

GOYDER INSTITUTE FOR WATER RESEARCH MODEL METADATA TEMPLATE

METADATA REQUIRED	DETAILS
Model Name and version	Drain M Flow Forecasting Models.
Date of lodgement of Metadata Template.	April 2015
Name of Metadata Provider	Matt Gibbs, matthew.gibbs@adelaide.edu.au
Goyder Institute Project Number and Name	GOYDER INSTITUTE FOR WATER RESEARCH Project No. E.2.4 Improved Modelling of the Catchments and Drainage Network in the Upper South East for Management Outcomes
Project Team	Matt Gibbs, matthew.gibbs@adelaide.edu.au Greer Humphrey, greer.humphrey@adelaide.edu.au Holger Maier, holger.maier@adelaide.edu.au Graeme Dandy, Graeme.dandy@adelaide.edu.au
Creator/Developer	Above project team
Owner/Contact Person and contact details	Matt Gibbs, matthew.gibbs@adelaide.edu.au School of Civil, Environmental and Mining Engineering The University of Adelaide North Terrace, Adelaide, 5005
Model Location	The model and data outputs have been stored on the network at the Science, Monitoring and Knowledge Unit, Department of Environment Water and Natural Resources (DEWNR) P:\Projects_SW\South_East\Goyder Institute\Project E.2.4 Drain M\ Contact: Matt Gibbs, matt.gibbs@sa.gov.au <i>Is there a version of the model in active further development? NO</i> <i>Where is this active version located?</i> DEWNR Network listed above.
IP or other permission requirements	* REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT ** There are no specific IP or other permission requirements for future users.
Licences associated with model and/or dependencies	* REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT * Data requirements: SILO Climate data - Department of Science, Information Technology, Innovation and the Arts, QLD https://www.longpaddock.qld.gov.au/silo/ POAMA Climate forecast data - Access to experimental data products are available free of charge for trial/research purposes http://poama.bom.gov.au/ Flow data - Stored in the DEWNR Hydstra data base. Available on request from DEWNR, or available from: https://www.waterconnect.sa.gov.au/systems/swd/SitePages/Home.aspx

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Confidentiality agreements associated with model and/or dependencies	<i>Are there any confidentiality agreements associated with the model and/or the dependencies that future users need to be aware of?</i> NO
Brief outline of model	This model represents a combination of models used to simulate flow in the Drain M system for an upcoming month.
Area/region covered	Drain M, South East of South Australia
Platform and language and version	R 3.0.1 and supporting packages. Python 2.7 for the SILO data.
Dependencies upon: <ul style="list-style-type: none"> i) other models and/or platforms (including version) and location ii) essential data and data sources and location 	<p>Likely to be platform independent. Tested on Windows 7, with minimal Linux testing.</p> <p>Data requirements: SILO Climate data - Department of Science, Information Technology, Innovation and the Arts, QLD https://www.longpaddock.qld.gov.au/silo/</p> <p>POAMA Climate forecast data - Access to experimental data products are available free of charge for trial/research purposes http://poama.bom.gov.au/</p> <p>Flow data - available on request from DEWNR, or available from: https://www.waterconnect.sa.gov.au/systems/swd/SitePages/Home.aspx</p> <p>Further details are outlined in Goyder Institute Technical Report 15/34 available at http://goyderinstitute.org/index.php?id=8</p>

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How was model used	<p>Climate forecast model outputs were downloaded from the Bureau of Meteorology and downscaled to the local scale. Recent climate data was retrieved from the SILO system and flow data obtained from the DEWNR Hydstra database. Conceptual rainfall-runoff models (GR4J) were then calibrated to the updated data and the models then run to provide the flow predictions into Drain M.</p> <ul style="list-style-type: none"> ○ <i>Parameterisation/Validation (if applicable; provide a brief summary and include time period of calibration/simulation)</i> <p>Reliability metrics used for model assessment and validation, over the period from the start of the data record (typically in the 1970s) up to 2014</p> <ul style="list-style-type: none"> ○ <i>Scenarios and outputs from various runs (provide a brief summary and indicate where these are stored)</i> <p>The models were tested for the 2014 winter/spring season.</p> <ul style="list-style-type: none"> ○ <i>Assumptions behind model (provide a brief summary and indicate where these are stored)</i> <p>See report and supporting references for model assumptions.</p> <ul style="list-style-type: none"> ○ <i>Limitations of model(provide a brief summary)</i> <p>See report and supporting references for model limitations.</p> <ul style="list-style-type: none"> ○ <i>Peer review process (if applicable)</i> <p>Reviewed by two external reviewers.</p> <ul style="list-style-type: none"> ○ <i>Extensibility of model (can it be run for different time periods)</i> <p>The model has been designed to be able to be run for new time periods with limited effort assuming some technical knowledge.</p>
Specificity of data	<p><i>Was data sourced from local field sites or literature</i></p> <p>Datasets are summarised in Goyder Institute Technical Report 15/34 Details of data sourced is given under 'Dependencies'</p>
Datasets/data products produced	<p><i>Include details of where datasets/products are located and contact details in the storage location</i></p> <p>See model location section</p>
Other Information	

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Publications (papers and technical reports)	<p>Gibbs, M.S., Humphrey, G.B., Maier, H.R., Dandy, G.C., 2015, <i>Improved Modelling of the Catchments and Drainage Network in the Upper South East for Management Outcomes. Project E.2.4 Final Report</i>, Goyder Institute for Water Research Technical Report Series No. 15/34, Adelaide, South Australia</p> <p>Gibbs, MS, Maier, HR, Dandy, GR and Thyer, MA (2012) Is there potential to inform time varying conceptual rainfall runoff model parameters using groundwater data? 34th Hydrology and Water Resources Symposium, Engineers Australia, Sydney.</p> <p>Gibbs, M.S. and Taylor, B. (2013) Multi-response calibration of a rainfall runoff model to assess downstream environmental water requirements In Piantadosi, J., Anderssen, R.S. and Boland J. (eds) MODSIM2013, 20th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2013 http://www.mssanz.org.au/modsim2013/abstracts.html</p> <p>Gibbs, M.S. and Clarke, K. (2013) Linking spatial inundation indicators and hydrological modelling to improve assessment of inundation Extent In Piantadosi, J., Anderssen, R.S. and Boland J. (eds) MODSIM2013, 20th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2013 http://www.mssanz.org.au/modsim2013/abstracts.html</p> <p>Gibbs, Clarke, Taylor (2014) Linking Spatial Inundation Indicators and Hydrological Modelling to Improve Assessment of Inundation Extent. Ecological Indicators, in press.</p>
Collaborations and acknowledgements	Discussions with South East Water Conservation and Drainage Board staff have been essential to the development of these models.
Keywords	South East, hydrology, rainfall-runoff, uncertainty, forecast, Drain M