Speak of the (Geosciences) DeVL – she is extending!

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Since 2018 the Australian Research Data Commons (ARDC) has co-funded the Geosciences Data-enhanced Virtual Laboratory (GeoDeVL) project in collaboration with AuScope, National Computational Infrastructure (NCI), CSIRO, the Research School of Earth Sciences (RSES) of the ANU, The University of Adelaide, The Geological Survey of South Australia and Curtin University. The GeoDeVL project is a first step in realising the AuScope Virtual Research Environment (AVRE) as part of a strategic goal to develop a data assimilation and geoscientific discovery and analytics platform for the Australian continent.

It has four work packages: Magnetotellurics (MT), Passive Seismic (PS), International Geo Sample Number (IGSN), and the AVRE platform and portals.

The Data-Enhanced Virtual Laboratory provides a data assimilation, discovery and analytics — of which our adopted ambassador, the Tasmanian Devil approves. Image: ©Warner Brothers

1 — Magnetotellurics (MT) Work Package

Additional datasets from The University of Adelaide are now accessible through NCI's catalogue (geonetwork.nci.org.au/) and VGL (Figure 4). The datasets are then harvested by Research Data Australia and syndicated to Google datasets to further increase discoverability. Reprocessing of time-series data using HPC at NCI has lead to increased flexibility and options in processing methodologies resulting in considerable improvements in MT response functions (Figure 1).
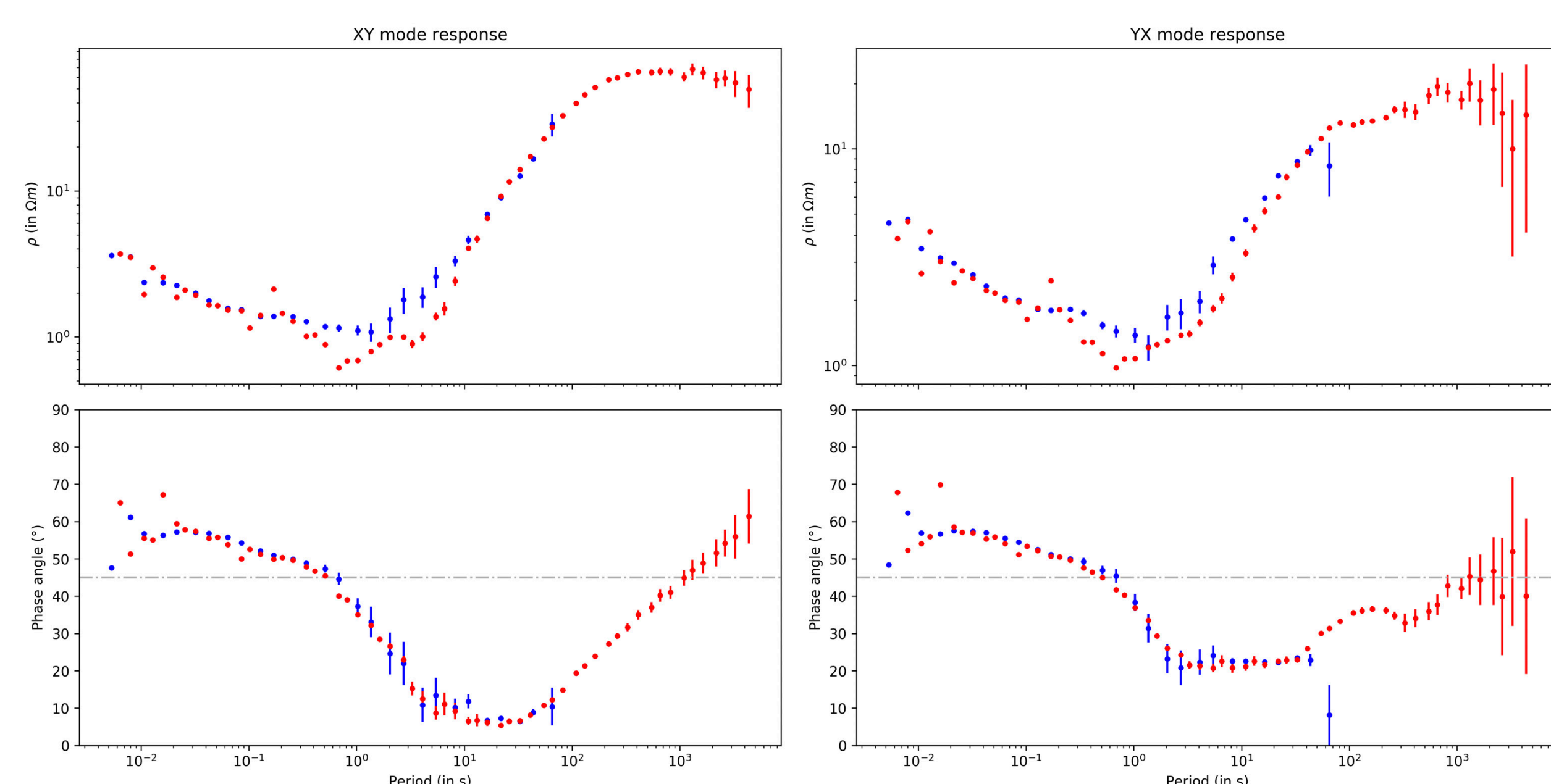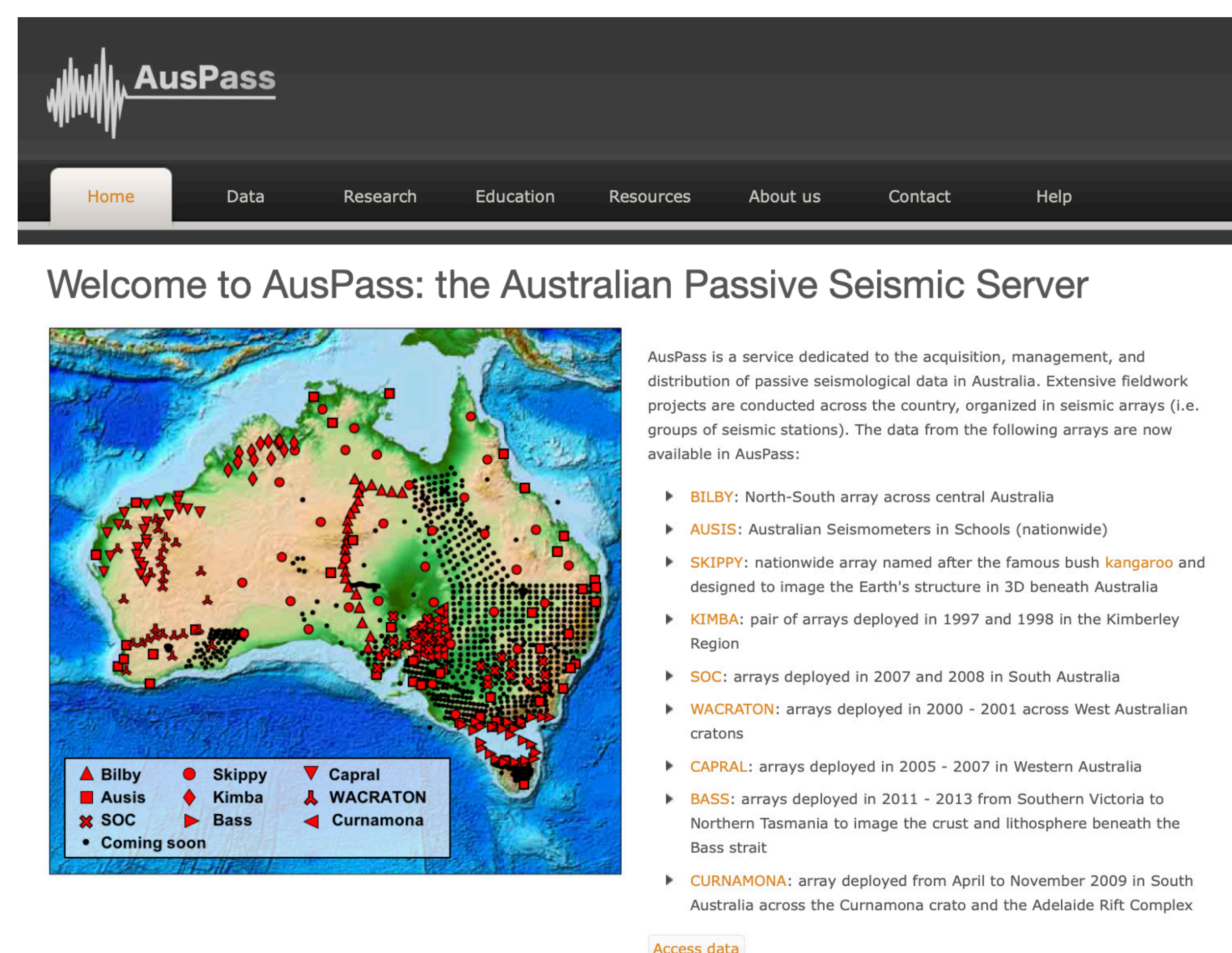

Figure 1: Comparison of the XY (left) and YX (right) mode apparent resistivity and phase curves for an example site from the legacy Renmark processing (blue curve) and the additional information retrieved from the same reprocessed time series data (red curve) available at NCI.

