HIGHLIGHTS

Institute
- Chair’s Report
- YP Report
- PD Report
- Transit of Venus Project

Industry
- QSIC Report
- Surveyors Board Report
- Industry Short Reports
- USQ Awards Ceremony

Information
- Have geospatial frontiers changed recently?
- Does digital cartography have more value?
- What do sensors add to decision support systems
- Learning activity with low tech spatial tools
- Surveying programs in NSW and USQ
- New Book Directory
- Software Directory
- Apps Directory
- Data Directory
- Hardware Directory
- GNSS Directory

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- Laugh a Little
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Editorial...

Welcome to the Winter edition of Spatial Science Queensland for the year 2012.

The year is 1770, and James Cook, a skilled cartographer, mathematician and naval officer and his crew on the Endeavour are navigating the Pacific Ocean to observe the transit of Venus and to search for the fabled southern continent. Into their midst arrives the Tardis carrying the First Doctor Who and his companions, assumed to be visitors from Venus. The sailors promptly throw the Tardis overboard, stranding the Doctor and his companion Ian Chesterton for the majority of the voyage.

Such is the basis of a plot for an audio production by Big Finish Productions in 2008 for an episode of Dr Who, where the Doctor lands on the deck of the Endeavour after it has left Tahiti from observing the transit of Venus and was now on the way to New Zealand and Australia. The episode generally respects history as recorded with little license to thrill.

Whilst Doctor Who may be fiction, there is the fact that the transit of Venus led to the discovery of the east coast of Australia by European settlers. The transit of Venus on the 6th of June may now be a more important astronomical phenomena and celestial event than advancement of knowledge, it is still an event that highlights the first voyage of James Cook on the HMS Endeavour, from 1768 to 1771.

The aims of the expedition were to observe the 1769 transit of Venus across the sun and to seek evidence of a southern continent – Terra Australis. Transits of Venus are among the rarest of predictable astronomical phenomena and occur in a pattern that repeats every 243 years, with a pair of transits 8 years apart separated by periods of 121.5 years and 105.5 years, the current twin transits of Venus are set to occur in 2004 and 2012.

A transit of Venus across the sun takes place when the planet Venus passes directly between the sun and earth, becoming visible as a small black disk against the face of the sun. Observations from different points of the earth of transits of Venus helped scientists use the principle of parallax to calculate the distance between the sun and the earth and other planets.

The astronomer appointed to the task for the voyage was Charles Green whose name has been consigned to the vaults of Australian history compared to that of James Cook and the naturalist Joseph Banks. Cook reached Tahiti in time to observe the transit of Venus, but the measurements made by Green, Cook and another varied by more than the anticipated margin of error when the accuracy of their instruments was affected by an optical phenomena known as the black drop effect.

Whilst the astronomic side of the expedition did not achieve the desired results, Cook left Tahiti and headed SW to New Zealand where he made a complete map of the New Zealand coastline. Cook wished to prove existence of the great southern land by heading westward for return to England via Cape of Good Hope.

After mapping the New Zealand coastline, given the condition of the ship, winter and weather at that latitude, determined that Cook and his officers decided to set a NW course to return home by way of the yet unknown east coast of New Holland (as Australia was then known), until they reached the northern extremity before heading westward and southwest to Cape of Good Hope.

The landmark of the first sighting of the east coast is generally reckoned to be a point lying on the south-eastern coast of the state of Victoria and was recorded as Point Hicks. In April 1770, landfall was made on the east coast of Australia of what is now known as Botany Bay. And as they say, the rest is history.

Coincidentally, Dava Sobel, author of the 1995 best-seller, Longitude, and her latest book, A More Perfect Heaven, is about Copernicus, the Renaissance astronomer who first suggested the earth was not the centre of the cosmos. It was using the theory of Copernicus that Kepler was able to make the first prediction that Venus would transit the sun in 1631.

There have been only six transits since then to 2004 which has been the impetus for many dangerous expeditions to observe the transit of Venus from different geographic locations. These voyages had been made safer by the efforts of the protagonist of Sobel’s first book, John Harrison, in determining how to compute longitude at sea.

On behalf of the editorial committee, we hope our readership and advertisers have an entertaining and informative read of the Winter edition of Spatial Science Queensland, a talking point for title, tide, traverse and topology and we look forward to the next edition.

Shane Simmons

About this edition and other commentary from the Editor of Spatial Science Queensland
Message from the Chair

May saw us host the Inaugural Fellows dinner, and what a night it was! Patrick O'Connor and Bill Kitson dazzled us with images of the future and photos of our past, and it was a night that recognised the outstanding contributions that our Fellows have made in shaping the Queensland Region into the fantastic place it is today.

We inducted our most recent Fellow, Les Searle, and shared some interesting stories of the past. I for one, learnt a lot about the history of Surveying and the Spatial Sciences in Queensland.

I thought I’d share with you some of the speech recognising the immense dedication and contributions some our Fellows have made over the years. While it doesn’t recognise all our Fellows, this is not an oversight, but just ensuring that I have more speaking material for the next Fellows dinner! To all those Fellows, who couldn’t make it, we hope to see you at the next Fellows event.

We could not have an inaugural dinner of SSSI Fellows without a tribute to the amazing people who have made the Institute in Queensland what it is today – our Fellows!

Firstly though, I think this is a very fitting time to look back over the Institute’s heritage, and to salute the origins of this very united profession in Queensland. In the year 1900, a small but distinguished committee of surveyors began the then Queensland Institute of Surveyors.

This group was followed by committee of devoted professionals until 2003, when ISAQ handed over its operations to SSI, leaving only the company shell to be administered.

We remember tonight the great foundations laid by AURISA, and their enormous contribution to the establishment of the Spatial Sciences Institute in Queensland – people like Rob Bischof, Tom Taranto, Tim Barker, Margaret Berenyi – forgive me if I don’t have all the names at hand.

There were some great leaders in the days leading to the formation of SSI, and in particular we remember the efforts of Peter Swan, Peter Woods, and Richard Statham, whose vision and foresight were vital to the success of the amalgamation.

And once SSI came into being, it was Rob Bischof, Richard Statham, and Tom Taranto, who as subsequent chairs, ensured the Institute in Queensland went from strength to strength in unification, the blending of cultural differences, strong governance, and financial stability.

And looking around the room, it’s important to recognise the outstanding leadership of some of our senior Fellows:

- John Cook, whose towering intellect and awesome knowledge has continually challenged and guided the whole profession:
- Bill Kitson, whose historical collection of surveying and spatial memorabilia has ensured the historical legacy of the profession is preserved for posterity for ever:
- John Goodwin, whose leadership on tertiary education committees, service on Divisional Committee, ACSIS, and the Consulting Surveyors was outstanding.

