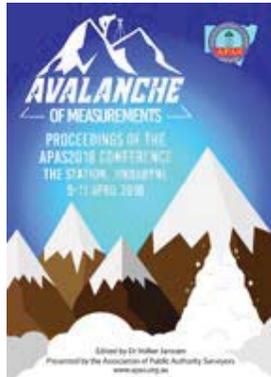


# Avalanche of Measurements: APAS2018 Conference



APAS2018 conference.

The Association of Public Authority Surveyors NSW (APAS) was formed in 1994 primarily to cater for the needs of surveying and spatial information professionals working within state and local government and the education sector. Nevertheless, private surveyors also benefit immensely from APAS events such as conferences and seminars, which form an important part of the annual professional development events calendar.

APAS prides itself on organising an annual conference that is highly informative, focussed on practical outcomes relevant to the surveying and spatial information community and provides ample opportunity for interaction with colleagues and exhibitors showcasing their newest technology.

The APAS2018 conference was held in Jindabyne on 9-11 April 2018. The conference theme was "Avalanche of Measurements". It attracted 225 delegates from New South Wales and interstate, evenly split between government agencies and private industry.

APAS2018 included 7 sessions with 19 presentations, most of which included a full paper. Continuing the tradition of being a practically oriented conference, a wide range of topics relevant to the surveying and spatial information profession was covered. This year's big topics included GDA2020 and AUSGeoid2020, improving the cadastre, using the Surveying and Spatial Information Regulation 2017, preservation of survey marks, laser scanning and surveying with drones. There was also plenty of opportunity for networking and exploring the newest developments at the technical exhibitors' booths.

APAS2018 was a highlight on the CPD calendar, satisfying the year's requirements in regards to both cadastral and surveying practice CPD points. As usual, the conference kicked off on Monday afternoon with the annual APAS team building event (golf tournament).

## 10th April – Morning

The first session started with Dr Volker Janssen (DFSI Spatial Services) evaluating the performance of AUSGeoid2020 in NSW. He showed that AUSGeoid2020 provides a considerably improved fit to the Australian Height Datum (AHD) when compared to its predecessor. Volker stressed that AUSGeoid2020 can *only* be used in conjunction with GDA2020 ellipsoidal heights, while AUSGeoid09 *must* be used to convert GDA94 ellipsoidal heights to AHD.

Nicholas Brown (Geoscience Australia) described the new techniques applied to develop GDA2020 and AUSGeoid2020 in a rigorous manner. He also explored the future of Australian datums and time-dependent reference frames, and how the ever-increasing number of observations from the expanding user community of spatial data can be best used to feed back into datum modernisation efforts.

Nicholas Gowans (DFSI Spatial Services) explained the composition and purpose of the two GDA94-GDA2020 transformation grids and showed that they are fit for purpose in NSW. Accuracy and data origin are the two key factors determining their appropriate use. Prior to transformation, users must know if their existing GDA94 dataset is affected by known GDA94 distortions (present in SCIMS) or if those distortions have been removed by other methods.

The Official Opening took place at the beginning of the day's second session, starting with a Welcome to Country by Aunty Iris White, Elder of the Ngarigo People and Chairperson of the Mt Kosciuszko National Park Aboriginal Advisory Committee. Keynote addresses were then given by Narelle Underwood, Surveyor General of NSW, Paul Harcombe, SSSI representative, Leigh Finlay, President-Elect of ISNSW, and Wayne Fenwick, President of APAS.



Keynote address by Narelle Underwood, Surveyor General NSW.

After the official opening, Vittorio Sussanna (DFSI Spatial Services) and Geoff Lenton (RMS) provided an update on the actions and system developments performed in regards to the preservation of survey infrastructure. This included a best practice method for the implementation of the new Surveying and Spatial Information Regulation 2017 as well as related Surveyor General's Directions and RMS specifications.

## 10th April – Afternoon

The first afternoon session began with Joel Edwards (DFSI Spatial Services) outlining the strategies and steps undertaken to ensure the preservation of survey infrastructure during the construction of the V8 supercar motor racing circuit in Newcastle. This was the first major project to be managed by DFSI Spatial Services in accordance with the new Surveyor General's Direction No. 11 (Preservation of Survey Infrastructure), requiring innovative approaches at a site with no room to move and a very tight time frame.



Presenters captivated the APAS2018 audience with a wide range of topics.

Dr Yincai Zhou (UNSW) presented several experimental projects using Unmanned Aerial Systems (UAS), or drones, for photogrammetric mapping that were designed with optimised workflow to investigate 3D accuracy. This included the achievable accuracy of UAS photogrammetric mapping in terms of the 3D coordinates of the point cloud, Digital Terrain Model (DTM) points and the ortho-images.



Drone and robotic marking demonstrations.

This was followed by several technical exhibitor presentations, showcasing new advances in technology and surveying instrumentation and how these can be used in practice for a wide range of applications. Practical demonstrations, indoors and outdoors, gave delegates the opportunity to appreciate and evaluate the capabilities of these instruments in practical scenarios.

