



Australian plate motion (~7cm/year) affects high-precision positioning applications such as Cooperative Intelligent Transport. Images <https://www.icsm.gov.au/australian-terrestrial-reference-frame>, <https://www.nhtsa.gov/press-releases>

GDA2020 – Australia’s new National Datum

The [Geocentric Datum of Australia 2020 \(GDA2020\)](#) is Australia’s new National Datum which replaces GDA94. GDA2020 is of higher accuracy than GDA94, aligns more closely with GPS and GNSS positioning services and supports nationally consistent datasets, free of the known distortions of GDA94. In NSW, GDA2020 coordinates are approximately 1.5 metres to the north-east of GDA94 coordinates, which represents the motion of the Australian tectonic plate between 1994 and 2020.

GDA2020 is the first product of the modernised [Australian Geospatial Reference System \(AGRS\)](#), which provides the framework for coordinating all spatial information in Australia. Modernising the datum ensures that users have access to accurate and nationally consistent spatial data and services, and the associated economic benefits.

When will NSW adopt GDA2020?

From 1 January 2020, GDA2020 is the legal datum for NSW supported by amendments to the [Surveying and Spatial Information Act 2002 \(NSW\)](#) and [Regulation 2017 \(NSW\)](#) (S&SI Act and Regulation).

DCS Spatial Services is working to enable and supply key datasets and services in **both GDA94 and GDA2020** and to support the transition to GDA2020 across government, industry and academia.

- Feb 2019** [CORNet-NSW](#) available in GDA2020 (and GDA94)
- July 2019** [SCIMS Online](#) (Survey Control) and [SCIMS Mobile App](#) available in GDA2020 (and GDA94)
- Jan 2020** [S&SI Act and Regulation updated](#) to require GDA2020 orientation and coordinates
- May 2020** [Survey and Drafting Direction for Mining Surveyors updated](#) to incorporate GDA2020
- July 2020** DCS Spatial Services delivers GDA94 and GDA2020 Foundation Spatial Data via the [Spatial Collaboration Portal](#). Refer to DCS [Spatial Services](#) website for up-to-date product list
- July 2021** DCS Spatial Collaboration Portal supports WGS 84 ≈ GDA2020 exports
- Oct 2021** Anticipate [new web services](#) supporting GDA2020, GDA94 & WGS 84-aligned-to-GDA2020 Existing WGS 84-aligned-to-GDA94 services will be retained until ~ June 2022.
- ~ Dec 2021** Anticipate Incremental Feed in GDA94 and GDA2020 Anticipate Portal(s) default to WGS 84-aligned-to-GDA2020 (TBC)
- July 2023** DCS Spatial Services commits to deliver and receive GDA94 data until mid-2023

New Services and Tools – when can I expect them?

Existing delivery mechanisms for DCS Spatial Services' data continue to be upgraded to support both GDA94 and GDA2020. DCS Spatial Services will ensure that any changes to existing services will be communicated in advance to assist with transition planning.

Tools to transform your existing GDA94 data are available already via:

- positioning.fsdf.org.au
- www.icsm.gov.au/datum/gda-transformation-products-and-tools
- your existing GIS tools and service providers.

What will happen to GDA94? When do I have to update to GDA2020?

DCS Spatial Services intends to support GDA94 services until 30 June 2023. As GDA2020 data and services are rolled out, it is recognised that not every organisation is ready or capable of immediately upgrading their processes and software to cater for GDA2020. We recognise that these changes take time.

Business drivers for GDA2020 adoption will be different across industries and organisations. Your transition to GDA2020 will depend on your needs and applications, and the benefits available to you from improved positioning capabilities. Provided you can receive and supply data in both GDA94 and GDA2020, your internal workflows can remain in GDA94 for the time being.

What about dynamic datums? (Time dependent ATRF, and WGS 84/Web Mercator)

GDA2020 is a static datum which behaves just like GDA94. Updates to the [AGRS](#) will also include the dynamic (or time-dependent) [Australian Terrestrial Reference Frame \(ATRF\)](#). GDA2020 and ATRF_{yyyy} are related by the Australian plate motion model (~7 cm / year), with GDA2020 = ATRF₂₀₁₄ (1 January 2020).

ATRF will play a significant role in mass-market decimetre-level positioning applications supported by the new [Australian Satellite Based Augmentation System \(SBAS\)](#), expected to be operational by 2023. Standards and software are currently under development to allow the seamless merging of datasets to a common epoch.

For most users GDA2020 will remain fit for purpose for long-term storage, analysis and presentation of spatial data, with ATRF applied 'under the bonnet' where needed for high accuracy applications.

WGS 84 and the Web Mercator projection, widely used in web mapping and web services, are actually low-accuracy and static. There is the potential for misalignment of data when using WGS 84, as addressed in this [WGS 84 Information Sheet](#). Historically DCS Spatial Services provided WGS 84-aligned-to-GDA94 services. Services published after July 2021 are expected to support WGS 84-aligned-to-GDA2020.

What do you need to do to prepare for GDA2020?

- 1) Enquire with your software provider on how to support GDA2020 data and on-the-fly transformations.
- 2) Prepare to receive and supply data in GDA2020:
 - Discuss GDA2020 data requirements with providers and clients.
 - Develop a policy regarding GDA94 / GDA2020 / WGS 84 data supply & receipt.
- 3) Ensure your software uses the [published transformations between GDA94 and GDA2020](#). Use the '[Conformal and Distortion](#)' [NTv2 grid](#) when transforming data at metre-level accuracy or better.
- 4) Prepare to migrate your workflows (and potentially your data) to GDA2020.

Where can I find out more?

Please contact our Service Delivery team via the [Customer Hub](#) to register your interest in GDA2020 products.

Additional information on GDA2020 can be found at the following links:

- www.spatial.nsw.gov.au/products_and_services/spatial_data: lists GDA2020 products and services
- www.icsm.gov.au/gda2020
- www.spatial.nsw.gov.au/surveying/geodesy/gda2020