It’s very fitting to recognise the role of those who, while Fellows of SSSI, have played a leading role in bringing together the other branches of the profession:

- David Sinclair and Jack de Lange, whose willingness to cement close relationship ties between SSSI and SIBA have had manifest results:
- John McCarthy whose leadership brought to SSI the hydrography branch of the profession:
- Phil Pozzi and Richard Statham, under whose guidance ISAQ handed over the surveying function to the Land Surveying Commission, and who continue to lead that commission today:
- John Hayes and Kevin McDougall, whose contribution as academics has lifted the standing of the Institute as a learned body of professionals.

We also acknowledge the strong relationship we have with the Department of Environment and Resource Management (now Natural Resources and Mines) through the efforts of Graeme Rush, Russell Priebbenow, Matt Higgins, Richard Statham, and Peter Swan.
And we also recognise the relationship the Region has with the Department of Transport and Main Roads, through the efforts of Tony Bitz.

And we value the ongoing contribution of Fellows like Graeme Rush, Nick de Weger and Ewen Sneddon, whose efforts with the Transit of Venus Education Project have been truly outstanding.

There’s one name we need to remember in particular tonight, and that’s Neil Divett, who passed away last year. Neil remained a passionate and active Honorary Fellow right up until his passing. He is sadly missed.

Just a couple more names need to be mentioned:

- Tony Bitz whose lifelong passion for education and development resulted in his winning the SSSI Spatial Professional of the Year in 2011,
- and someone whose great contribution over many years was finally recognised with a Fellowship late last year, Les Searle.

So as we look to the future, we know that the foundations laid by you all, and with your future guidance, SSSI can continue as we have begun, with a strong culture of unity and cooperation between the four pillars – professional, academic, business and government. With wise and visionary leadership from the SSSI Board, and the passion and energy that have propelled us thus far, Queensland Region will prosper into the future.

So, to the Fellows, from those of us who now follow in your footsteps of leadership and guidance, we salute you and your efforts.

Until next time,

Chris McAlister

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**SPATIAL SCIENCES – 2012 IS THE YEAR FOR CAREERS**

**ARE YOU ABLE TO HELP PROMOTE THE SPATIAL SCIENCES AT YOUR LOCAL HIGH SCHOOL?**

If you are, the SSSI Qld office is able to provide you with lots of help. The Destination Spatial campaign has been developed to inform students about all the options for a career in the spatial sciences!

**WE NEED OUR MEMBERS TO:**

- Deliver promotional material to schools
- Make presentations to school students
- Mentor teachers in spatial technology
- Give practical lessons using technology

**WHAT’S AVAILABLE?**

- Printed material – posters, postcards, fact sheets, brochures, stickers
- Destination Spatial Website – follow the link and learn all about the spatial sciences
- Destination Spatial Powerpoint presentations – specially designed to delivery to students or teachers – adapt them to your needs
- Large flat screen (if you live in or near Brisbane) to project the above!

Interested in promoting your particular discipline within the spatial sciences? You can find plenty of great links to material on surveying, GIS, Remote Sensing, etc., on the Destination Spatial website.

Express your interest or get more information from the SSSI Qld office, by filling out the online form at Career Campaign.

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Committees and Groups 2011

Regional Committee Queensland

Chris McAlister  chair.qld@sssi.org.au
Les Searle  les@true3d.com.au
Owen Cantrill  owen.j.cantrill@msq.qld.gov.au
Nick Lawrence  nicklawrzn3c@gmail.com
Graeme Browning  gpibrowning@optusnet.com.au
Stella Randell  srande@tmc.qld.gov.au
David Pullar  d.pullar@uq.edu.au
Cathy Ross  cathy.ross@brisbane.qld.gov.au
Graham Jensen  graham.l.jensen@tmc.qld.gov.au
Ray Tabulo  ray@cullenc.com.au
Luke Czaban  luke_czaban@hotmail.com
Patrick O’Connor  poconnor@carlsonsw.com
Chris Swane  cswane@bennettandbennett.com.au
Alan Hobson  ahobson@pb.com.au
Adella Edwards  adella.edwards@jcu.edu.au
Vacancy  Remote Sensing & Photogrammetry

Land Surveying Commission Executive

Phil Pozzi  phillip@bfsurveys.com
Anthony Geraghty  TBA
John Hayes  jf.hayes@qut.edu.au
Conrad Larson  econi@dovenetq.net.au
Richard Statham  richard.statham@derm.qld.gov.au
Nick de Weger  nick@deweger.info
Ewen Sneddon  ewensneddon@logan.qld.gov.au
Tim Pumpa  t.pumpa@bosjon.com.au
Paul Reed  paul.reed@eastcoastsurveys.com.au
Graham Jensen  graham.l.jensen@tmc.qld.gov.au
Chris Swane  cswane@bennettandbennett.com.au
Stephen Pedwell  spedwell@northgroup.com.au
Ray Tabulo  ray@cullenc.com.au
Bruce Williams  bruce.williams@wolterconsulting.com.au

Institute Commissions

Mark Allen (E&MS)  mark.allen@townsville.qld.gov.au
Nick Lawrence (SI&C)  nicklawrzn3c@gmail.com
Phil Pozzi (LS)  philp@bfsurveys.com
Owen Cantrill (H)  owen.j.cantrill@msq.qld.gov.au
Vacancy (RS&P)

Professional Development

Armando Apan  apana@usq.edu.au
Melissa Brien  melissa.brien@derm.qld.gov.au
Luke Czaban  luke_czaban@hotmail.com
Murray Fox  eo@surveyorsboard.com.au
Patrick O’Connor  poconnor@carlsonsw.com
Paul McClelland  paul.mcclelland@derm.qld.gov.au
Les Searle  les@true3d.com.au

Editorial

Alistair Hart  allistairh@atgis.com.au
Shane Simmons  simmonss@usq.edu.au
Sanjeev Srivastava  ssrivastava@usc.edu.au
Justin White  jxwhite@emergency.qld.gov.au
Jack de Lange  jdelange@spatialbusiness.org
Meredith Scott-McMahon  reo.qld@sssi.org.au

Young Professionals

Luke Czaban  luke_czaban@hotmail.com
Tim O’Donnell  gerrygarcia06@hotmail.com
Kimberley Worthy  kimberley.worthy@gmail.com
Chris McAlister  chair.qld@sssi.org.au
Bradley Torr  bradley.torr@student.qut.edu.au
Luke Steiger  l.steiger@bigpond.com
Ben Madden-Holmes  bmadden-holmes@bennettandbennett.com.au
Mathew Fry  mfr@mipela.com.au
David Greaves  david.j.greaves@tmc.qld.gov.au
Alan Wong  alan.s.wong@tmc.qld.gov.au
John Worral  john.a.worrall@tmc.qld.gov.au