At the beginning of the afternoon's second session, Simon Hine (DFSI Spatial Services) summarised, from a practical perspective, what is required to comply with those clauses of the new Surveying and Spatial Information Regulation 2017 that apply to GNSS methods and the datum line of orientation of a survey. He provided examples illustrating what should and should not be shown on a survey plan for compliance with the Regulation.



Technical exhibitor demonstrations.



Annual Dinner.



Annual Dinner.



Warren Thomas accepting APAS Life Membership.

This was followed by a discussion forum on the review of the Surveying and Spatial Information Act, with Narelle Underwood (Surveyor General of NSW) leading the discussion. She gave delegates a summary of the recent BOSSI review and invited them to provide their thoughts on the objectives of the Act, definition of a land survey, functions of BOSSI, registration of surveyors, as well as supervision, investigation and discipline.

The Annual Dinner concluded the day with dinner speaker Michael

Thornton (Snowy Hydro) outlining the history of the Snowy Hydro Scheme with particular emphasis on surveying and information management. He discussed current organisational challenges, such as restricted access to plant and knowledge management, and the work programs in place to maintain and enhance asset intelligence into the future, using appropriate technology. Warren Thomas was awarded APAS Life Membership in recognition of his outstanding service to the organisation over many years.

### 11th April – Morning

The day's first session kicked off with John Brock (Brock Surveys) discussing Hadrian's Wall, a historic monument of Roman times in northern England built in the 2nd century. He concluded that this iconic line across the topography is a true boundary monument in the ancient Roman traditions, used as a demarcation line of the northern limit of the Empire's frontier in the north-western territory. For this contribution, John later received the Keith Haddon Memorial Prize for the best conference paper.

Mark Butler (WSP) examined a number of uses of cadastral data and the Digital Cadastral Database (DCDB), along with possible issues that may arise. Using real-life examples, he proposed solutions for further consideration in an attempt to utilise existing information and the changing way surveys are completed and reported in order to help the general community in their consumption of spatial data.

Les Gardner (DFSI Spatial Services) described a DCDB desktop upgrade undertaken of the NSW-Queensland watershed border between the Dumaresq River and Bald Rock. He gave an overview of the history behind the NSW-Queensland border, the upgrade process and the difficulties encountered so far.

Marijana Kokanovic (RMS) and Josh Cowley (Jacobs) presented a high-precision Terrestrial Laser Scanning survey including 3D modelling performed to design and install new Arch Maintenance Units on the Sydney Harbour Bridge. This included the many challenges faced, site constraints, safety considerations, design and selection of survey methodologies, use of customised survey equipment, as well as data processing and modelling to deliver the data to specification.

At the beginning of the second session, Charlie Higgs (Geolyse) asked how the spatial industry can attract (and keep) Gen Z employees. He concluded that Gen Z employees, being the most global, social, visual and technological generation ever, have a great role to play in the spatial industry. They need to be stimulated by offering career growth, creating ideas and solutions, listening and embracing technology.

Fred de Belin (City of Ryde) discussed how it was possible

to re-instate the cadastral boundaries of long-standing roads by reconstructing the original cadastral pattern. With reference to survey plans throughout Ryde's history that found and connected to any original survey marks, he was able to re-instate the boundaries and corners of the original Crown land grants.

Ian Jones (Sydney Trains) outlined the process of obtaining approval for a railway boundary and described a number of situations with the aim of showing different approaches to be adopted when railway boundaries need to be re-established and there is a shortage of cadastral information. To this end, he reviewed several survey plans that have been through the approval process.

James Black (Aurecon) examined the use of integrated reality capture in the rail environment. He showed that integrating and applying workflows to mobile and terrestrial laser scanning, terrestrial positioning, real-time GNSS observations and digital levelling can provide spatial certainty and enhance design capability at a level of accuracy suitable for all rail design applications.

### 11th April – Afternoon

The last session commenced with Andrej Mocicka (Listech) presenting a history of use cases and methodologies applied in regards to using imagery for surveying and spatial applications, from the analogue to the digital era. He showed how spatial professionals, and more specifically surveyors, can leverage the use of imagery in their every-day workflows to maximise efficiency and help to deliver positive project outcomes.



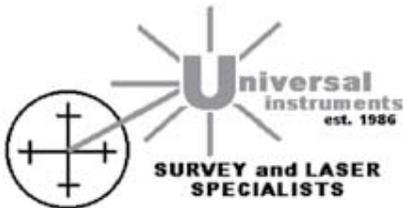
APAS committee members Geoff Lenton, Michael Kocosi, Michael London, Dr Volker Janssen, Wayne Fenwick, Thomas Grinter, Peter Nilon and Nigel Petersen.

Peter Mayberry (MMB Consulting Surveyors) discussed battles, bushrangers and bogus surveyors, along with the marks they left on the rural landscape in the 19th century. Using the field books and recordings of early surveyors, he painted a very interesting picture of the working conditions, challenges and dangers faced by surveyors (and police pretending to be surveyors) at the time.