2 — Passive Seismic (PS) Work Package

More RSES PS collection datasets are progressively being released through the AusPass portal (auspass.edu.au) and will also be discoverable through Research Data Australia and Google datasets.

Figure 2: Current PS data available from the AusPass portal, one of a suite of AVRE portals

3 — IGSN Minting Service Work Package

Since 2018 the ARDC has been working with the Australian Geoscience research community to develop a minting service for the allocation of IGSN unique identifiers for physical samples (auscope.org.au/igsn-info). It is now part of the ARDC citation and identifier services for data, samples and software (ardc.edu.au/resources/working-with-data/citation-identifiers).
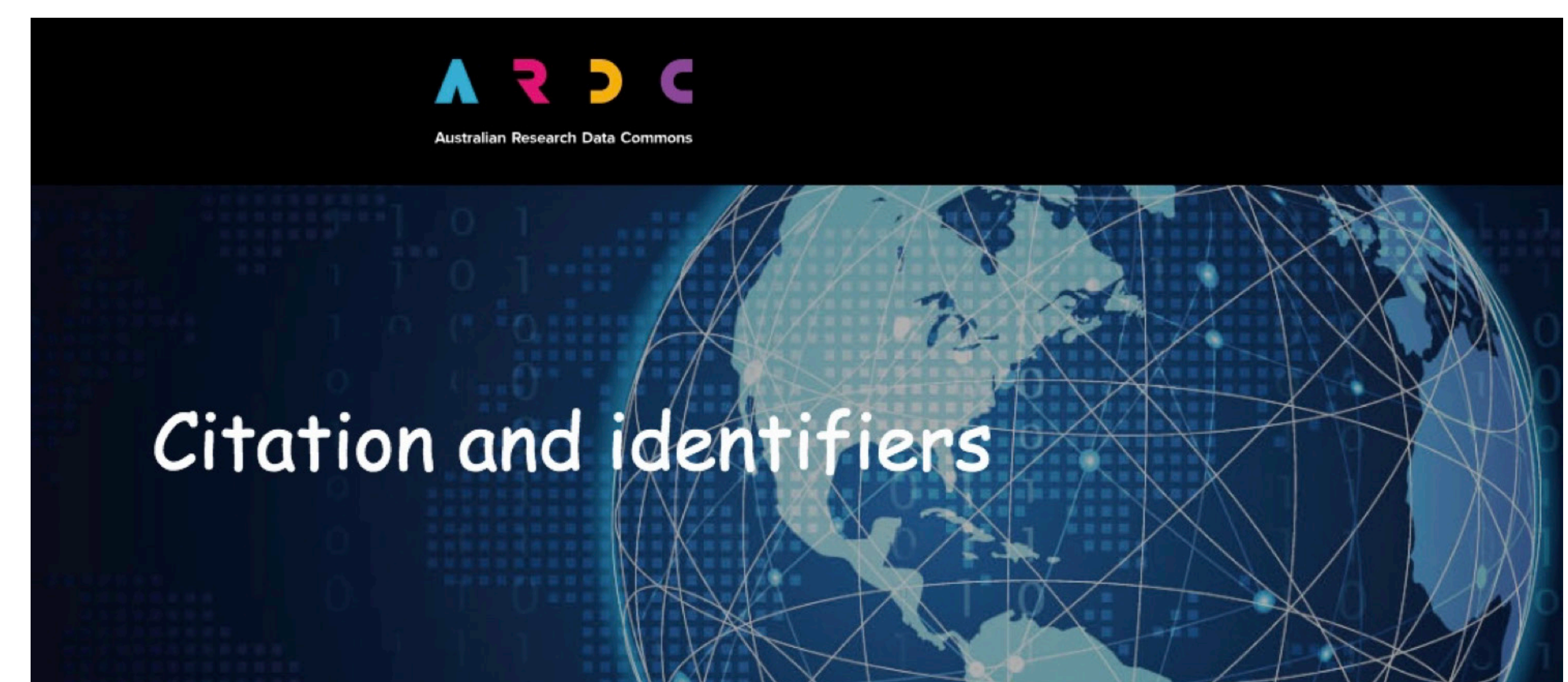
Figure 3: Online citation and identifier guidelines for Australian researchers for data, samples and software that are available from the ARDC website.