Town Group Convenors

Central Region

Ray Tabulo (Chair)  ray@cullenc.com.au
Ian McKeague (Treasurer)  mckeagues@netspace.net.au
Wayne Say  waynesay@isisol.com.au
Des McNee  mcneesesurveys@bigpond.com
Jon Broe  johnb@cullenc.com.au

Northern Region

Graham Jensen  graham.l.jensen@tmc.qld.gov.au
Claire Pook  claire.l.pook@tmc.qld.gov.au
Patrick Madden  pat.madden@braziermotti.com.au

SEQ Region

Greg Williams  greg.williams@moretonbay.qld.gov.au
David Edwards  dedwards@bennettandbennett.com.au
Jeremy Scriven  jeremy.scriven@psigroup.com.au
Barry Turner  barry.turner@derm.qld.gov.au

SSSI Representatives on Industry Committees

Phil Brooker  DERM Accreditation Panel
Alistair Byrom  DERM Survey Requirements Ctee
Philip Pozzi  Competency Framework W/G
Chris McAlister  Qld Spatial Information Council
Luke Czaban (YP)  SIBA Board
Philip Pozzi  Joint Natural Disaster Response Committee
Chris McAlister  Destination Spatial Executive

If you are on a committee somewhere representing the Surveying and Spatial Sciences Institute and are not listed here, then please tell us so that members can know who to contact with relevant concerns and information.

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Now, the fastest imaging total station is here - the Leica Viva TS15. Making your visions become reality, faster, more accurately.
SSSI Qld YPs

For me, there were many highlights from the FIG 2012 Working Week. FIG is the peak surveying body in the world, and they are a body similar to SSSI. FIG represents our profession in the greater international community and provides a forum for information and cultural exchange in our profession.

One common thing I heard in Rome and also during the 2010 congress I attended in Sydney is that FIG is a “family”, and it is something that I have definitely felt in attending these two events. This year’s working week was also significant in that it was preceded by the inaugural FIG Young Surveyors Network (YSN) Conference.

The FIG 2010 Congress in Sydney was highlighted by the involvement on a number of levels by young surveyors, and it was felt that a dedicated conference for young surveyors was needed. YSN was attended by around 150 young surveyors and spatial professionals, which was an outstanding achievement.

It consisted of a number of technical sessions, presentations from senior FIG office bearers, the Italian Surveyors Institute and from representatives of UN Habitat. Apart from discussing issues surrounding the involvement of young surveyors in FIG and society in general (especially in the area of using improved land administration practices in developing countries as a way of alleviating poverty), the YSN conference was also designed to set the agenda of the YSN going into the future. The preliminary outcome of this discussion can be found on the FIG YSN LinkedIn group.

Other topics that were discussed surrounded the improvement of diversity within spatial organisations, the lessons and challenges surrounding young spatial professionals starting up their own businesses, looking at creating better access for young people to land and land rights (and this is an issue not only for developing but developed countries as well) and ways to attract more people to our industry and participate in professional organisations.

Another highlight were the presentations given by the four FIG Foundation scholarship winners. The FIG Foundation is an independent body that helps to fund FIG initiatives, and this year they sponsored four young surveyors from Indonesia, Moldovia, Tanzania and Uganda to attend this year’s YSN Conference and the FIG Working Week.

The number of people I met from all around the world was also amazing. My Facebook friends and LinkedIn connections swelled by around 30% over the course of the conference!

For more on the FIG YSN conference and Working Week, see the video report. I extend a big “thanks” to the YSN Chair Kate Fairlie and the rest of the YSN Committee for organising a great conference, and FIG in general for their motivation and inspiration, the Consiglio Nazionale Geometri e Geometri Laureati and the Cassa Italiana Previdenza e Assistenza Geometri (the Italian Surveyors Institute and Italian Surveyors Pension Association respectively) for their financial and logistical support and for use of the Cassa Geometra facility.

Finally a big “Thank You!” goes out to ESRI and Trimble Navigation for their generous sponsorship of the first YSN Conference. All of these different groups and organisations worked together in different ways in running what was a memorable conference!

In the meantime please check out the FIG website (www.fig.net) for more information about FIG, YSN and upcoming regional conferences and Working Weeks. WW 2013 in Abuja, Nigeria is shaping to be an amazing event. For those people who have the time and the finances to attend, they will come home with memories and friendships that will be lifelong!

A little closer to home, there are a few things to keep on the agenda. The SSSI QLD YPs will be holding a dinner on the 20th of June. See the SSSI QLD webpage for further details and to confirm your attendance.

The YPs are also promoting careers in the spatial industry at the TSXpo, happening at the RNA Showgrounds on the 21st & 22nd of July.

We would encourage anyone with some spare time and enthusiasm to volunteer part of their weekend to meet the next generation of surveyors and spatial scientists and help support our tertiary education providers. Contact the SSSI QLD office to indicate your interest!

Reports of activities and future plans of the SSSI Qld Young Professionals

Luke Czaban
Committee Chair
Queensland Young Professionals

SSSI Qld YPs

The YPs are arranging an innovative pre-QSEA event that will turn a few heads and give people a different perspective on our industry

Keep free the 13th and 14th of September for the 2012 QSSC and QSEA events. Being a part of the QSSC organising committee, I can say that plans are well advanced for an excellent workshop and technical program. The YPs are also arranging an innovative pre-QSEA event that will be sure to turn a few heads and give people a different perspective on our industry – more details will follow soon!

In between now and the next Spatial Science Queensland, the SSSI QLD elections will be held. I encourage any YP who wants to have fun and be a part of the great work that SSSI and the YPs do to nominate for the YP committee and get involved!

Until next time,

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Until next time,

Luke Czaban
Events in the Qld Region were quieter in April due to the school holidays and so many public holidays.

We held a Women in Spatial Breakfast in April, smack bang in the middle of the school holidays. This could be the reason we didn’t see as many of our female members as we usually do.

Our June Women in Spatial breakfast was a great success and everyone enjoyed the Gunshop Café. Gail Kelly from AAM Group gave everyone some insight into how to further their careers, with some great quotes from “Nice Girls Don’t Get the Corner Office”.

Hints and tips on 101 unconscious mistakes women make that sabotage their careers. There was something for everyone. It was great to see a couple of the guys joining us for breakfast too.

Our Ambulatory Boundaries seminar with Richard Statham was an interesting evening with members attending from the Gold and Sunshine coasts. We hope to bring this seminar to other Qld regions shortly.

Our webinars are now in full swing after the second instalment of our Twilight Series for Surveyors ‘Profit a Prendre and Carbon Abatement Interests’. The third instalment in the series ‘Community Title Schemes’ will be held in June as a workshop and then again in July as a webinar.

We encourage local participants to attend the workshop to ensure regional members can attend the webinar. The online recording is still in the pipeline also – Head Office is working on it!

