

Discussion Forum: Impacts of a Next Generation Datum for Australia

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ABSTRACT

It is well known that our national datum is plagued by distortions, e.g. GDA94 shows 200 mm distortions near Ballina. CORSnet-NSW operates in a different realisation of GDA94 to ensure that modern positioning services such as Network RTK and Virtual RINEX function correctly, but these solutions are generally not compatible with GDA94 coordinates of ground control marks stated in the state's Survey Control Information Management System (SCIMS) database. Using Geoscience Australia's free online processing service, AUSPOS, generates similar problems in regards to SCIMS. Therefore surveyors have to perform site transformations to essentially degrade perfectly good measurements to fit the existing fabric. GDA94 as we know it is getting old. Meanwhile, modern smart phones measure position using the GPS and GLONASS satellite constellations. Soon Galileo and Beidou signals will be included which could mean sub-metre, maybe even decimetre positioning in real-time for the mass market. Geoscience Australia is tasked with datum maintenance for Australia. The improved positioning capabilities brought about by satellite positioning techniques have exposed movements which could previously be ignored with traditional datums. Plate tectonics, ground subsidence and surface creep will become increasingly detectable by mass market positioning users. A next generation datum will need to accommodate these users whilst maintaining its integrity with a precision that is an order of magnitude higher than the current GDA94 datum. Users can be classified as expert users (geodesists), professional users (surveyors and geospatial professionals) and general users (mass market). There is no doubt that the numbers of general users will swamp expert and professional users. So how will a modern, next generation datum satisfy the needs of all these user groups? How can this modern datum accommodate the complexity of earth motion for expert users whilst insulating the mass market user from this complication and maintaining the utility of the datum for the professional user? This interactive discussion forum will seek to gather feedback from a segment of the professional user community about the potential impacts of a next generation datum and how we as a community can minimise any disruption during this transition.

KEYWORDS: *Next generation datum, infrastructure, GDA94, Australia.*