Project Brief

Australian groundwater modelling guidelines

NATIONAL CENTRE FOR GROUNDWATER RESEARCH AND TRAINING

This resource introduces the Australian groundwater modelling guidelines, which were developed by the National Centre for Groundwater Research and Training and Sinclair Knight Merz (SKM), and published by the National Water Commission in mid-2012. It is designed for a general audience.

THE AUSTRALIAN GROUNDWATER MODELLING GUIDELINES

Groundwater systems are affected both by natural processes and human activity, and require careful management to ensure that they remain healthy and able to continue to support local communities and ecosystems.

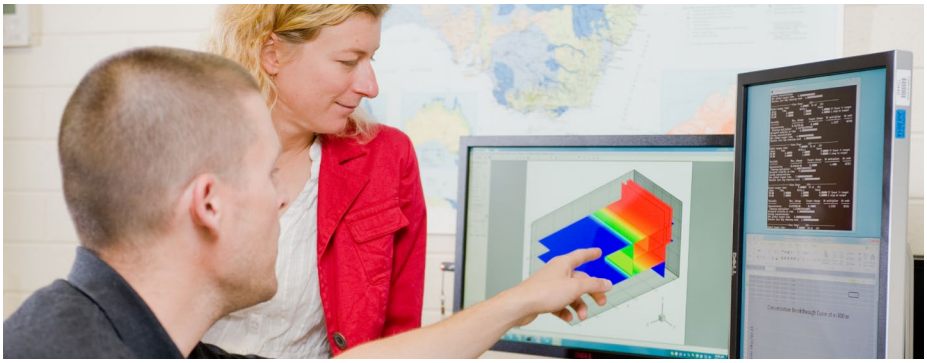
Groundwater modelling is a useful tool for understanding the behaviour of complex systems, as well as for predicting any possible changes over time. Modelling can help us consider various management options and make sensible decisions.

The Australian groundwater modelling guidelines were released in mid-2012, and were developed by the National Centre for Groundwater Research and Training and SKM, on behalf of the National Water Commission.

The guidelines aim to promote a sound and consistent approach to groundwater modelling in Australia, and serve as a reliable point of reference for common approaches to various types of groundwater modelling.

They are aimed primarily at groundwater modellers, but are also useful for regulators, community stakeholders, software developers and researchers.

For non-specialists, the guidelines provide an understanding of the model development process, while for specialist groundwater modellers, the guidelines highlight best practice on topics such as:



- planning
- conceptualisation
- model design
- calibration
- uncertainty analysis
- presentation of results.

The guidelines also focus on two topics of particular importance: modelling of conservative solutes in the saturated zone, and modelling of surface water – groundwater interactions.

GETTING A COPY

The Australian groundwater modelling guidelines are freely available as a National Water Commission Waterlines report (no. 82) as a PDF or Word document.

The web address for the guidelines is: archive.nwc.gov.au/library/waterlines/82

The guidelines are also made available on the NCGRT's website: www.groundwater.com.au

WHAT IS NUMERICAL MODELLING?

Numerical modellers use physics and maths to build computer-based simulations — or 'models' — of environmental systems. Although these models only approximate the enormous detail of reality, they can be very useful for predicting what might happen in certain conditions. For example, meteorologists use numerical models to help predict the weather. Hydrogeologists use modelling, to help work out things like:

- where rainfall eventually ends up
- how much water can be taken from a well without affecting a nearby stream
- how much water will be available to irrigators during the next dry season
- if contamination occurs in an aquifer, how quickly it will spread and where it will go.

Want to know more?

Researchers at the National Centre for Groundwater Research and Training were heavily involved in the development of the Australian groundwater modelling guidelines.

To learn more, visit: www.groundwater.com.au

Australian Government
National Water Commission
Australian Research Council