We had two fantastic days at the Central Group Conference in Hervey Bay in May. The theme was manned and unmanned aerial mapping systems. We were treated to an informative and exciting morning out in a paddock watching the Gatewing display. I did mistake a bird there at one stage for the actual plane though. It was really fast! The data that came from that one quick flight over the quarry was incredible.

Our dinner guest speaker, Don Adams, was a quietly-spoken gentleman with a very interesting tale to tell. He is the Founder and Chairman of Seabird Aviation Australia. Don commenced a daily aerial paper run and delivery of urgently required goods to 7 townships in the Maryborough/Bundaberg hinterlands in 1963-1970. This included bicycle tyres (wrapped around his neck as there was no room) and a car windshield that had to sit inside the plane windshield.

He made the first aircraft landing at the newly-developed Hervey Bay Airport in 1961 and was also involved in the construction of the first air strip on Fraser Island.
Don was involved in the construction of an air strip and tourist accommodation on Lady Elliot Island in 1969. Don and his wife also received a Conservation Award for their rehabilitation of the island.

This involved not only a revegetation program using shrubs and seedlings native to the Capricorn Bunker group of islands but also flying water out to the island each week for the plants. Now that’s dedication!

Our exciting program for the Northern Group Conference, LiDAR Technologies Workshop & Fungis Annual Conference included Fungis mapping fire trials for online access, Leica GIS products and interfacing to software, Earl II Implementation, trends and technology for directions for landscape monitoring and an aerial LiDAR Technology Review.

Other LiDAR topics include local flood hazard mapping using LiDAR and vegetation mapping and measurement using LiDAR. More on this in the next issue.

On a fine evening in May we held our inaugural Fellows and Honorary Fellows Dinner. Nearly two dozen of our brilliant fellows had the opportunity to catch up over a delicious dinner. Hosted by our Qld Chair, Chris McAlister, the evening was light-hearted and welcoming with the Fellows showing the great community spirit that is alive and well in Queensland.

Chris provided a sincere tribute to our Fellows that also showed the history and depth of commitment that we have with our Fellows.

Entertainment was provided by two interesting guest speakers. Patrick O’Connor from Carlson Software spoke about software and where it is headed in the future. Bill Kitson spoke about the history of the Transit of Venus.

Bill had kept me entertained on the drive over to the event too. He pointed out numerous landmarks along the way and gave me a Brisbane history lesson! Do you know where the first cemetery in Brisbane was created?

A special presentation was made to our newest Fellow, Les Searle. See our website for Les’ citation. Congratulating Les was the SSSI President Gary Maguire, who also gave a toast to the Institute.

The Program Panel is working hard on our QSSC 2012, with some fantastic workshops already confirmed. The Call for Papers has concluded and we will be bringing you some amazing sessions. Keep checking back to the website for more information.

Kellie Davidson
**Transit of Venus Project**

The Transit of Venus occurred “on time” on the 6th June 2012. It won’t happen again until December 2117.

The weather in Queensland was terrific, blue skies all day. The weather further south was not as clear, but it sounds like all areas had some good viewing times throughout the day.

As previously reported, the project team delivered 480 SolarScopes to schools all over Australia....and we have no reason to believe that they were not all in use by schools during the day. The unsolicited reports from schools include the one at far right from North Queensland.

On the day, we also broadcast the Transit of Venus live on our web site [www.transitofvenus.com.au](http://www.transitofvenus.com.au). This broadcast was only possible through the dedicated efforts of our AAQ members Jonathan Bradshaw and Terry Cuttle.

There were some disruptions to the transmission throughout the day because of the demand on the servers. (We had servers melt down in three countries trying to meet demand.)

For most of the day, in excess of 18,000 sessions were being observed at any one time. In excess of 350,000 individual visitors logged onto our web site during the day!! It is no wonder that the servers had difficulty meeting the demand.

The web site still contains video coverage of the highlights of the Transit. The web site has been recognised as containing a valuable record of this Transit of Venus. The National Library of Australia has requested approval to archive the

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**Report of a significant SSSI promotional activity managed by the Queensland Region**

Dear Graeme,

What a fantastic day. North Queensland skies were perfectly clear; the winds were light and the weather mild. Our view of the Transit was perfect for the entire day.

As an estimate, 400 high school students, 80 primary school students, 50 staff and 40 parents/grandparents attended the school to view the transit in sessions throughout the day.

Two local tradies even pulled up because they had heard we were well set up and thought they should stop for a look! We remained connected to several feeds, including the AU site for most of the day.

The Solar Scopes performed perfectly, giving 100's of people the opportunity to view the transit. We also had sets of solar viewing glasses, but so many people returned to the Solar Scopes for the image size, the chance to see sun spots and greater clarity compared to direct viewing.

The Solar scopes were managed by a group of Year 11 Physics students who kept them aligned and focused all day from the training provided by Graham Ward, upon delivery.

At the risk of a slight immodesty, the day was a brilliant success. This success was, in no small part, attributable to your organisation. Without this support, we would not have access to the Solar Scopes, the live feed or the expertise that has been available.

On behalf of the staff and students of BCHS and the wider Burdekin Community, I would like to express my deep and sincere thanks for everything that was organised leading to this day.

I trust you can share this thanks with your team, and I wish you well on your next project.

I hope everyone involved at your end had the chance to see the transit. Thank you, again.

Doug Wright
Maths Science Coordinator
Burdekin Catholic High School
Dear Graeme

I logged into your website earlier today with my family (and clearly many, many others) to watch this rare event. Your coverage was excellent.

We're fellow Queenslanders; we live in Richlands, Brisbane. I'm an IT consultant and my wife is a librarian. We have 2 sons at university (1 at QUT, the other at USQ), a daughter at college (SBIT) and another son still in senior (at YSHS).

We, and a couple of our close friends all wagged a little work/study to take the time to watch this event (having somehow missed the previous one) and a simple Bing search found your site for us.

During the day we did periodically check other sites in other browser tabs to see what sort of coverage they offered but yours was the one we stayed with. We all loved watching your coverage and the contagious enthusiasm of everyone whom took part at your end. I took many screen captures.

I hope an accelerated version of the video in various states of zoom becomes available at some stage so we can watch it (quicker) and I sincerely hope that all of you are proud of the service you did so many fellow travellers today (I seem to recall a figure of some 170,000 hits being registered on the player's seek bar at one stage).

Thank you very much for your time and effort and please convey our kindest regards to all concerned.

Yours sincerely

contents of the website in PANDORA, Australia's Web Archive. Consequently this web site will be provided with public access to it in perpetuity.

The (left) unsolicited comment from a member of the public indicates that the public in general were very pleased with the live streaming of the event.

Thank you for organising this. We even had friends in Chicago watching!

Thank you for organising this. We even had friends in Chicago watching!

Media coverage of the event was significant. While there was considerable TV coverage of major public viewings, there was also considerable radio and newspaper coverage of events happening at schools.....school children viewing the Transit of Venus using SolarScopes provided by the generous support of surveyors throughout Australia, as well as all our sponsors.

