



Question and Answer from Slido

Tanya

Do we get copies of the slides after this webinar? (23 votes)

The presentation is available now on the ICSM website (<https://www.icsm.gov.au/webinar-series-australian-geospatial-reference-system>)

Aldo

What about positioning in urban areas with high buildings? (21 votes)

In addition to traditional GPS, having signals from satellites from more constellations like Galileo, GLONASS, BeiDou, NAVIC and QZSS will provide a greater opportunity to get signals from higher altitudes. In addition to this, the SBAS satellite signals will be available to provide high integrity data to users.

Anonymous

How can we access the Australian plate motion model? (20 votes)

The parameters are in the GDA2020 Technical Manual (<https://www.icsm.gov.au/datum/gda2020-and-gda94-technical-manuals>); ATRF Technical Implementation Plan (<http://icsm.gov.au/publications/australian-terrestrial-reference-frame-technical-implementation-plan>) and software is available in our GeodePy GitHub repository (<https://github.com/GeoscienceAustralia/GeodePy>)

Michael O (18 votes)

If everyone has access to such accurate data, how do you make sure it is used correctly? ie redefining cadastral boundaries

I think this is a question for the spatial industry as a whole. To me it shows a growing need for spatial professionals who can interpret the data. It is the difference between data, information and knowledge. Everyone will have access to high accuracy data, but need subject matter experts are needed to use professional judgement and turn it into information and knowledge.

Anonymous (17 votes)

RTK GPS already has down to 20mm horizontal accuracy, will this improve with GDA2020 or ATRF?

GPS positions are provided from satellites in ITRF (which is equivalent to ATRF). Upgrading the datum doesn't improve the accuracy of GPS positioning capability, but improves how well you can align datasets. Think of a datum like an overhead projector. The position from GPS is just one layer. Another layer might be roads, rivers, cadastre etc. Errors in the datum (the overhead projector) make it difficult to align spatial data and make good decisions.

Anonymous (17 votes)

What vertical ellipsoidal height accuracy can we expect from planned SBAS?

	<u>Horizontal (95%CL)</u>	<u>Vertical (95%CL)</u>
SBAS L1	sub metre	sub 2 metre
SBAS DFMC	sub metre	sub 2 metre
PPP#	~10 cm	~20 cm

after convergence - indicatively 30 minutes.

Jane Cooke - CR Kennedy (17 votes)

What is the expected time frame to go from TEST bed to OPERATIONAL

2023-24. Please have a look at <https://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-australia/understand-positioning-australia> for more information.

Paul R (13 votes)

Why doesn't WGS84 provide what we need?

Watch this space – I will discuss this in detail in the upcoming webinars. In the meantime, have a look at some of the FAQs on WGS84 here (<https://www.icsm.gov.au/datum/gda-frequently-asked-questions>)

Anonymous (13 votes)

Who will be able to use SBAS subscription, will there be a subscription fee?

SBAS signals will be free and open access.

Craig Roberts (13 votes)

Will ATRF be legally traceable?

Yes. GDA2020 and ATRF are both legally traceable now because velocities of station coordinates used to define the Australian datum were included in the 2017 Determination of the Recognized-value Standard of Measurement of Position.

Anonymous (13 votes)

Does this accuracy mean anyone can be a surveyor? Because they will think they are.

Definitely not. To me it shows a growing need for spatial professionals who can interpret the data. It is the difference between data, information and knowledge. Everyone will have access to high accuracy data, but need subject matter experts are needed to use professional judgement and turn it into information and knowledge.

Anonymous (12 votes)

How frequently will the ATRF be updated to reflect the true position of the Australian Continent? Is it truly dynamic or is it a more frequently updated static datum?

ATRF coordinates are GDA2020 coordinates propagated to the date and time you need via the Australian Plate Motion Model. For example, if you are sitting in your driverless car in on 1 Jan 2034, and the car needs the most up to date map of the road (or the nearest McDonalds), the car will be receiving coordinates from GNSS in ITRF (equivalent to ATRF) and then via web services, get an updated map in ATRF @ 1/1/2034. The map may have been developed in 2031 and stored in GDA2020. It will then be propagated forward in time using the Australian Plate Motion Model. As you can see, the important element here is the Australian Plate Motion Model. New versions of the model will be developed as required if we find that it no longer complies with the velocities specified in the 2017 Determination of the Recognized-value Standard of Measurement of Position.

Anonymous (12 votes)

Will there be a regular update cycle for the static framework, every 10 years for example?

We don't have any plans for regular updates of Australia's static datum. We will continually be assessing the requirements of users and update it, if and when, it is required.

Anonymous (12 votes)

How often will a static datum be released, as in will there be a GDA2030 which will reflect the 70cm shift, or will the focus be on using the plate motion model

We don't have any plans for regular updates of Australia's static datum. We will continually be assessing the requirements of users and update it, if and when, it is required.

Anonymous (12 votes)

Can the AVWS be used offshore, and is the model reliable near the coast where gravity data traditionally fall short?

AVWS will work seamlessly onshore and offshore whereas AUSGeoid2020 is designed as an onshore model only. AVWS, like all geoid / gravity models in Australia will be less accurate in the coastal region compared onshore or offshore due to the relatively poor performance of gravity derived from satellite altimetry in this region.

