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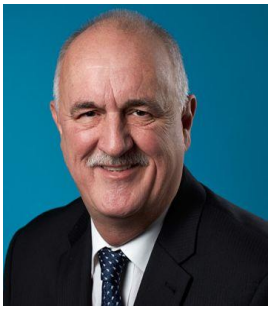
Newsletter

Issue 3 – April 2015

President's Message



Welcome to the first edition of your Newsletter for 2015.

Since our Newsletter in October last year WAIS has been actively looking after our Members interests and representing Surveyors in Western Australia.

We have also identified some Projects as detailed further in your Newsletter that we are sure some of you will be interested in and keen to contribute to.

And if you want to understand why our current GDA94 is past its use by date Mick Rose (ISA Vic) has kindly allowed us to publish his article on 'Dynamic Datums'.

Importantly both WAIS & SSSI continue to collaborate for the benefit of our Survey Profession.

With SSSI now leasing our premises, WAIS have also agreed to jointly contribute to a new staged office fit out to ultimately create more professional work stations and an area more conducive for meetings and training purposes.

We are close to finalising a contract for the works and hope to commence improvements soon.

Members and especially long standing ones will remember that the Institution first acquired Unit 2 back in 1983 which has proven to be a good investment for our Members. Not a great deal has happened with the internal layout and improvements since, so these works are well overdue and we are sure our Members will appreciate them.

I am pleased to report that WAIS now has 200 Financial Members and your Board would like to thank you for your support.

I would like to take this opportunity to encourage Members to become more involved with your Institution and consider being elected as an Office Bearer when we hold our AGM later this year. Your Board only meets as needed so the time involvement is not excessive and it will give you an opportunity to contribute and meet with like minded professionals for the betterment of our Membership.

Brian Hill
President

Christmas Sundowner 2014

On the 9th December 2014 the first WAIS Christmas Sundowner for many years turned out to be a wonderful success.

With a full capacity crowd of 60 including 9 ladies crammed into the Byrneleigh Garden Bar with standing room only, the atmosphere was fantastic.

Eugene Browne (standing on a table!) gave a short Christmas greeting on behalf of the WAIS Board.

Everyone enjoyed meeting new faces and catching up with old friends including our special guest Faye.

The event reminded many of the old days at Steve's. The food was superb, and the Byrneleigh service could not be faulted as the drinks kept flowing right through to the 8.00 pm close.

L-R [Pam Houghton, Faye Scorer & Bob Edwards]

The pictures tell a thousand words.

L-R [Robyn Edwards, Pam Houghton, Barrie Dimond, Jill Browne & Eugene Browne]

L-R [Colin Stewart, Wayne Stewart & Bob Edwards]

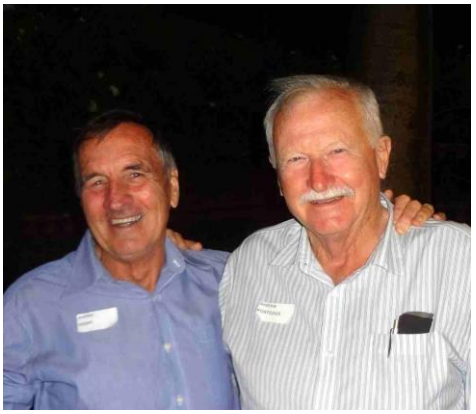
L-R [Frank Le Faucher & Paul Rhodes]

L-R [Richard Browne, Barrie Dimond, Robert Morland & Derrick Browne]

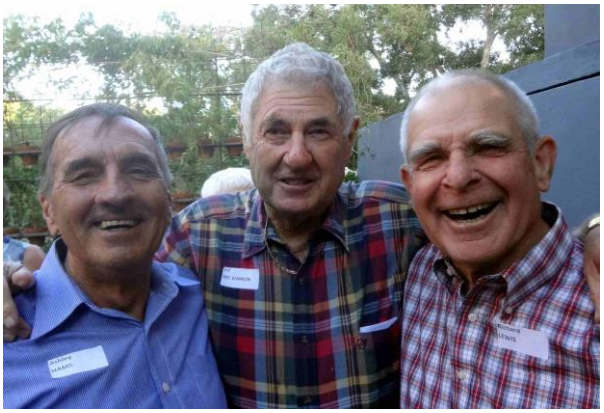
A one eyed Kevin McMahon

L-R [Robyn Edwards, Avis Milne, Pam Houghton, Jean McKinnon & Jill Browne]