The final part of the project is now commencing. In this phase of the project we are requesting feedback from all the participants in the project. We will then collate the responses and prepare a report for all stakeholders. Hopefully the feedback from those involved with the project will give us some measure of how well we have achieved our objectives, and provide some learning's for future projects.

I encourage all involved in this project to visit our web site at http://www.transitofvenus.com.au/Tov_Feedback_form.html and provide us with your feedback.

Graeme Rush

Job well done — part of the project team, (L-R) Tim Pumapa, Chris Swane, Graeme Rush, Nick de Weger

Thank you for organising this. We even had friends in Chicago watching!
Regular report of activities from the Queensland Spatial Information Council (QSIC)

QSIC Office
The QSIC Office operates within the Spatial Information Group in the Department of Natural Resources & Mines (DNRM). Contact the office by phone (07) 3896 3774 or by email qsic@qld.gov.au

QSIC meetings
The QSIC members meet quarterly with the next meeting scheduled for 21 June. The minutes will be available on the QSIC website. Further information can be obtained by contacting the QSIC Office.

QSIC seminars
On Thursday 10 May, about 12 surveying students from the Queensland University of Technology attended a seminar organised by the QIC Office. The program included a range of presentations on current spatial initiatives including spatial information management, Spatial Desktop, the Ergon ROAMES project, an address from the Queensland Surveyors Board as well as a recollection of experiences from surveyors.

To register for QSIC seminars and to receive notification of upcoming QSIC events, simply subscribe on DataSmart.

Business and strategic planning
The QSIC Office Business plan for 2012-13 and the QSIC Strategic Plan for 2012-15 is being finalised and will be presented to QSIC for endorsement at the June 2012 meeting. In 2012-2013 QSIC is focusing on raising spatial awareness, promoting the spatial industry as a viable career choice and ensuring foundation spatial data is maintained and available.

The QSIC Strategic Plan 2012-2015 outlines five goals for Qld’s spatial information industry:

- The spatial information industry is seen as a viable career choice for students
- Government, industry and community are well informed of spatial initiatives
- Spatial information is easily accessed by government, private sector and community for better decision making
- Innovative thought is encouraged in the spatial information industry
- The spatial information industry has strong strategic leadership

The strategies to achieve these goals form the framework for QSIC projects. These strategies are:

- Support ‘Destination Spatial’ initiative and promote spatial as a career choice
- Raise spatial awareness to government, industry and the community
- Ensure foundation spatial data is maintained and available
- Encourage innovation in the use spatial information
- Provide strategic leadership of Queensland’s spatial information industry

The plan will be available for further comment after the next QSIC meeting in June 2012.

Destination Spatial (Qld)
The Destination Spatial (Qld) Executive has engaged a communication company to develop a communication and engagement strategy and an implementation plan to increase the number of people entering the spatial industry.

The Destination Spatial (Qld) Executive has engaged a communication company to develop a communication and engagement strategy and an implementation plan to increase the number of people entering the spatial industry.

A workshop was held in mid March to identify opportunities and networks, consider previous activities and to investigate some of the concepts captured in the previous research phases.

The final reports are expected to be delivered in July 2012.

If you would like to be involved in future workshops, contact Destination Spatial (Qld).
3D modelling
QSIC endorsed the 3D modelling guidelines. The guidelines will assist the spatial industry achieve a level of consistency in methodology and outputs for 3D data products.

The guidelines are not vendor specific and designed to promote the awareness of 3D modelling technology. They provide information and options on the key aspects of this technology.

A fact sheet which is designed as a quick reference guide has been prepared. The guidelines and factsheet will be available soon on DataSmart.

QSIC Spatial Advisory Group
The QSIC Spatial Advisory Group met in May 2012. The group reviewed the draft QSIC business and strategic plans, received a presentation and were invited to give feedback on DNRM’s proposed cadastral map service and discussed availability and sharing of spatial data layers across government. The group is also providing feedback on new QSIC publication material.

QSIC Roads and Addressing Working Group
The QSIC Roads and Addressing Working Group last met on 17 May 2012. At this meeting, Pitney Bowes Software (PBS) provided an update on the developments of the State Digital Road Network (SDRN).

Some of the ongoing activities include clearing the data to clear some anomalies, creating applications for rural address ranges, creating exit numbers and including Metadata.

Feedback from the meeting to PBS is to include new roads like the Airport Link and Northern Busway in the first release after the roads are opened, and consider assigning rural address ranges to intersections.

A new “Address Manage” tool being developed by DNRM was demonstrated. While only being used in the test database at this stage, the tool will be used to capture addresses in gated communities and arrange other address data more efficiently.

A project has commenced to update the location accuracy of named features in the Place Names Database. The new address link to the email box Addressqueensland@derm.qld.gov.au should be used for all requests for changes or corrections to addresses.

QSIC / Ergon ROAMES spatial reference group
QSIC hosts a spatial reference group that provides the industry with a forum to discuss spatial information issues with representatives from the Ergon ROAMES project.

The ROAMES project is an Ergon Energy initiative to capture its entire infrastructure throughout Queensland using low-level, high resolution aerial imagery.

ANZLIC
ANZLIC is the peak government body in Australia and New Zealand with core responsibility for the stewardship of spatial information.

The key role of ANZLIC is to develop policies and strategies to promote accessibility and usability of spatial information. The QSIC Office provides a jurisdictional support role for ANZLIC activities.

ANZLIC is developing an overarching policy framework for the management of spatial information in Australia and New Zealand jurisdictions. It is being developed out of best practice from jurisdictions and other sources.

Proposed ANZLIC spatial information management policies include:
- Governance and custodianship
- Framework information
- Data Quality and Metadata
- Awareness and discoverability
- Standards
- Single point of truth
- Pricing and licensing
- Privacy and security
- Intellectual property

For information on ANZLIC activities, contact the QSIC Office or visit the ANZLIC website.

QSICConnection
QSICConnection newsletter is published quarterly after each QSIC meeting. Access to the newsletter is by free subscription through the DataSmart website.

For more information on any of these and other topics, visit the QSIC website or email the QSIC Office at qsic@qld.gov.au.

Peter Gersekowski

Queensland Spatial Information Council
In support of the Queensland Government Toward Q2 initiative, QSIC sets the direction and provides coordination for the development and maintenance of spatial information.

Supported by the QSIC Office within the Department of Environment and Resource Management (DERM), QSIC facilitates and promotes a whole of industry approach to ensure spatial information is accessible and used to support business, lifestyle and the environment across Queensland.

To achieve this, QSIC is represented by all sectors of the spatial information industry – Queensland government departments, industry, professions, academia, local government and the community - meeting as equal partners to drive major spatial information initiatives in Queensland.
Competency Framework Review

The Board has reviewed the feedback from the fifteen consultation workshops held throughout Queensland and the number of written submissions from the profession to identify a number of common themes.

