



Question and Answer from Slido

Joel Haasdyk +14

Many users treat WGS84 as if it is a static datum even though it is time-dependent as you show. We need to get used to recording the epoch of data!

- Agreed. Record the realisation of a reference frame (e.g. ITRF₂₀₁₄) and the epoch (e.g. ITRF2014@2019.57).

Charles Fransen + 10

So if using AVWS - no need to connect to PMs? No checking/verification of GNSS measurements. Would SCIMS perhaps provide PM heights to AVWS?

- Some jurisdictions may record AVWS heights in their survey control database.
- It is always important to verify GNSS measurements. Please refer to SP1 Guideline for Control Surveys by GNSS (<https://www.icsm.gov.au/publications/standard-australian-survey-control-network-special-publication-1-sp1>).

Neville Janssen + 8

With the move to AVWS, Are Geoscience Australia intending to upgrade the AUSGeoid2020 to better derive AHD ie better than 8-13cm?

- There are no plans to update AUSGeoid2020.
- This is predominantly due to the challenges associated with software managing the change control of multiple versions.

Anonymous + 6

How does the zero-point of relate to MSL around the country?

- Mean Sea Level (MSL) is has a bias when compared to AVWS due to the mean dynamic topography of the oceans.

- MSL is therefore about 0.5 m above AVWS in northern Australia and about 0.5 m below AVWS in southern Australia.

Richard Stanaway + 5

Will coastal engineering projects and flood modelling need to apply an offset to the AVWS to account for sea surface topography?

- Yes – global models of mean dynamic topography can be used for this.

Richard Stanaway + 4

Will there still be a need for both gravimetric (fixed at a defined W_0) and MSL models (fitted to an epoch of MSL) for different applications?

- Some applications require accurate fluid flow and are connected to sea level (e.g. storm surge modelling / coastline LiDAR). In these cases data should be captured with respect to the ellipsoid and converted to AVWS for fluid flow analysis. Offshore MSL information can then also be converted to AVWS. If working on projects which connect onshore and offshore, AVWS is the only physical datum to work accurately across the two domains.

Jane Cooke + 3

Are there any Isostatic adjustments that are occurring or being modelled that might effect the Australian geoid?

- Our time series analysis of the Australian continent shows no statistically significant vertical rates, so this is not required.

Anonymous + 2

Does the geoid level change with tides?

- The geoid models we used are an averaged over a number of years.

Anonymous + 2

How does the gravity of the earth translate to the height of the surface? Could you have a flat dense surface look like a mountain?

- Yes - areas with high density rock in the subsurface cause bludges in the geoid.

Anonymous + 2

You've shown absolute accuracy of the AUSGeoid2020 model 8-13cm. Where can we see information about the relative accuracy?

- Please refer to Brown et al., 2018 (<https://link.springer.com/article/10.1007/s00190-018-1202-7>)

Anonymous + 2

Are AusGeoid2020 and AVWS static or dynamic?

- Both will be static, that is, they will not have a time dependent velocity for each latitude and longitude. AVWS will however be updated over time as new data is available.

Zarina + 2

Will AVWS have an epoch associated to differentiate versions over time?

AVWS

- AVWS will be time-stamped to enable people to know which version they used.

Tyson Hillyard + 2

Is there any work or direction to adopt AVWS as the legislated National Height Datum. Like Gda2020 has been?

- Not as yet. At this time, the Australian Height Datum will remain the legal datum. This is predominantly due to complexities in updating the height datum used for cadastral purposes.

Richard Stanaway + 2

Would a new AHD derived wholly from the AVWS be a good idea to ensure consistency between agencies for coastal usage and modelling?

- This is highly unlikely due to the costs and uncertainties associated with large scale levelling networks.