L-R [Paul Johnson & Ian Kelly]



L-R [Ashley Hams & Andrew Porteus]



L-R [Ashley Hams, Ed McKinnon & Richard Lewis]

Western Australian Spatial Industries Golf Day – 11 Feb 2015

WAIS was very proud to be a major sponsor for the WA Spatial Industries Golf Day by providing 2 WAIS monogrammed golf balls as illustrated which turned out to be quite a HIT!! for each player.

4 balls were also given to the winner of the longest putts on Hole 4 (Pines Course) and 7 (Island Course).

Peter did a fantastic job of organising and arranging sponsorship of the event with help from Eugene Browne of WAIS. Debra and Helen from SSSIWA helped with the registrations, and Debra assisted on the day.

13 teams of 4 battled it out for the 18 novelty prizes and the newly named Trimble Trophy [previously the OmniStar Trophy]

Overall winners were the team from McDonald Surveys seen here being awarded the trophy by Darren Walford of Trimble.

Congratulations go to Andy and his team who played some very good golf to take out the prize with some pretty tough competition on a reasonably hot day.

L-R [Tom Tierney, Dominic Hyde, Andy McDonald, Darren Walford & Bernard Kennedy]

The WAIS novelty prizes were won by Mick Dallas on the 4th and Dave Evans on the 7th and presented by Convener Peter Bowen below.

L-R [Mick Dallas & Peter Bowen]

L-R [Dave Evans & Peter Bowen]

The shotgun start allowed all players to arrive back at the same time for post-game refreshments, and the event ran without a hitch. Peter is to be congratulated on his organisation.

Comments at the 19th were extremely positive ensuring the events future.

Proposed Upgrade to the Memorial for WA's First Geodetic Datum

The plaque commemorating Western Australia's first geodetic datum, established in 1900, sits beside a boom gate at the Dumas House government office, opposite Kings Park.

This astro-geodetic datum, which preceded the Australian Geodetic Datum (AGD) of 1966, was the 'beginning' of geodetic surveying in WA.

In 1963, the building that housed the Meridian Telescope used to define this first datum was demolished to make way for Dumas House. A plaque was placed to commemorate the datum's service to the state.

Western Australia will soon build the $4 billion Single Kilometer Array (SKA), in the Murchison region, that will revolutionise astronomy.

To commemorate this, WAIS proposes to build a new memorial at the Dumas House site to remember the Surveyors and Astronomers who were at the forefront of astronomic work in the 19th and 20th centuries; for more than 50 years, *they propagated time and position across the State without GPS.*

The New Museum

WAIS recently contacted the New Museum project leaders with the intention of having some influence on emphasizing the important role Surveyors played in the development of the State in the new displays. We met with Jeff Hurley who indicated that this would fit well into their theme of the new displays focusing on time and space and how this has been influenced by people and nature. He will get back to us later in the year when the projects are more advanced.

Formation of a small subcommittee for historical matters will be considered.

We also asked him about possible storage space for historical survey equipment, as we get many requests from potential donors but have no place in which to store it and have to refuse. It seems the museum will not be of much assistance in this regard. However, they are interested in any 19th century or older surveying equipment as they have very little from that era.

WAIS is considering compilation of an inventory of historical Surveying Equipment held privately and within government particularly any pre 1900 instruments so that we have some idea of what is out there. *Watch this space!*

NSW and Queensland have excellent displays devoted to Surveying and old instrumentation and WAIS is keen to hear from anyone who has any ideas about what might be possible in WA.