At the May 2012 Board meeting, a number of factors were discussed by the Board to assist with the development of new draft frameworks. Once the new draft frameworks are completed they will be subject to further review by the profession prior to finalisation by the Board.

Code of Practice Review

The Code of Practice has been in place for a number of years and the Board accepts it is appropriate for the Code to be reviewed every three years. The Board invites written submissions from the profession with any proposed amendments they consider would improve the Code.

Submissions are to be received by the Board by Friday 29th June 2012. Submissions can be posted to the Board office or emailed to admim@surveyorsboard.com.au

Draft Guideline for Consulting Surveyors

The Board has considered the issue of the nominated person within a corporation that holds a consulting endorsement, and acknowledges that this role can take many forms depending on the size and configuration of the corporation’s practice.

The Board has prepared a draft guideline to assist the Board determine an acceptable level of participation by the nominated person within a corporation to satisfy S.38 of the Surveyors Act 2003.

The Guideline when approved will be incorporated within the Code of Practice. The Guideline has been released as a draft and the profession is request to provide any comments to the Board by Friday 29 June 2012.

Draft Guideline

The person nominated as the consulting surveyor for a corporation is responsible and accountable for the actions of the corporation in respect of their obligations as a consulting surveyor, in particular:

- Ensuring that business practice is to appropriate standards regarding financial records, compliance and legal obligations;
- Supervising and directing the communication between the corporation, its existing and proposed clients, and external stakeholders;
- Setting high standards for the treatment and training of employees; and
- Directing and supervising the consulting aspects of the surveying services delivered by the corporation.

Panel Interview or Career Episode Report

In conjunction with the competency framework review and issues raised by Surveying Graduates with the Training Advocate the Board has examined alternative options to the preparation of Career Episode Reports (CERs).

The Board has agreed to offer applicants with considerable industry experience the option to use either the Panel Interview process or the conventional CERs when making application to the Board for registration as a surveyor with a cadastral, engineering or mining endorsement.

The interview will consist of a presentation by the applicant to the panel, followed by a question and answer session should the panel require further information.

The presentation will allow the applicant to demonstrate their competence over all the elements of the relevant Competency Frameworks by reference to projects carried out by the applicant.

Evidence of the applicant’s involvement in the projects discussed will form part of the presentation.

The Board Panel Interview policy is available on the Board website as is the Activity Planning Sheet which is required to be lodged with an application. The fee for the panel interview is the same as for assessment by the conventional Career Episode Reports (CERS).

The first interviews will be held in Mackay on Friday 15th June 2012 for those seeking a mining endorsement.

Dates for cadastral and engineering interviews will be advised in the future once the mine interviews are completed.
Registration

The following new registrants were recently approved by the Board.

Surveying Associate
- Adam Killen
- Tayvon F Jack
- Bradley J Gregory
- Daniel J Nichol
- Neil B Mellon
- Sarah F Foster
- Greg R Lee
- Jonathan H Mahony
- Scott O Deurhof
- Troy M Duncan

Surveying Graduate
- Miro Miller
- Drew Butterworth
- George Rungamga
- Trevor Wolski
- Quentin L Albertyn
- Peter D Stevenson
- Morgan F Petri
- Benjamin G Maynard
- Raymond Blackman

Reciprocal Surveyors
- Phillip J Chamberlain – New South Wales
- Warren B Gunn – New Zealand

Registered Surveyors
- John Allsopp - Engineering

Additional Endorsements
- John Sorby - Consulting

Corporation
- THG WSG Pty Ltd
- Capricorn Surveys Gladstone Pty Ltd
- Molutrie Survey Pty Ltd

Murray Fox

On-line Plan and Title Searches

The opportunities for online plan and title searching continue to grow. The Department of Environment and Resource Management has online brokers and the industry is establishing its own repository.

SIBA has joint ventures with two of the brokers and is involved with the industry based PlanXchange to maximise the utility for surveyors.

Explore the possibilities

There are some very good reasons for surveyors to access the data through the joint venture with the Association. In particular:
- the cost of membership is much lower
- a small portion of the search delivery fee is returned to the surveying industry for development purposes
- the help desk is partly provided by the Association, so subscribers are able to talk to someone with surveying background
- if the majority of the surveying industry is behind the scheme, they will speak with one more powerful voice

If you would like details of the joint venture arrangements and how surveyors and others can be part of it, the Association will be happy to send them to you.

If you have questions, contact Jack de Lange on his direct line 07 3217 2599

Queensland Surveying and Spatial Conference 2012

Theme:
The future of surveying and spatial is OPEN

Registrations now open! [www.sssi.org.au/qssc]

Draft Program available — Early-bird prices apply till 3 August

SPONSORSHIP AND EXHIBITION
A variety of sponsorship and exhibition opportunities are now available! You will find the Sponsorship prospectus at [www.sssi.org.au/qssc]

PRESENTERS
Please have your peer-reviewed papers and all biographies submitted by 9 July 2012. For all templates go to [www.sssi.org.au/qssc]

Non peer-reviewed and invited papers are due on 17 August 2012
As of 2013, a new major will be introduced into the Spatial Science suite of programs

Short reports from around the spatial industry entities in Queensland

USQ News

Urban and Regional Planning major in the Spatial Science program for 2013

As of 2013, a new major will be introduced into the Spatial Science suite of programs. Urban and regional planning will be introduced from a 2 year level to a 4 year level undergraduate program.

The new major will require re-badging of two existing planning and development courses from surveying codes to urban planning codes and to have a new URP code and four new courses introduced as follows:

- S1, 2013 URP1001 Introduction to Urban and Regional Planning
- S1, 2014 URP2001 Planning Structures and Statutory Planning
- S2, 2014 URP2002 Local Government Planning Practice and Technology
- S2, 2015 URP4001 Movement Network Planning

Staff

The principal research activities published in 2011 by staff members of the Surveying and Spatial Science discipline have been compiled and collated by Kithsiri Perera, a brief synopsis follows:


- Glenn Campbell, A Principles-Based Approach to Cadastral Reinstatement for Australian Jurisdictions, Journal of Spatial Science, 56 (1). pp. 15-25. ISSN 1449-8596


- Albert K. Chong, HD Camcorder for Close-up Human Movement Application

- Xiaoye Liu, Airborne LiDAR Data for High Quality DEM Generation and Applications

- K. McDougall and P. Temple-Watts. Use of LiDAR and Volunteered Geographic Information to Map Flood Extents and Inundation

- Kevin McDougall, Assessment of the Contribution of Volunteered Geographic Information during Recent Natural Disasters

- David Hocking, CEO, Spatial Industries Business Association


- Dev Raj Paudyal, Pro-Poor Land Management in Developing Countries, Book ISBN 978-3-639-34775-3 published by VDM Verlag Dr Muller, Germany


Spatial Science Queensland

Industry Activities

Queensland Government Changes

Following the recent Queensland State Election, the ministerial arrangements and portfolios that are relevant to the surveying and spatial professions have changed dramatically.

