

GOYDER INSTITUTE FOR WATER RESEARCH MODEL METADATA TEMPLATE

METADATA REQUIRED	DETAILS
Model Name and version	Lower Limestone Coast Prescribed Wells Area wetland–groundwater interaction model, version 1.0
Date of lodgement of Metadata Template.	28/05/15
Name of Metadata Provider	Dr Nikki Harrington (nikki@innovativegroundwater.com.au)
Goyder Institute Project Number and Name	GOYDER INSTITUTE FOR WATER RESEARCH Project No. E.2.6 South East Regional Water Balance – Phase 2 Task 3 – Wetland Connectivity Modelling
Project Team	Task Leader: Dr Sébastien Lamontagne (Sebastien.Lamontagne@csiro.au) Project Team: Chris Turnadge (Chris.Turnadge@csiro.au) Andrew Taylor (Andrew.R.Taylor@csiro.au) Stan Smith (Stan.Smith@csiro.au) Other Task Leaders (separate metadata sheets): Dr Nikki Harrington (nikki@innovativegroundwater.com.au) Dr Russell Crosbie (Russell.Crosbie@csiro.au)
Creator/Developer	Chris Turnadge (CSIRO Land and Water: Water in the Resources Sector Group, Water Resource Management Program) Chris.Turnadge@csiro.au
Owner/Contact Person and contact details	Chris Turnadge (Chris.Turnadge@csiro.au)
Model Location	The model is currently archived at: 1) The CSIRO Data Access Portal (https://data.csiro.au/dap/) 2) The SA Government DEWNR Model Warehouse. Contact Dr Graham Green (DEWNR, Science, Monitoring and Information Division; Graham.Green@sa.gov.au) for access to the model.
IP or other permission requirements	***** REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT ***** IP owned by Flinders University as per the Goyder Institute agreement, but licenced to CSIRO and DEWNR. Contact Chris Turnadge or Sébastien Lamontagne (details above) to access this model. Alternatively, the model is held in the SA Government Science, Monitoring and Knowledge Unit, DEWNR Model Warehouse. Contact Dr Graham Green for access to the model Graham.Green@sa.gov.au

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Licences associated with model and/or dependencies	<p align="center">***** REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT *****</p> <p><i>Are there any licenses associated with the model and/or the dependencies that future users need to be aware of?</i> NO</p>
Confidentiality agreements associated with model and/or dependencies	<p><i>Are there any confidentiality agreements associated with the model and/or the dependencies that future users need to be aware of?</i></p> <p>NO</p>
Brief outline of model	<p>This metadata sheet describes a methodology for simulating interactions between wetlands and underlying shallow groundwater in the Lower Limestone Coast Prescribed Wells Area. Specifically, the model simulates changes in wetland water levels to variations in water tables. A variant of the industry standard groundwater flow simulation code MODFLOW (i.e. MODFLOW-OHWM) was used as the basis for this approach. Significant components of the water mass balances for both wetland and groundwater domains were included. Of particular novelty was the use of a combined approach to simultaneously represent recharge and evapotranspiration. Model files also include Python language post-processing scripts, which may be used to produce statistical summaries of wetland surface water persistence. The model was demonstrated using a synthetic input dataset. Results of the synthetic demonstration, including the calculated salinisation risk metric, indicated the potential for managed surface water additions to negate the effects of long-term water table decline on the persistence of wetland surface water levels.</p>
Area/region covered	<p>The model described herein is designed to represent deflation basin-type wetlands that occur in the Lower Limestone Coast Prescribed Wells Area (i.e. the South East region of South Australia). However, the model is not specific to any particular wetland. For this reason, the model could also be applied to wetlands with similar deflation basin-type characteristics from other regions.</p>
Platform and language and version	<p>MODFLOW-OHWM, binary executable from FORTRAN code, version 1.0.0 (Hanson RT, Boyce SE, Schmid W, Hughes JD, Mehl SM, Leake SA, Maddock T, Niswonger RG (2014), One-Water Hydrologic Flow Model (MODFLOW-OHWM): U.S. Geological Survey Techniques and Methods 6–A51, 120p)</p>
Dependencies upon: i) other models and/or platforms (including version) and location ii) essential data and data sources and location	<p>The models are not dependent on any other models for input data, nor are there any essential datasets required to run the models.</p>

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How was model used?	The models are used as conceptualisation and risk assessment tools to investigate the impacts of scenarios of changes to regional groundwater levels on water levels in wetlands that exhibit certain characteristics. The regional groundwater level regimes can be obtained from the regional groundwater flow model that has been developed in Task 1 of this project (separate metadata sheet), but the models can also be run with synthetic groundwater level datasets to investigate scenarios.
Specificity of data	There are no specific data required to run the models. They are generic by design and can be set up with any data sets.
Datasets/data products produced	None
Other Information	None
Publications (papers and technical reports)	Turnadge, CJ and Lamontagne, S, 2015, <i>A MODFLOW-based approach to simulating wetland-groundwater interactions in the Lower Limestone Coast Prescribed Wells Area</i> . Goyder Institute for Water Research Technical Report 15/12 available from http://goyderinstitute.org/index.php?id=1
Collaborations and acknowledgements	The authors acknowledge the considerable input of Adrian Werner, Leanne Morgan, John Hutson, Nikki Harrington and Juliette Woods (Flinders University) with regards to developing numerical approaches to simulating wetland-groundwater interactions. Wolfgang Schmid (CSIRO) provided significant advice with regards to MODFLOW input packages; in particular, the Riparian Evapotranspiration package.
Keywords	Wetlands Lower Limestone Coast Prescribed Wells Area South East region Wetland-groundwater interaction