The conference concluded with a conference review and an open forum, allowing further consideration of issues presented during the conference. At the Annual General Meeting, the following APAS



The technical exhibits provided plenty of opportunity to stay abreast of developments in state-of-the-art surveying technology.



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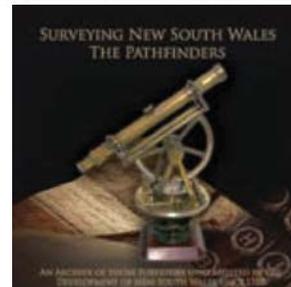
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## Pathfinders Project

A project of the Seniors Group of ISNSW Inc.



Surveyors, young and old are invited to submit their career profile for insertion in The Pathfinders database.

**Ken Green**  
Phone (02) 9528 3454  
k.w.green@bigpond.com  
[www.surveyors.org.au/Groups/Seniors](http://www.surveyors.org.au/Groups/Seniors)

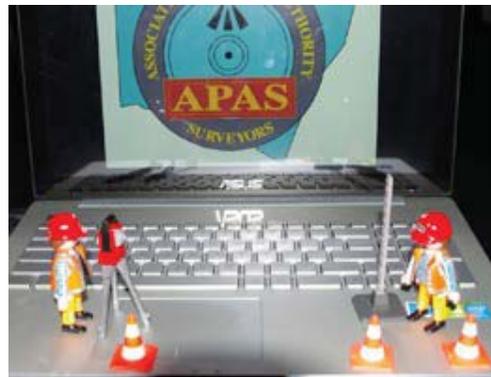
office bearers were elected for 2018/19: Thomas Grinter (President), Jarad Cannings (Vice President & ISNSW Representative), Geoff Lenton (Secretary & Public Officer), Michael London (Treasurer), Wayne Fenwick (Past President), Dr Volker Janssen (Publications Officer), Nigel Petersen (Conference Manager), and Committee Members Michael Kocoski and Peter Nilon.

The APAS2018 conference proceedings are available online from the APAS website (<https://www.apas.org.au/>).

## APAS2019

APAS2019 will be held in Pokolbin (Hunter Valley) on 1-3 April 2019. Please consider contributing to next year's conference by presenting a paper. There is a lot of fantastic work being done out there – why not tell the profession about it? For more information and to indicate interest in presenting at APAS2019, please contact the APAS Publications Officer, Dr Volker Janssen ([Publications@apas.org.au](mailto:Publications@apas.org.au)).

Dr Volker Janssen, DFSI Spatial Services



Lego surveyors making an appearance.

# Bathurst Event Program

Friday 18th and Saturday 19th May 2018



The Evans Pillar has been poured in preparation for its unveiling at 10.30 am on Saturday 19th May 2018

## Friday 18th May

2.30 pm Autumn Seminar.

Windradyne Room – Mount Panorama Pit Complex, Bathurst.

6 pm Seminar.

Happy Hour Networking at Rydges Mount Panorama, 1 Conrod Straight, Bathurst (\$50 pp)

7 pm Dinner.

Windradyne Room – Pit Complex, Pit Straight. 3 Course meal with drinks included. (\$130 pp) organised by the Central West Group – see previous emails for RSVP, (registration and payment details)

## Saturday 19th May

9 am Morning Tea.

Bicentennial River Park on the western bank of the Macquarie River fronting Stanley Street north of Hereford Street. Visit the “Pillars of Bathurst” while you are there. (ideally, park in Stanley and the local streets north of George Street, and be aware that the Stanley – Hereford Street roundabout intersection is very busy)

10 am Unveiling the Evans' Pillar and Presentation.

The “Footsteps in Time” Commemorative Pillar memorialises Surveyor and Explorer George William Evans and his field party camping beside the Macquarie River at Jordan Creek on 9 December 1813. The actual site is about 300 metres to the north of the Pillar. The Pillar will be unveiled jointly by the Surveyor General, the President ISNSW and the Mayor of Bathurst Regional Council.

10.30 am Surveyors Walk

Commence the Surveyors Walk by crossing to the west side of Stanley Street and walking south to the Flag Staff. Then follow the route in your Surveyors Walk Guide, pausing at each stop for commentary.

2 pm Tour of Spatial Services

Panorama Avenue. In January 1976, the Central Mapping Authority decentralised to Bathurst and today, with State-of-the-art equipment, Spatial Services is the centre of excellence for mapping and spatial location services in NSW. The Tour is subject to demand and arrangement with Spatial Services.

7pm Dinner

At the Bathurst City Community Club. The Club will provide a Function Room and a Buffet Two Course (Main & Dessert) Dinner at \$30pp (this is subject to demand).



## Registered Surveyor

Tamworth, Bathurst and Dubbo

We currently have positions available for a registered surveyor in our regional offices.

The successful applicant must be up to-date and well versed with current regulations and legislation. As a registered surveyor, you will already have a minimum 5 years' experience post registration working on a range of projects.

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