SEAN TURNER

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PROFILE

Water resources engineer / hydrologist with international research experience in industry and academia. Accomplished in water resources system model building and analytical techniques to support planning and operations. Interested in drought management, global-scale water resources modelling and open source software. Creator of R packages *reservoir* and *scenario*.

EXPERIENCE

SUTD-MIT International Design Centre   Singapore
Postdoctoral Research Fellow   Sep 14 – present
  Developed models for climate-resilient reservoir operation.

United Utilities PLC   Manchester, UK
Research Engineer   Jan 11 – Sep 14
  Implemented risk-based water resources planning tools.

CSIRO   Melbourne, Australia
Intern researcher   Mar 13 – May 13
  Assessed climate impacts on Melbourne's water supplies.

Universidad de Concepción   Concepción, Chile
Intern researcher   Apr 10 – Jun 10
  Investigated dam impacts on river geomorphology.

AEA Technology   Glasgow, UK
Technical consultant   Aug 08 – Sep 09
  Conducted environmental policy research; prepared tenders.

AWARDS AND RECOGNITIONS

Top Performing Research Engineer – STREAM Industrial Doctorate Centre, 2011

Pavel Novak Prize for Best Overall Performance (Water) – Newcastle University, 2010

Best Project in Civil Engineering Hydraulics – University of Glasgow, 2008

Dean's List – Faculty of Engineering, University of Glasgow, 2008

EDUCATION

Cranfield University (2010 – 2014)
Engineering Doctorate (EngD) in Water Resources Planning
> *Thesis: Challenges for implementing water resources planning frameworks based on stochastic modelling assessments: the case for change in England and Wales.*

Newcastle University (2009 – 2010)
MSc in Hydrology and Climate Change (Distinction)

University of Glasgow (2004 – 2008)
BSc in Engineering Environmental Design (First Class Hons.)

PROFESSIONAL SERVICE

Reviewer
Water Resources Research, Environmental Modelling and Software, Journal of Water Resources Planning and Management, Urban Water Journal, Advances in Water Resources, Stochastic Environmental Research and Risk Assessment, Water Resources Management.

Conference session convener
Session leader, MODSIM 2015, Gold Coast, Australia, 29th Nov – 4th Dec 2015, Session L.15: Water resources management informed by hydroclimatic forecasts.
Session co-convener, 13th Annual Meeting of the Asia Oceania Geosciences Society, Beijing, 31st July – 5th Aug 2016. Session: Ensemble Hydro-Meteorological Forecasting.

TEACHING EXPERIENCE

Singapore University of Technology and Design
Teaching Assistant (2016), *Energy Systems (final year undergrad.)*
Teaching Assistant (2015), *Water Resources Management (final year undergrad.)*

ADDITIONAL SKILLS AND QUALIFICATIONS

Computation: Command-line programming (Windows and Linux), R (advanced user), Rocks Cluster, GitHub, VBA, Latex, ArcGIS, Aquator, eWater Source, WEAP, HEC-RAS.

Certified courses taken: Economics of Money and Banking (Columbia[‡]); An Introduction to Financial Accounting (Wharton[‡]); Public-Private Partnerships (World Bank Group[‡]); Justice (Harvard[‡]); Writing in the Sciences (Stanford[‡]); Risk Analysis and Extreme Events (Sheffield); Systems Dynamics Modelling (Warwick); HydroEurope (Nice Sophia Antipolis); Research Skill Development (Imperial College London); Research Entrepreneurship (Cambridge-MIT Institute). *([‡] – taken online)*

Languages: English (native); Spanish (intermediate).

PUBLICATIONS

Works in preparation

Turner, S. W., Galelli, S., Bennett, J., Robertson, D. (in preparation) Assessing the benefits of adopting seasonal ensemble streamflow forecasts in real-time reservoir operating schemes. Target Journal: *Hydrological and Earth System Sciences*.

