



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. These changes are needed to ensure that all users have access to accurate and nationally consistent spatial data and services which support the economically significant increase in high-accuracy positioning services anticipated over the coming decade.

What is the adoption timeline for GDA2020 in NSW?

From 1 January 2020, GDA2020 has been the legal datum for NSW. This change is supported by amendments to the [Surveying and Spatial Information Act 2002 \(NSW\)](#) and [Regulation 2017 \(NSW\)](#) (S&SI Act and Regulation) which commenced on that date. Other legislation which governs spatial information will progressively be updated to refer to GDA2020 via the updated S&SI Regulation to allow a more consistent treatment of prescribed datums across legislation.

DCS Spatial Services is working to enable and supply key datasets and services in **both GDA94 and GDA2020**:

- 10 Feb 2019:** [CORSnet-NSW](#) available in GDA2020 (and GDA94)
- 1 July 2019:** [SCIMS Online](#) (Survey Control) available in GDA2020 (and GDA94); see also [updated SCIMS mobile app](#)
- 1 Jan 2020:** [S&SI Act and Regulation updated](#) to require GDA2020 orientation and coordinates
- 15 May 2020:** [Survey and Drafting Direction for Mining Surveyors updated](#) to incorporate GDA2020
- 1 July 2020:** DCS Spatial Services delivers GDA94 and GDA2020 Foundation Spatial Data via the [Spatial Collaboration Portal](#). Refer to DCS [Spatial Data](#) webpage for an up-to-date products list
- Jan-Mar 2021:** Anticipated support for Incremental Feed and Web services in GDA94 and GDA2020
- 1 July 2021:** DCS Spatial Collaboration Portal to migrate to GDA2020, along with ‘WGS 84’ services
- 1 July 2023:** DCS Spatial Services commits to deliver and receive GDA94 data until mid-2023

DCS Spatial Services continues to support the transition to GDA2020 across government, industry and academia.

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. Updates to the Incremental Feed and Web Services are anticipated in the first quarter of 2021, with ongoing support for existing GDA94 services. DCS Spatial Services will ensure that existing users are informed in advance of any changes to these services 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? Do I have to update to GDA2020 immediately?

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 to 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 GDA2020, your workflows can remain in GDA94 for the time being.

What about the dynamic datum? (Time-dependence in ATRF and WGS 84/Web Mercator)

While GDA2020 is a static datum which behaves just like GDA94, updates to the [AGRS](#) will also include a dynamic (or time-dependent) component called the [Australian Terrestrial Reference Frame \(ATRF\)](#). ATRF includes the 7cm per year plate motion model needed to properly combine centimetre-level data observed at different timestamps (or epochs).

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

WGS 84 and the Web Mercator projection, widely used in web mapping and web services, are actually low-accuracy and static. These have the potential to result in misalignment of data as addressed in the [GMIWG advisory on WGS 84](#). DCS Spatial Services currently provides WGS 84 ≈ GDA94 and intends to migrate to WGS 84 ≈ GDA2020 by July 2021.

What do you need to do to prepare for GDA2020?

1. Enquire with your software provider(s) on how to support GDA2020 data and on-the-fly transformations.
2. Prepare to receive and supply data in GDA2020:
 - Determine when your data providers and clients intend to supply or require data in GDA2020.
 - Consider revising and communicating your policy regarding GDA94/GDA2020 data supply/receipt.
3. Ensure you can use the [published transformations between GDA94 and GDA2020](#) in your current software and 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?

Keep informed via fact-sheets, FAQ and a discussion forum on GDA2020: www.icsm.gov.au/gda2020

For more information, please email the GDA2020 Team at DCS Spatial Services:
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