



AuScope Geothermal Demonstrators Gunnedah, New South Wales, Australia

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AuScope aims to establish world-class research infrastructure to enable the characterisation of structure and evolution for the Australian continent. AuScope's Simulation, Analysis and Modelling capability makes it possible to draw together geological data-products and analysis software, for the purpose of developing quality scenario models. This allows researchers to test geological hypotheses and to answer large-scale "what-if" questions relevant to Australia's geological resources.

The following is an example "what-if" scenario. The model below shows the geothermal potential of New South Wales' Gunnedah basin combining information from over 150 exploration holes, and all available geophysical data. It shows the temperature of the Lachlan-foldbelt basement beneath the thick sedimentary cover of particular interest to Dr Craig O'Neill's research group.

Leaders:

Craig O'Neill (Macquarie University)
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Description:

The Gunnedah Basin in eastern New South Wales is part of the Sydney-Gunnedah-Bowen Basin system, and an important economic resource for its extensive coal measures. More recently it has garnered attention for its geothermal potential, and is ideally positioned near population centres and energy transmission infrastructure.

This particular model (Figure 1) shows a 155°C isotherm within the depths of 3km and 6.5km with arbitrary values for material conductivities and basal heat flow. Other "what-if" parameter scenarios can be tried at the Geothermal Model Library (<http://www.underworldproject.org/geothermal>).

The AuScope software infrastructure Underworld (<http://www.underworldproject.org>) offers the novel capability of metre-scale resolution near the coal, yet resolving to depths of tens of kilometres. The 3D model and source data information can be found through the AuScope Discovery Portal's geothermal layer (<http://portal.auscope.org>).



Figure 1: 3D Underworld model of Gunnedah geothermal properties, visualised using gLucifer (to view and rotate interactively in 3D, open in Acrobat Reader v. 8.0 or higher).

For more information contact:
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