Works in review

Ng, J. Y., Turner, S. W. and Galelli, S. (in review) ENSO-driven anomalies in regional hydropower production balance out at the global scale. *Proceedings of the National Academy of Sciences*.

Ekström, M., Grose M., Heady, C., Turner, S., and Teng, J. (in review) The method of producing climate change datasets impacts the resulting policy guidance and chance of mal-adaptation. *Climate Services*.

Journal publications

Turner, S. W. and Galelli, S. (2016). Regime-shifting streamflow time series: Implications for water supply reservoir operations. *Water Resources Research*. Accepted Author Manuscript. doi:10.1002/2015WR017913.

Turner, S. W. and Galelli, S. (2016). Water supply sensitivity to climate change: An R package for implementing reservoir storage analysis in global and regional impact studies. *Environmental Modelling and Software*, 76, 13-19.

Turner, S. W. D., Blackwell, R. J., Smith, M. A., and Jeffrey, P. J. (2016). Risk-based water resources planning in England and Wales: challenges in execution and implementation. *Urban Water Journal*, 13(2), 182-197.

Turner, S. W., and Jeffrey, P. J. (2015). Industry views on water resources planning methods—prospects for change in England and Wales. *Water and Environment Journal*, 29(2), 161-168.

Turner, S. W., Marlow, D., Ekström, M., Rhodes, B. G., Kularathna, U., and Jeffrey, P. J. (2014). Linking climate projections to performance: A yield-based decision scaling assessment of a large urban water resources system. *Water Resources Research*, 50(4), 3553-3567.

Software

Turner, S. W. D., Ng, J. Y., Galelli, S. (2015) reservoir: Tools for Analysis, Design, and Operation of Water Supply Storages, R package version 1.1.4, Comprehensive R Archive Network, https://cran.r-project.org/package=reservoir

Turner, S. W. D., Galelli, S. (2016) scenario: Construct Reduced Trees with Predefined Nodal Structures, R package version 1.0, Comprehensive R Archive Network, https://cran.r-project.org/package=scenario

Conference presentations

Turner, S. W. D. and Galelli, S. (scheduled). Improved water resources management using seasonal ensemble streamflow forecasts: What factors affect reservoir operating performance gains? EWRI Congress 2016, West Palm Beach, FL, USA. [Oral presentation]

Turner, S. W. D. and Galelli, S. (scheduled). An R package for the design, operation, and analysis of reservoir systems. EWRI Congress 2016, West Palm Beach, FL, USA. [Poster presentation]

Turner, S. W. D. and Galelli, S. (2015). Improved water resources management using seasonal ensemble streamflow forecasts: factors affecting performance in reservoir operations. MODSIM, Gold Coast, Australia. [Oral presentation]

Turner, S., Galelli, S., and Wilcox, K. (2015). Incorporating teleconnection information into reservoir operating policies using Stochastic Dynamic Programming and a Hidden Markov Model. In EGU General Assembly Conference Abstracts (Vol. 17, p. 3335). [Oral presentation]

Turner, S. (2015). Addressing water resources risk in England and Wales: Long term infrastructure planning in a private, regulated industry. In EGU General Assembly Conference Abstracts (Vol. 17, p. 4365). [Poster presentation]

Turner, S. and Jeffrey, P. (2013). Risk-based water resources planning: Challenges for reaching rational decisions based on quantitative frameworks. In proceedings of the 8th International Conference of the European Water Resources Association, Porto. [Oral presentation]

Invited presentations

Turner, S. W. (2013). Bottom-up climate impact assessment of the Melbourne bulk supply system, Invited speaker, Liverpool University Department of Geography and Planning.

Industry publications

Turner, S. W. (2013) Predicting next season's weather. Water and sewerage journal. 2013 issue 4, p48.

Turner, S.W. (2012) Developments in hydrology. Water and sewerage journal. 2012 issue 4, p35.