

# 20th anniversary: Geological Survey of South Australia's first digital map



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As early as 1986 the Geological Survey of South Australia (within the Department of Mines and Energy) recognised a need for digital geological maps and related data. Rather than develop its own system the department opted to purchase EASINET GIS software, an Australian engineering software system that combined the functionality of computer aided drafting (CAD) with geographic information system (GIS) inquiry facilities to form a 3D GIS.

In 1987 preliminary data modelling was undertaken by Graham Pilkington (Geophysics Branch) and the author (then Chief Geologist Geological Survey) to define a relatively comprehensive data model.

Then in 1988 the Regional Geology Branch initiated a pilot project to digitise the ADELAIDE and BARKER 1:250 000 scale geological maps for the Mount Lofty Ranges Review. The project was set up and coordinated by the author, with Wolfgang Preiss (Regional Geology Branch) and Bill Mitchell (Drafting Branch) preparing updated 1:50 000 and 1:100 000 geological maps from existing published and unpublished compilation maps. Graham Young and Sergio Rossi (Drafting Branch) digitised the updated maps.

The entire project was undertaken using TEO/3D spatial GIS software (an updated version of EASINET) and Data General MV 20 000 computer workstations. Considerable experimentation with digitising techniques and hardware combinations was carried out and data was stored in a 'global' database structure linked to other datasets such as rock sample locations and drillhole locations.

In January 1989 the first full-colour plots of geological map data were generated from the database; several line plots had been previously produced at various scales for checking purposes but had to be coloured by hand.

By November 1989 line digitising, colour filling (layer assignment of polygons) and labelling had been completed for the ADELAIDE and BARKER geological maps and colour plots of the maps were presented for display at the 1989 annual Bureau of Mineral Resources, Geology and Geophysics (BMR; now Geoscience Australia) Symposium in Canberra. These

were the first full-colour digital 1:250 000 and 1:100 000 atlas series geological maps produced from a true GIS system in Australia.

One year later the SA\_Geology digital geological map database covering the entire state was launched at the departmental seminar 'SA – Exploration towards 2000' on 13 December 1990. This included the first statewide full-colour digital map plot at 1:1 million and digital data in a variety of formats.

Other state and territory geological surveys had scanned published maps and reproduced them as such, but South Australia led the way in developing a true geological map GIS in which maps could be produced at any scale and in which the data could be readily updated as new data became available.

This was the origin of what is now routine practice for map production and it was the origin of geological GIS in

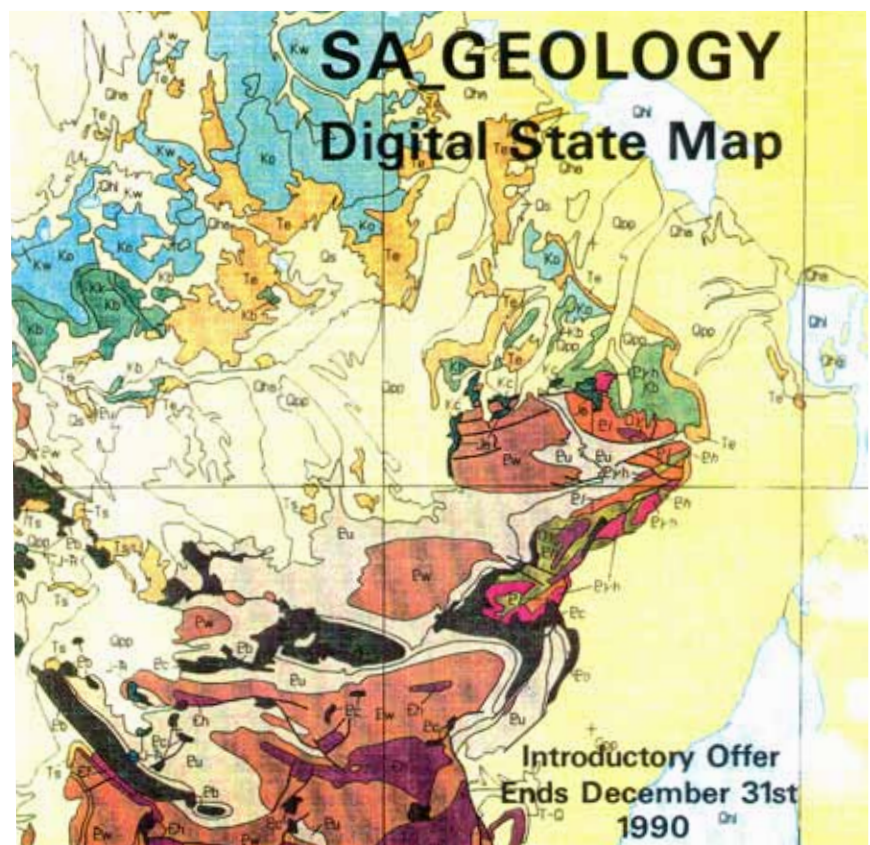
Australia. Other geological surveys and the BMR followed suite, but South Australia went on to become the number one provider of digital geological data in the world (as ranked by the Fraser Institute Annual Survey of Mining Companies 2003–04 and 2004–05).

From humble beginnings 20 years ago!

## Further reading

Parker AJ 1989. *Design and implementation of SA\_Geology: a computerised geological map database system*, Report Book 90/11. Department of Mines and Energy South Australia, Adelaide.

Parker AJ 1992. SA\_Geology and the future direction of 1:250 000 atlas-series geological maps and explanatory notes. In *Geographic information systems, cartographic and geoscientific data standards, Workshop Proceedings, March 1992*, BMR Record 1992/27. Bureau of Mineral Resources, Geology and Geophysics, Australia, Canberra. ■



Flyer advertising the first release of SA\_Geology digital geological map database in December 1990.