A new seamless, digital, surface geology dataset covering Australia at 1:1 million scale was released during simultaneous launches across the country on 16 December 2008 (figure 1). The map, which has fully integrated depiction of geological features across borders, will provide an invaluable baseline dataset for national and regional evaluation of resources as well as environmental management and land use decision-making.

The compilation of a seamless surface geology map of Australia at 1:1 000 000 scale commenced in 2001. Since then, more than twenty geologists, GIS technicians and stratigraphic indexers have combined their efforts to produce the most detailed, informative and consistent national geology coverage available (figure 2). The new data replaces the 1:2 500 000 scale digital map published by Geoscience Australia in 1998. The improved coverage in the new dataset is exemplified by an increase from 8 000 to 247 000 polygons, and the increase from 200 to around 5 900 described geological units in the new data.

In the past, geological information frequently failed to match up across jurisdictional boundaries because of differences in data acquisition methods and geological interpretations that could have been published decades apart. This national project was undertaken with the full co-operation of the geological surveys of each Australian state and the Northern Territory who provided their most recent map data for the national compilation as well as their advice in resolving stratigraphic issues.

Initially, it was planned to compile the map from existing regional geological maps between 1:500 000 and 1:2 000 000 scale. However, it became apparent early in the project that these regional maps were usually fairly old (1970s and 1980s) and that the geological information on them was of poor quality considering the geological mapping programs undertaken by the federal, state and Northern Territory geological surveys in the last 20 years. Consequently, much of the new Australian geology dataset has been compiled from the most recent 1:250 000 scale mapping. In some areas where the 1:250 000 maps were out of date, the compilers used 1:100 000 or even 1:50 000 scale source maps. Although compiled from these detailed geological maps, the national data have been simplified for use at 1:1 000 000 scale.

Figure 1. Geoscience Australia CEO Neil Williams launching the new seamless geology of Australia dataset at Geoscience Australia on 16 December 2008.
Other digital attributes include a stratigraphic parent-child hierarchy, a text description of the unit, maximum and minimum ages, and lithological classifications. Faults and stratigraphic boundaries are also coded in the database. The dataset also includes comprehensive metadata describing the origins of the source data.

The new data are designed primarily as a digital tool for GIS applications. It is not planned to issue a printed map—a paper map of Australia at 1:1,000,000 scale would be almost 4 metres tall! The Australian geology data are also available to view on the OneGeology portal website. This international project aims to provide national scale geology data freely via the internet for users across the world using agreed international digital data standards. The data is currently displayed as a Web Map Service (WMS) with the national geological coverage of many other nations. Geoscience Australia will be moving towards providing the data as a Web Feature Service (WFS) using the GeoSciML data standard (GeoScience Markup Language; Simons et al 2008) in the near future.

The new 1:1,000,000 scale data is available for free download from the Geoscience Australia website in shapefile and ESRI export formats. The data is packaged for internet delivery.
in individual state and territory portions because of the large size of the whole-of-Australia dataset. The data can also be ordered on DVD from the Geoscience Australia Sales Centre. Individual state-wide portions of the national dataset were released as they were completed, commencing with Tasmania and Victoria in 2004. Updated editions of some of the previous releases (Tasmania, Victoria, New South Wales and Queensland) were released as compilation standards improved during the project.

For more information

phone Ollie Raymond on +61 2 6249 9575
email oliver.raymond@ga.gov.au
phone Geoscience Australia Sales Centre on +61 2 6249 9966
Freecall 1800 800 173
email sales@ga.gov.au