The individual surveys that comprise the national gamma-ray spectrometric radioelement database are not all registered to the same datum. Older survey results are presented in units of counts/sec, which depend on factors such as survey flying height and detector volume. Even recent surveys can have a significant mismatch along common borders due to limitations in spectrometer calibration and data processing procedures, as well as environmental effects that result in temporal changes in the gamma-radiation fluence rate at the earth’s surface. To solve these problems, Geoscience Australia is currently flying (under contract) an Australia-wide airborne geophysical (magnetic and radiometric) tie-line survey (AWAGS2) that will be used to bring all of the surveys in the national database to a common datum. The AWAGS2 survey is being funded under the Australian Government’s Onshore Energy Security Program and is due for completion early in 2008. The data are being acquired and processed according to international standards, and the final estimates of radioelement concentrations along the AWAGS2 tie-lines will be consistent with the International Atomic Energy Agency’s (IAEA) radioelement datum. The national database is being levelled by estimating survey correction factors that, once applied, minimize both the differences in radioelement estimates between surveys (where these surveys overlap) and the differences between the surveys and the AWAGS2 traverses. This effectively levels the surveys to the IAEA datum, and significantly enhances the value of a database that is essential for informed decision-making about Australia’s onshore energy resources, mineral exploration and environmental protection.

Technical Area: Minerals – Global Datasets