Datum Modernisation for Australia

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ABSTRACT

Increasingly accessible geospatial technologies that generate large amounts of spatially accurate data have highlighted deficiencies in Australia's current national datum, the Geocentric Datum of Australia 1994 (GDA94). The economic and technological drivers to achieve greater productivity have created an unavoidable need for datum modernisation, so that a spatially empowered Australian community can reach their required accuracies, now and into the future. The Australian landmass also sits on the fastest moving continental tectonic plate on Earth. This creates a situation where coordinates produced by unaugmented Global Navigation Satellite Systems (GNSS) quickly become biased in time with respect to plate-fixed coordinates. Coordinates measured relative to GDA94 are now over 1.5 metres offset to the positions provided inherently by GNSS. The ability to then confidently integrate disparate spatial datasets, captured at different times, is creating a growing level of frustration among both professional and inexperienced users of spatial data. Systems that will be commonly available on familiar platforms such as smartphones will make accurate position even more accessible to the spatially illiterate population. The ability to deliver real-time accuracies better than the definition of GDA94 will likely be upon us within the next decade. These issues clearly indicate that leading surveying and spatial sciences professionals must ensure that the required level of accuracy needed by the community is attainable. This presentation describes the process of modernising the nation's coordinate system, the move to update GDA94 and a future time-dependant datum.

KEYWORDS: *Datum, geodesy, coordinates, ellipsoid.*