Influence of Surveyors on the Development of WA

WAIS recently provided some sponsorship to assist in the printing of the publication "John Septimus Roe" –part of the series of publications about early Western Australian Explorations. Peter Bridge one of the editors involved at Hesperian Press asked if WAIS would be interested in supporting a follow up book or series on the influence Surveyors had in more recent times.

Members will recall that a few years ago Member Ken Murray undertook a lot of research into our Surveying History and compiled a lot of documents that he is more than willing to make available and be of help again.

WAIS is currently considering how it can assist but if any Members would like to get involved please let us know.

Is the surveying and geospatial community ready for the Next-Gen Geodetic Datum?

The surveying and geospatial community has been made increasingly aware that a modernised geodetic datum is soon to be implemented by the ICSM.

GDA94 contains distortions of up to 300mm in many areas of NSW. Use of GDA94 coordinates for GNSS data processing and positioning is now not recommended due to movement and rotation of the Australian tectonic plate. *There is now universal acceptance by surveying and spatial practitioners with an understanding of datums that the current realisation of GDA94 is past its use-by date.*

User groups that adopt the new datum will notice (maybe in 2016) an initial shift of 1.5-1.6 metres NNE from GDA94 coordinates with a reference epoch shifted to 2020.0. The initial shift based on the next realisation of ITRF also removes the distortions from GDA94. After the initial shift, annual readjustments will occur up until 2020. Beyond 2020 the datum will become fully kinematic with incremental changes in coordinates amounting to 6 cm NNE per year.

With the conversion AGD66-GDA94 taking some organisations many years to implement serious consideration needs to be given to a dual-frame approach which uses an ITRF based kinematic datum for GNSS positioning and data processing, and a static representation of the datum for presentation and management of spatial data, engineering and cadastral information. A one size suits all datum option does not suit most users. The kinematic datum is the optimum frame for geodesists, GNSS analysts and CORS operators as it maintains alignment with global frames such as the ITRF (International Terrestrial Reference Frame). A static datum is the optimum datum for presentation of spatial data collected over long periods of time so as to ensure that precise spatial alignment is maintained for the data.

An opportunity exists for surveyors to show technical leadership and promote the "keep it simple" approach by advocating a distortion free static reference frame (modernised GDA94) still set at epoch 1994.0. The coordinate shift in Sydney would be only 2-4 cm with similar shifts across major cities throughout Australia. Many organisations that only coordinate their data sets to a "spade width" could opt to do nothing and keep GDA94 in its current realisation.

Australia has a remarkably stable tectonic plate – distances across Australia have changed by less than 15 mm over twenty years. Our tectonic stability is the envy of many jurisdictions outside Australia, particularly NZ – why not leverage this advantage?

The modernised static reference frame option only requires a 4 parameter transformation (3 rotations and epoch difference) to link it directly with the ITRF. Another advantage of a static frame option is that localised deformation can be better visualised.

Serious concerns have been raised by geodesy experts if a kinematic datum option is implemented across all user groups – the challenges include:

- Mismatched data sets through the implementation period and beyond – particularly in relation to important under-ground infrastructure.
- The implementation costs for government and the private sector.
- The complexities of a kinematic datum & geodesy in general.
- The costs to surveyors in adapting new tools (not yet developed) for procedures to manage changing coordinates.
- Tracking the required rigorous time-tagging of the observations and data sets.

The following extract has been taken from the summary of a presentation entitled "A Two-Frame Spatial Referencing System Accounting for Geodynamics" (Nic Donnelly et al) delivered in Luxembourg (Oct 13-17, 2014) at the International Association of Geodesy symposium.

"The spatial/mapping community is not yet ready for kinematic coordinates, but positioning is increasingly ITRF-based"

"A two-frame system formalises existing practice, provides a transition to ITRF and supports multiple communities"

With stakeholder feedback still being considered by ICSM comments in the Consulting Surveyors National March 2015 newsletter chairman's report by Paul Mather are timely:

"Surveyors form a significant part of the geospatial community and should be part of the conversation concerning a new national datum."

Mick Rose

Member of the Institute of Surveyors Victoria

Registered Land Surveyor (Tasmania)