The following is a summary of the ministers and Directors General who have responsibility for activities of interest to the profession.

Hon Rosslyn (Ros) Bates

Minister for Science, Information Technology, Innovation and the Arts

Member for Mudgeeraba.

PH: 07 5569 0482
PH: 07 3224 2880

ScienceandIT@ministerial.qld.gov.au

Hon Andrew Cripps

Minister for Natural Resources and Mines

Member for Hinchinbrook

Electorate–
PH: 07 4776 1428
Ministerial –
PH: 07 3225 1861

nrm@ministerial.qld.gov.au

Students

The graduation ceremony for 2011 graduates was held on-campus in Toowoomba during April for the Faculty of Engineering & Surveying, at the Clive Berghofer Recreation Centre.

The Faculty Awards & Prizes night was held the previous evening and a full report is provided elsewhere in this edition of Spatial Science Queensland.

Shane Simmons

Celebrating Queensland’s Excellence in Surveying and Spatial Information

Nominations are now called for QSEA 2012!

Please submit your Individual Award and Industry Award nominations by Friday 22 July 2012

Criteria for both sets of Awards have changed since QSEA 2011! Please read the nomination brochure carefully before submitting your entry!

www.sssi.org.au/qsea

Sponsorship opportunities now available!

Please contact Jack de Lange or Meredith Scott-McMahon on (07) 3217 2566.

QSEA GALA Dinner

Friday 14th September 2012

Brisbane Convention and Exhibition Centre

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www.sssi.org.au/qsea

Sponsorship opportunities now available!

Please contact Jack de Lange or Meredith Scott-McMahon on (07) 3217 2566.
Hon David Crisafulli
Minister for Local Government
Member for Mundingburra
Electorate
PH: 07 4725 4166
Ministerial:
PH: 07 3234 1870
localgovernment@ministerial.qld.gov.au

Hon Jeffrey (Jeff) Seeney
Minister for State Development, Infrastructure and Planning
Member for Callide
Electorate:
PH: 07 4992 2475
Ministerial
PH: 07 3224 4600
DeputyPremier@ministerial.qld.gov.au

Hon Scott Emerson
Minister for Transport and Main Roads
Member for Indooroopilly
Electorate
PH: 07 3878 1928
Ministerial
PH: 07 3237 1111
TMR@ministerial.qld.gov.au

Hon John-Paul Langbroek
Minister for Education, Training and Employment
Member for Surfers Paradise
Electorate
PH: 07 5538 9833
Ministerial
PH: 07 3237 1000
Education@ministerial.qld.gov.au

Mrs Lisa France
Assistant Minister for Natural Resources and Mines
Member for Pumicestone
Electorate
PH: (07) 3408 6436
Pumicestone@parliament.qld.gov.au

Mr Ian Walker
Assistant Minister for Planning Reform
Member for Mansfield
Electorate
PH: (07) 3849 3488
Mansfield@parliament.qld.gov.au

 benchmarkdrafting@brisnet.com.au

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"The future of surveying and spatial science is open. Open collaboration, openness, new ideas, new opportunities."

June 2012
Business has a vested interest in skills development

The role of an industry association may not be as well understood as we would like. The most obvious role is that an industry association represents the interests of the private sector on wide ranging and diverse activities including:

- lobbying and advocacy,
- industrial relations,
- industry statistics,
- education and skills development,
- industry promotion,
- media relations,
- business development,
- innovation,

... amongst many other industry issues.

In recent times there have been questions raised in some quarters of the industry about SIBA’s involvement in improving awareness through education and skills development, which includes our support for the development of the industry skills web site, Destination Spatial.

SIBA’s Board is committed to supporting policies and programs for skills development in the surveying and geospatial industries.

1. Destination Spatial is but one tool in a holistic kit of resources and delivery mechanisms that will help to connect kids with real jobs and employers. After all, who knows better what skills and knowledge are required for today’s workforce?

SIBA believes that the future of skills development cannot reside in one pillar of the industry; it must be owned by all.

2. SIBA member firms have a crucial role in determining the focus of education and skills within the spatial industries. After all, it is business that utilizes these skills and this by definition includes both the user and adopter communities as much as it does the traditional spatial domains.

Our members are fundamental to offering opportunities such as work experience and graduate entry into careers and need to be engaged in the attraction of new entrants into the industry.

3. Typically, government training programs are directed to registered skills service providers such as TAFE institutions, schools and other education authorities, universities, private higher education providers and industry representative bodies – SIBA is such a body.

Our success in securing funding under two separate skills programs is an indication of our relevance in this area.

4. SIBA has contributed both funds and in-kind to develop Destination Spatial in cooperation with all sectors of the spatial industries.

The project has received support from government, research, academia and the private sector as well as the professions. SIBA has worked to ensure that Destination Spatial is seen as an industry vehicle that is not owned by any one vested interest group.

5. SIBA has supported the independent review of communications and stakeholder engagement with school leavers by Prism Communications, who have carried out extensive consultation with target groups including secondary school students, parents and teachers as well as people looking to upskill into spatial.

One comment we received from a university Professor highlights our targeted approach:

“Wow! Destination Spatial is right on the mark for where we hope our research project will head... I have a dream of kids having access to data for modelling a range of scenarios and from which they can develop reasoned arguments that best suit conditions.” Prof Margaret Robertson, La Trobe University

SIBA is very clear about its role in skills development within the spatial industries. We understand the need for the private sector to be a significant and influential driver for the skills of today and tomorrow and the kids looking for careers need to be able to connect directly with the industry members offering those opportunities.

SIBA is committed to partnering with other peak industry bodies, government, research, academia and skills councils to ensure that Australian surveying and geospatial businesses can attract the skills they need at all levels.

SIBA will continue to work with the wider spatial industries to achieve positive outcomes for all. It is time for us all to work together to deliver on the promise we all made in 2001 to support the Spatial Information Industry Action Agenda.

Business has a vested interest in skills development.

David Hocking
Asset Design and As Construction (ADAC)

Asset creation and management first principles are founded on accurate data, that starts at the design stage, passing through the construction processes, flowing on to the systems that further manage that information over the life cycle of those assets.

Although the benefit can seemingly bias the end owner of the asset, the benefit is in fact shared amongst all stakeholders from end to end.

Time is money, standardising naming conventions, attribute and spatial data is the key to automation, which in turn enables immediate efficiencies in accuracy, processing and transporting design and as-con data between consultancies, clients and end users/municipalities.

Here’s where the ADAC (Asset Design and As Constructed) specification comes in.