4 — AuScope AVRE Work Package

MT datasets compliant with the CS/W standard are now also accessible in the Virtual Geophysics Laboratory (VGL, Figure 4), as part of the AVRE suite of online virtual environments (avre.auscope.org/store).
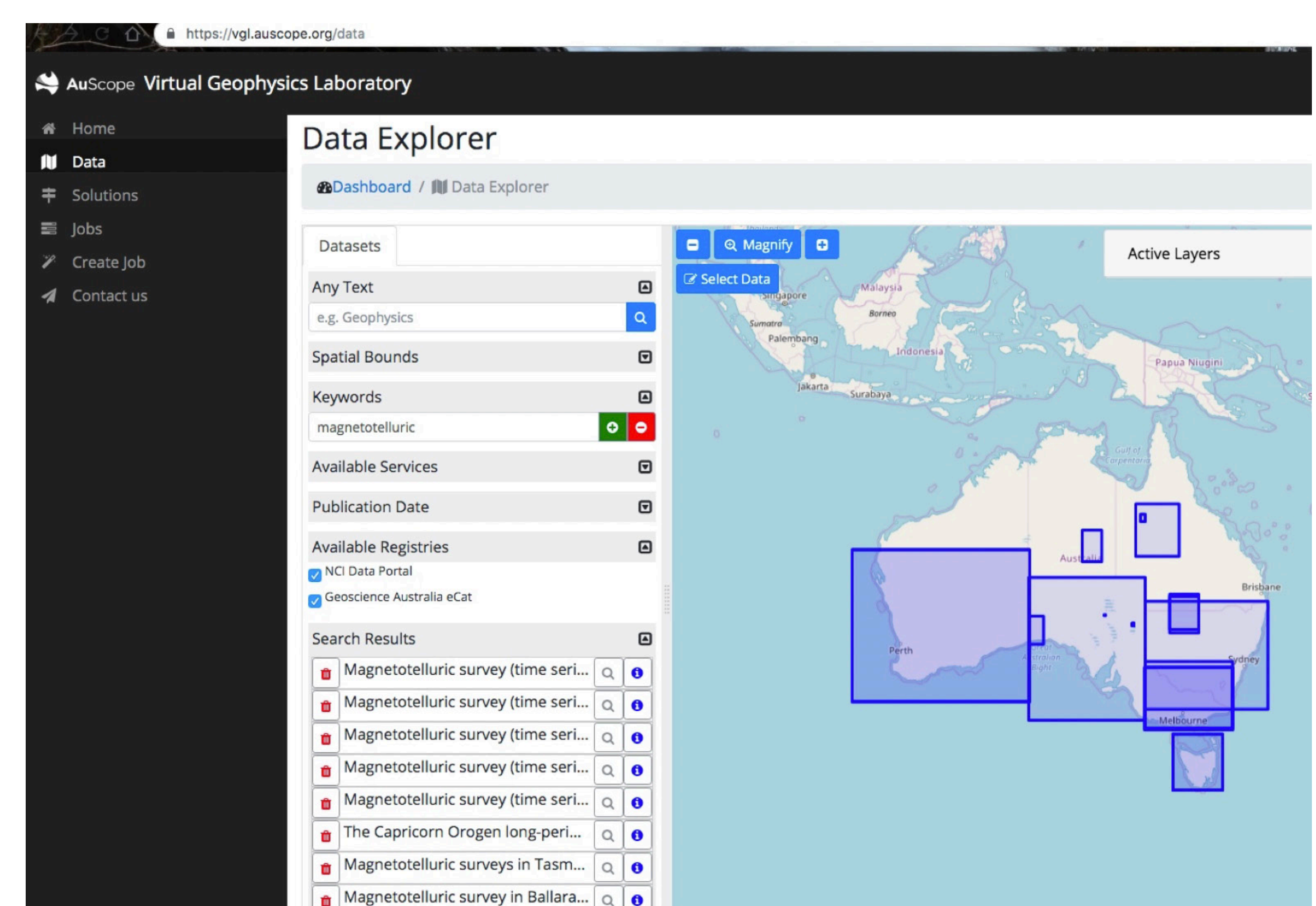

Figure 4: Accessing Australian MT datasets from VGL (https://vgl.auscope.org/landing)

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