenters:
R. Srinivasan, Texas A&M

Key publications:
https://swat.tamu.edu/publications/special-issues/

Who this workshop is for:
Academics, Post-graduate students, government agencies, research and consulting professionals interested in spatial modelling of hydrological processes and links to land use management and change. Fields of Engineering, Agriculture, Geography and Resource Economics.

Location and time:
18-20 November: Room 1170, Abercrombie Building, Corner Abercrombie Street and Codrington Street, Darlington Campus: https://goo.gl/maps/wqQZmUR8QS5eQBD86

21-22 November: Institute Lecture Room 2, Institute building, City Rd, Darlington Campus: https://goo.gl/maps/kyRiwq7s4wfBFx4E8

Cost and registration:
SWAT+ only, day 1 & 2 (November 18 & 19): $350
SWAT-Cup for SWAT+ only, Day 4 & 5 (November 21 & 22): $350
Conference Day 3 (November 20): $90
Full week: $500
Please register at:
https://sydney.onestopsecure.com/onestopweb/swat

What to bring:
Please bring a laptop with SWAT+/QSWAT+ (https://swat.tamu.edu/software/plus/), SWAT-CUP (https://swat.tamu.edu/software/swat-cup/) for SWAT+ installed for the respective workshop.

You are encouraged to bring your own data/project developed through ArcSWAT/QSWAT to gain more experience with SWAT-CUP, however, an example dataset will be provided for the workshop.

Data Science Down Under

8-12 December 2019, Newcastle, Australia

A workshop in two parts:

- ***Boot Camp***
  8 December — 10 December
- ***Recent Advances***
  11 December — 12 December

This workshop will bring together Australian researchers and practitioners with key international academics in areas related to data science — including mathematics, statistics and computer science — to discuss recent work and to share ideas, and fostering new local and international collaborations. The inaugural theme of the **Boot Camp** will be 'Randomised Numerical Linear Algebra', while the **Recent Advances** will cover a diverse range of topics from machine learning and data analysis.

Abstract submission closes:
Friday 30th August

Registration closes:
Friday 6th November

Invited Speakers:

Kenneth Clarkson
IBM Research, USA

Michael Houle
National Institute of Informatics, Japan

Michael Mahoney
University of California, Berkeley, USA

Kerrie Mengersen
Queensland University of Technology

Deanna Needell
UCLA, USA

Joshua Ross
University of Adelaide

Kate Smith-Miles
University of Melbourne

Peter Taylor
University of Melbourne

Matt Wand
University of Technology Sydney

David Woodruff
Carnegie Mellon University, USA

Peng Xu
Amazon AI Lab, USA

Sponsors:

ACEMS — Australian Centre of Excellence for Mathematical and Statistical Frontiers
AMSI — Australian Mathematical Sciences Institute
CARMA
NSW Government
Priority Research Centre for Complex Dynamic Systems and Control, The University of Newcastle

Further information: carma.newcastle.edu.au/meetings/dsdu/ or **dsdu@newcastle.edu.au**
Venue: NewSpace, The University of Newcastle, 8-12 December 2019.

Organising committee: Ali Eshragh (Chair; UoN), Fred Roosta (Co-chair; UQ), Ricardo Campello (UoN), Elizabeth Stojanovski (UoN), Natalie Thamwattana (UoN)