



A revised map of Australia's Physiographic Regions: a hierarchical background for digital soil mapping

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Following a long tradition of maps of physiography in the United States of America and Europe (e.g. Fenneman 1917, Lobeck 1922), Gentilli and Fairbridge (1951), with help from Lobeck, prepared a "Physiographic Diagram of Australia". This was followed by a landform map (Loffler and Ruxton 1969), and then a map of Physiographic Regions by Jennings and Mabbutt (1977).

Whereas in the United States physiographic regions are used as a basis for both geological mapping and natural resource management, in Australia they have not been used for these or any other purposes. Recently, however, a revised map of the Jennings and Mabbutt Physiographic Regions of Australia has been prepared for the Australian Soil Resources Information System (ASRIS). The revision was carried out by digitising the original map and then overlaying it on the Shuttle Radar Terrain Model (SRTM), which has a resolution of 90 m. The first step was to adjust the original boundaries to more closely reflect the landforms as depicted on the SRTM. This initial revision was then passed to state agencies for revision in light of more detailed information held at the state level. The final revision will be level 2 of the 6-level ASRIS hierarchy.

Because of problems associated with aggregating data from small areas to large areas (the modifiable areal unit problem, discussed by Dark and Bram, 2007), and the problem of ensuring that digital data are at a scale commensurate with the scale of landscape processes (Pain 2005), it is important to have a regional framework of areas within which extrapolation of observations can be made with some confidence. The six-level ASRIS hierarchy provides such a framework.

This paper will introduce the new map of physiographic regions, plus other national data sets including Groundwater Flow Systems, the ASRIS hierarchy, and other matters relating to scale, mapping and land unit characterisation. These regional maps provide a firm basis for more detailed digital soil mapping and modelling.

References

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