

## MT GAMBIER SOUTH MODEL 2000

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### **Purpose**

As described in Stadter and Yan (2000), this groundwater flow model is developed to assess the potential use of the groundwater resources from the unconfined aquifer in the area south of Mount Gambier.

### **Background**

From Stadter and Yan (2000), the South East of South Australia is almost totally reliant on its extensive groundwater resources which predominantly occur in two regional aquifer systems – an upper unconfined aquifer and a deeper confined aquifer. Following the prescription of the Lacepede-Kongorong Prescribed Wells Area in 1997, the potential to use some of the lateral throughflow of groundwater in the unconfined aquifer in addition to the vertical recharge was raised as a management issue for areas south of Mount Gambier. Partially funded by the South East Catchment Water management Board, a groundwater flow model was developed to provide technical input for the water allocation plans being developed for the Comaum – Caroline and Lacepede – Kongorong Prescribed Wells Areas.

The model covers the period between 1970 and 2030. Modelling of predictive scenarios begins in 2000.

The model was built with Visual MODFLOW version 2.6.

### **Location**

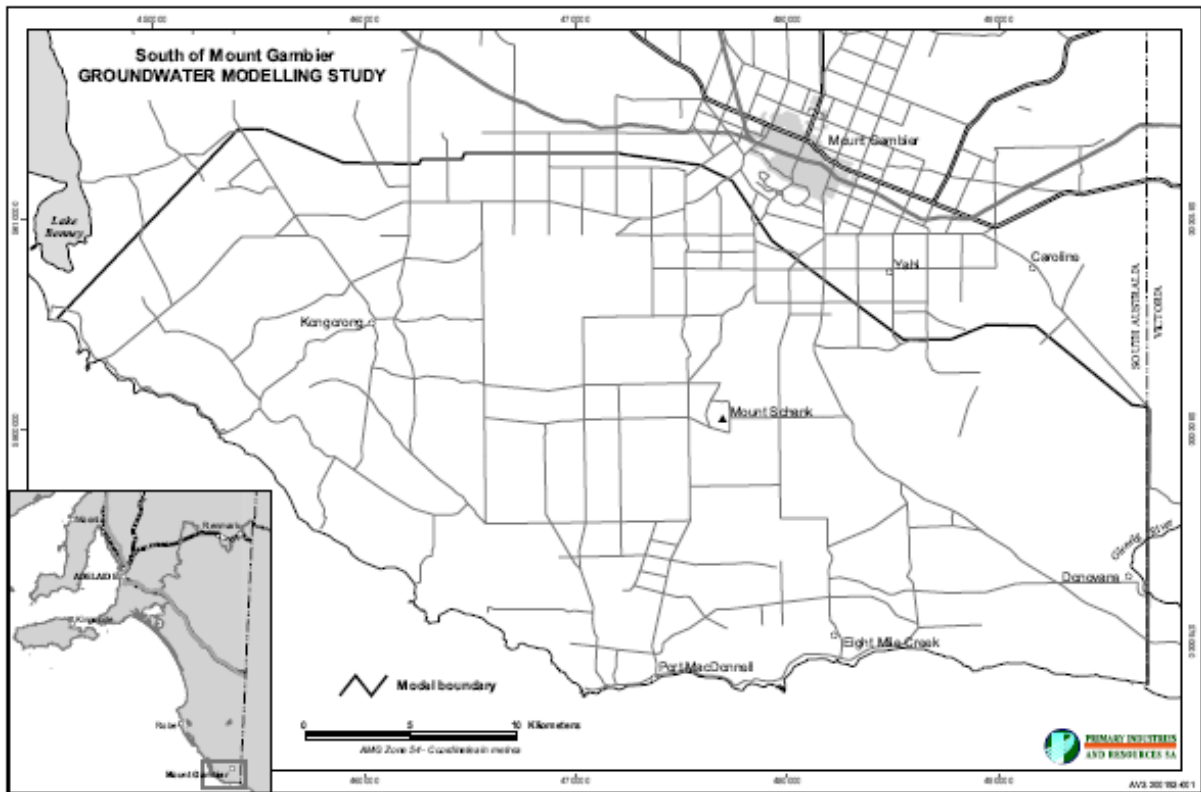
The location of the model domain is shown in Figure 1.

### **Model structure**

#### *Model domain and grid size*

The model domain simulates an area 52 km (east to west) by 28 km (north to south). The bounding coordinates are 445000E, 5787000N (south-west) and 497000E, 5815000N (north-east) (GDA 1994, MGA Zone 54).

The rectangular model grid is divided into 100 rows and 200 columns. The grid has a uniform cell size of 260 m × 280 m. The model grid is applied to three layers, resulting in 218 400 finite difference cells.