Paul R (10 votes)

Does SBAS satellite need its own satellite? Or can you use a commercial satellite already in orbit to transmit corrections?

The current SBAS Test signal we are using is utilising a payload on a commercial satellite, Inmarsat 4F1. The Australian SBAS will need a further two payloads at geostationary orbits. The economics of geostationary satellites means that they are always large, multi-function satellites. On launch Inmarsat 4F1 was 5,959 kg and the SBAS payload was around 90 kg. Consequently the Australian SBAS program will work to have our payload hosted on someone's much larger satellite.

Benoit Cajelot (9 votes)

Is ATRF consistent with ITRF?

Yes it is. Have a look here for more information (ATRF Technical Implementation Plan (<http://icsm.gov.au/publications/australian-terrestrial-reference-frame-technical-implementation-plan>))

Hayden Asmussen - DELWP (GPSnet) – Victoria (8 votes)

Hi Nic, with the establishment of the new Australian Space Agency, do you think Australia/NZ would ever consider launching our own satellite constellation?

There are no plans for the ASA to launch its own constellation.

Anonymous (7 votes)

Is the Federal Govt envisaging its own satellite augmentation system?

Geoscience Australia has been funded by the Australian government to establish an SBAS for Australia. See here for more information (<https://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-australia>).

Mark M (7 Votes)

Why change AHD? Surely the link between datum's is not of interest to the general populous.

We aren't changing AHD. AHD will still exist as the national datum. AVWS is being introduced as an alternative for those who need it. I will explain this more in Webinar 4.

Hayden Asmussen - DELWP (GPSnet) – Victoria (6 votes)

Hi Nic. At the end of the presentation can you comment on the new logo?

The new logo is for the Australian Geospatial Reference System. It is a logo to unify the collection of datums, reference frames, logos, models, standards and infrastructure required for accurate and reliable 4D positioning.

Anonymous (6 votes)

Will there be a compulsory time to switch to ATRF or GDA2020, especially with the use of CORS stations etc?

All switch overs dates are being managed by states and territories. I encourage people to contact their state / territory survey office.

As for CORS – from Hayden Asmussen, “GDA2020 was made available by the vast majority of CORS operators across the country on Feb 9th 2019. There's no current sunset date on GDA94.”

Anonymous (6 votes)

There seems to be a bit of distortion in AVWS on the east coast of NSW and also eastern VIC, what's the reason for this?

I think you are referring to the AVWS accuracy slide. The larger uncertainties in this region are due to greater uncertainty of the geoid model around the Great Dividing Range. We have less gravity data from this region which causes greater uncertainty in our model of the geoid.

Tanya (5 votes)

Will there be a simple conversion from GDA94 to GDA2020 - so i can merge old and new

A range of tools are available to help convert between GDA94 and GDA2020, please have a look here (<https://www.icsm.gov.au/gda2020>)

Anonymous (5 votes)

Will GDA 2020 will be phased out after a few years and everyone asked to go to ATRF?

A static datum will be maintained for as long as users need it.

Charles Fransen (5 votes)

Will ATRF be occasionally adjusted if the plate movement model is found to be not completely accurate or the movement changes?

The Australian Plate Motion Model will be updated as often as needed to ensure users are able to access accurate and reliable ATRF coordinates.

Anonymous (4 votes)

Will the 3 cm accuracy on mobile phones be a subscription service?

The national GNSS network will provide GNSS data that can be used by commercial service providers for network positioning solutions as well as supporting single-base RTK positioning. It is anticipated that services provided by the private sector will continue to be based on a subscription basis.

In addition to these commercial offerings, GA will be making available a number of data products in real-time including precise orbits, satellite clocks, atmospheric and system bias information. These products will be complemented by a suite of open software tools that will enable users to create their own positioning solutions. The GA software will implement a technique referred to as PPP-RTK which aims to bring the respective strengths of the PPP and RTK techniques together. The PPP-RTK technique will, in areas where it is supported by the appropriate ground infrastructure, deliver a 3 cm positioning capability. GA has no plans to deliver PPP-RTK corrections via satellite and will rely on internet for service delivery.

Anonymous (4 votes)

There is no need to store the timestamp of observations stored in GDA2020?

We would recommend as good survey practice all observations are timestamped.

Anonymous (4 votes)

What are major differences between the ATRF and the ITRF?

ATRF is a densification of ITRF and has legal traceability to GDA2020. Please see here for more information (<http://icsm.gov.au/publications/australian-terrestrial-reference-frame-technical-implementation-plan>).

Anonymous (3 votes)

Does SBAS need a line of sight like the traditional GPS signals?

Satellite delivered SBAS requires line-of-sight although GA plans to also support SBAS correction delivery via the internet, which we think will better support users in challenging environments like urban canyons. This concept was demonstrated as part of the SBAS Test-bed.

Anonymous (3 votes)

How will we ensure vertical datums such as AVWS and AHD are correct on different horizontal datums as we move relative to the ellipsoid separation?

If using GDA94 – use AUSGeoid09

If using GDA2020 – use AUSGeoid2020 or AVWS