

# Surveying Alert



Survey control globe, EDM calibrations and AUSPOS

1 August 2014  
Issue 7

## Survey control information in the Queensland globe

Under the Queensland government's open data initiative, the Department of Natural Resources and Mines has published survey control information in the globe, through the 'Location' category globe. [To access category globes, follow the instructions in the Queensland Globe banner.]

The release brings about a number of important changes:

- The globe presentation allows subsets of marks to be selected according to the purpose of the survey that is connecting to the marks. For example, a survey that requires accurate and reliable coordinates will need to connect to marks that are identified as 'Datum'.
- Survey control reports via the globe include the permanent survey mark plan at no cost. Other existing search mechanisms will continue to attract a fee.
- New, more accurate coordinates have been calculated for the marks that constitute the GDA94 datum, including ellipsoidal heights.
- For those marks in the GDA94 Datum layer of the Globe, quality is expressed in terms of Positional Uncertainty, in accordance with the new version of ICSM SP1.
- For other marks, where a computed uncertainty is not available, Class and Order will continue to be shown.

A [fact sheet](#) on the department's web site provides more information about the survey control layers.

Surveyors should also note the following:

- The data that is published through the globe is also available for free download through the [Queensland Government Information Service](#). (Search for "survey control register", including the quotation marks.) The text file can be imported into GIS and CAD software and contains the uncertainty values and ellipsoidal heights where applicable.
- Due to system limitations, searches of survey control information through SmartMap will not provide ellipsoidal heights or positional uncertainty, but will continue to show Class and Order for all marks.

## Process your own EDM calibrations

Surveyors have an obligation under the Survey and Mapping Infrastructure Regulations 2004 to ensure that their equipment is calibrated and standardised. It should be noted that while tests carried out during instrument servicing provide a level of confidence that the equipment is performing correctly, they do not give legal traceability of length measurement. Surveyors are therefore required to carry out a comparison test of their EDM equipment on a certified calibration baseline at least once per year.

Surveyors can now process their own EDM baseline comparisons. The ['Calibration of survey equipment'](#) page on the Queensland Government Business and industry portal contains the necessary links.

It is essential that surveyors read the Software Installation Guide prior to

downloading and installing the EDM comparison software. The Zip file includes a help file and data files for all Queensland baselines.

It is strongly recommended that surveyors read the EDM comparison procedure before undertaking a baseline comparison, to ensure the validity of the comparison.

The web site also contains:

- information about each EDM baseline (location, access and contacts)
- booking forms for EDM measurements and meteorological observations.

It is recommended that surveyors always check the web site for the latest software and data files before processing any baseline comparison.

The Department will continue to offer a service (for a fee) to process surveyor's EDM comparison observations but the intention is to phase out the service once surveyors have had the opportunity to familiarise themselves with the new software. The Department therefore encourages surveyors to download and begin using the software at their earliest opportunity, e.g. when their next piece of EDM equipment is due for a new baseline comparison.

## AUSPOS

Where permanent survey marks are fixed by GPS and processed using Geoscience Australia's AUSPOS service, the surveyor should use the following procedures for supplying information to the Department.

When using the AUSPOS processing service, surveyors should pay particular attention to entering the correct antenna type and antenna height. Ideally, the AUSPOS results submitted should use the IGS Final orbits.

The surveyor should prepare a [permanent survey mark plan](#) or [maintenance form](#) and use the following to describe the Horizontal Control Data:

- Horizontal Datum: GDA94  
(Note: surveyors should state the GDA94 values not the ITRF values that are also shown in the AUSPOS Report)
- Horizontal Adjustment: AUSPOS X.x  
(where X.x is the version of the AUSPOS software used, as shown on the AUSPOS report)
- Horizontal Accuracy: 2<sup>nd</sup> Order/Class B
- Horizontal Fixed by: GPS

Where the AUSPOS height is to be used (e.g. the mark does not have a better height from levelling), the surveyor should use the following to describe the Vertical Control Data:

- Vertical Datum: AHD Derived;
- Vertical accuracy: 5<sup>th</sup> Order/Class D;
- Vertical Fixed by: GPS.

To ensure that the AUSPOS results are correctly reflected in the SCDB, all relevant digital files should be [emailed](#) to the survey control business area of the department with "SCDB" contained within the Subject field. The following files should be attached:

- [permanent survey mark plan](#) or [maintenance form](#) as PDF;
- The AUSPOS processing report as PDF;
- The AUSPOS occupation may be valuable for the State Control Survey, especially if there are several hours of GPS data. Therefore, the surveyor should also attach the RINEX input file(s).

The Survey Control business area of the Department will use the following procedures.

For new marks, the full AUSPOS report will be scanned as an appendage to

the Permanent Mark Sketch Plan (Form 6). This will subsequently be available as part of a Survey Control Report.

For upgraded marks, the original front side of the Sketch will be rescanned and the Maintenance Form and AUSPOS report scanned as further sheets. Any new AUSPOS reports for the same PM will be included at the end of the aggregated document.

In the case where these are the first AUSPOS results submitted for this mark and there is only one occupation of the mark, the accuracy values attributed for Horizontal will be 2<sup>nd</sup> Order/Class B and for Vertical 5<sup>th</sup> Order/Class D.

The Department will also use the AUSPOS processing report to add words similar to the following to Related Information in the SCDB:

*AUSPOS processed on 29/3/2014 using 20 hours of GPS data collected on 21/3/2014. AHD height derived from ellipsoidal height of 284.724 using AUSGEOID09.*

If the results are for multiple occupations or there have been previous AUSPOS occupations of the mark, the Department will assess how well the occupations agree and whether the accuracy statements in the SCDB should be amended.

Depending on the value for the State Control Survey, the Department may reprocess the RINEX file(s) and add the results into the state-wide geodetic adjustment so that coordinates, heights and uncertainty values can be rigorously assessed. In such cases, the surveyor may also be contacted to obtain any additional information, such as field records verifying antenna height etc.

Further general information about AUSPOS is available from [Geoscience Australia's web site](#).

Great state. Great opportunity.