**Figure 1. Mount Gambier South model domain**

*Model layers*

The regional aquifer system is conceptualised as three layers, including two aquifer layers and one aquitard layer (Table 1 and Figure 2).

**Table 1. Model layers**

Layer	Hydrogeological unit	Aquifer/Aquitard
1	Gambier Limestone	Aquifer
2	Dilwyn Formation Clay	Aquitard
3	Dilwyn Formation Sand	Aquifer

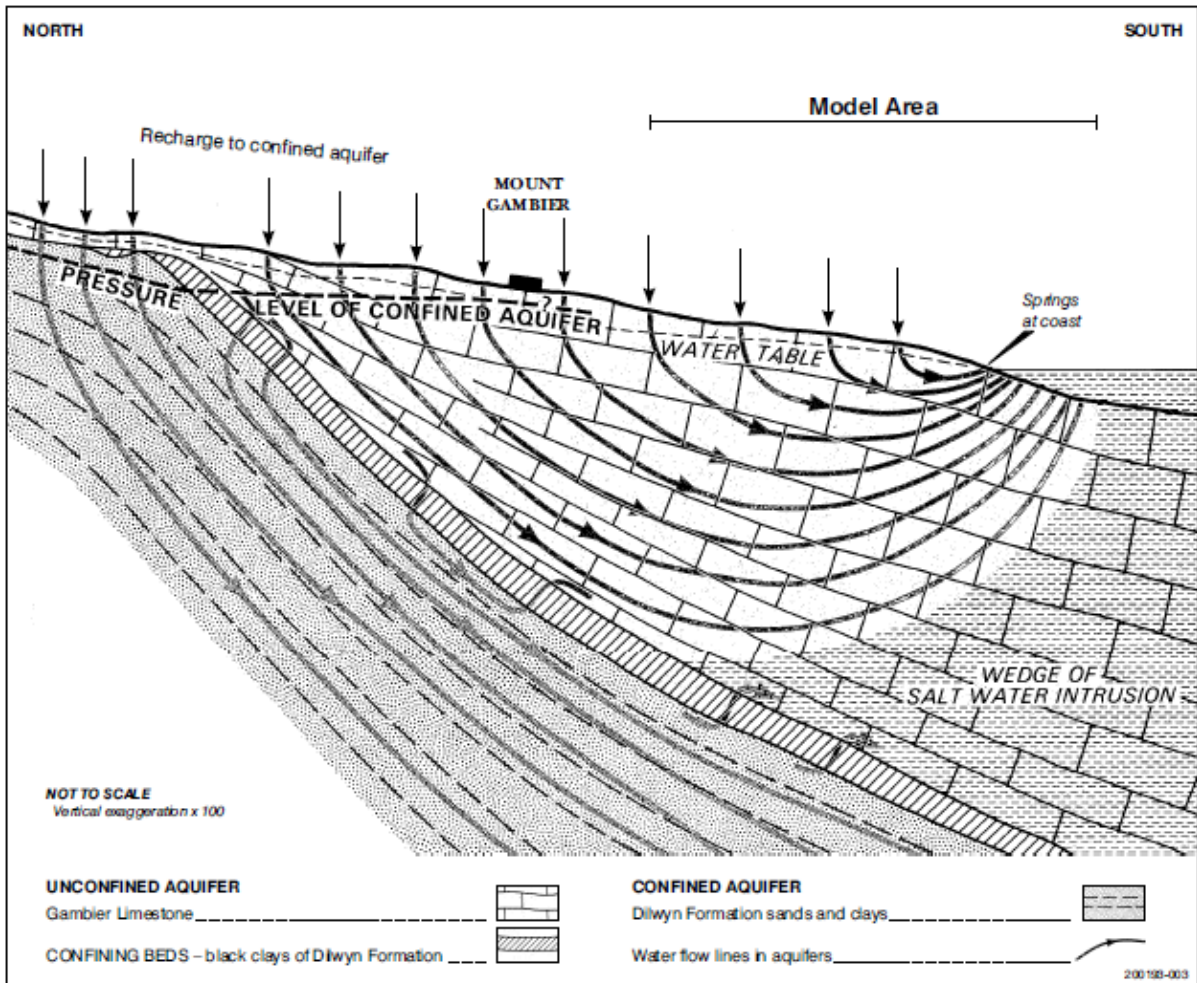


Figure 2. Hydrogeological Conceptual Model

**Report**

Stadter F and Yan W, 2000, *Assessment of the potential use of the groundwater resources in the area south of Mount Gambier*, Report PIRSA 2000/00040, Primary Industries and Resources South Australia, Adelaide