ADAC is the only specification supported by Institute of Public Works Engineering Australia (IPWEA) and is featured in the latest addition of the International Infrastructure Management Manual (IIMM) and is THE standard that is developed for the industry by the industry.

The ADAC specification (schema) essentially encompasses three elements, Attribute information, Meta data and Special co-ordinate information in a common exchange language.

This means for example, designers can create the design/plan and attribute information using existing cad tools and practices and then export that data as a single ADAC file for approval.

The approving body then imports reviews and approves the design and returns the file for the construction phase. Throughout construction, the as-con data is collected and exported as an ADAC file for review and comparison with the original design prior to submitting to the local authority for acceptance.

These steps alone generate substantial time/cost savings to the relevant consultancies and to the client.

So where is ADAC up to?

- A range of software vendors have developed or are developing native translators and routines to create, convert, import and export ADAC files with your existing systems or as part of their proprietary suite of solutions.
- ADAC update Version 4.1.0 is in pre-release and provides a number of refinements and enhancements.
- ADAC specification adoption is being implemented across south east Queensland councils and is on the move up the east coast and nationally.
- Logan City Council is partnering with major engineering and survey consultancies in the rapid uptake and implementation of ADAC file exchange processes.
- The ADAC Schema is FREE to use and implement

Current Asset Classes:
- Sewerage
- Water Supply
- Transport
- Storm Water
- Open Spaces
- Stormwater
- Surface
- Cadastre
- Enhancements

Under Development
- Bridges
- Buildings

In Summary
Adoption and Implementation of the ADAC specification will result in a common, unified language to streamline the exchange of design and as-con information, which equates to real benefits in Time, Cost and Quality, end to end.

**JUST IN**
To assist in the understanding and implementation process, the ADAC schema and data tree is now available to view online in an easy to read “Mind Map” layout.

For further information, advice and support on ADAC and Consortium Membership contact:

Adam Hain —
- Phone: 07 3632 6800
- Email: ahain@ipweaq.asn.au
- Website: www.ipwea.org.au/qld

Darren Moore

Spatial Science Queensland
Industry Activities
USQ Graduation & Awards Ceremony for 2011 year

The University of Southern Queensland Graduation and Prize Awards ceremony were held in April 2012, for the 2011 academic year.

The most notable achievement for the 2011 academic year for spatial science was the awarding of two university medals and a faculty medal. This was the first time that spatial science has had two university medallists and a faculty medallist, representing the highest order of academic achievement for students graduating from spatial science programs.

The University Medal is the university’s most prestigious under-graduate award and is awarded to a small number of graduates each year whose academic performance has been consistently of the highest order. Phillip Nixon and Wayne Wilson were awarded a University medal for the 2011 academic year.

For the fourth year in a row, a surveying student has been awarded a University Medal. Phillip and Wayne follow in the footsteps of immediate previous recipients Jeffrey Pickford, Anthony Camplin and Michael Day.

The Faculty Medal is awarded to graduates whose academic performance in graded courses for three year programs has been consistently of the highest order. Gary Hutchison was awarded a Faculty medal for the 2011 academic year.

Thanks to sponsors for the support and sponsorship of prizes at the graduating ceremonies and the continuing association between the academic, government, professional body and private sectors.

Attending the faculty prize ceremony included sponsor representatives and presenters: Mr Shane Simmons representing the SSSI and Mr Adam Garvin of Department of Main Roads and Transport, all of whom kindly donated their time and effort to travel to the ceremony and university presenters included faculty representatives Associate professor Peter Gibbings, Dr Glenn Campbell and Associate professor Armando Apan.

Prizes and Awards were presented to students as follows:

**Continuing Student Prizes**

**Bachelor of Spatial Science**

The RPS Best All-Rounder Award for Surveying for a second year full-time on-campus student in the Bachelor of Spatial Science degree (Surveying major) who has achieved a consistent level of performance in all aspects of the course and has demonstrated suitability to professional surveying practice was awarded to **Julian Lamont**.

The CR Kennedy & Co Prize is acknowledged by CR Kennedy’s continued support for this award. This award is for an external student who achieves the highest academic standard in the first twelve courses of the Bachelor of Spatial Science Technology (Surveying) program was awarded to **Richard Wilkin**.

The CR Kennedy & Co Prize is acknowledged by CR Kennedy’s continued support for this award. This award is for an external student who achieves the highest academic standard in the first two years of the Bachelor of Spatial Science Technology (Surveying) program was awarded to **Liam Murphy**.

**Graduating Student Prizes**

**Bachelor of Spatial Science**

The Aurecon Prize for the best Bachelor of Spatial Science seminar presentation and project was awarded to **Phillip Nixon**.

The second of the IEMSQ Prizes was presented by the Institution of Engineering and Mining Surveyors Australia (QLD Division). The IEMSQ Prize for the student who achieves the highest academic standard in the first eight courses in the Associate Degree in Spatial Science program was awarded to **Lauren Baguley**.
The Leigh Capon Memorial Prize 2011 for the graduating student who achieves the highest academic standard for the last eight courses of the program completed in two years, was awarded to Wayne Wilson. The Leigh Capon prize commemorates the life and service of Leigh Capon, a distinguished former head of discipline.

Bachelor of Spatial Science Technology
The John Trousdell Memorial Prize commemorates the life and service to the profession of John Trousdell, an eminent local Darling Downs surveyor and is sponsored by the Darling Downs Survey Group. The John Trousdell Memorial Prize, for the graduating on-campus student who achieves the highest academic standard in the Bachelor of Spatial Science or Bachelor of Spatial Science Technology (GIS) program was awarded to Michelle Scott.

The SSSI Qld Centenary Prize donated by the Surveying and Spatial Science Institute, Australia, Queensland Division, for the graduating external student who demonstrates the highest level of proficiency in practical and academic work and a sincere interest in the profession was awarded to Phillip Nixon.

The SSSI Qld Spatial Science Technology Prize donated by the Surveying and Spatial Science Institute, Australia, Queensland Division is awarded to the graduating student from the Bachelor of Spatial Science Technology program who demonstrates the highest level of proficiency in practical and academic work was awarded to Gary Hutchison.

The SSSI Qld Northern Group Students Prize donated by the Surveying and Spatial Science Institute, Australia, North Queensland group is awarded to the graduating student from the Bachelor of Spatial science or Bachelor of Spatial Science Technology program who demonstrates the highest level of proficiency in academic work and resides in regional Queensland was awarded to Megan Dillon.

Associate Degree Spatial Science
The final IEMSQ Prize was presented by the Institution of Engineering and Mining Surveyors Australia (QLD Division). The IEMSQ Prize for the graduating student who achieves the highest academic standard in the Associate Degree in Spatial Science (Surveying) was awarded to Sean Robinson.

University and Faculty Awards
University Medallists include Phillip Nixon and Wayne Wilson for the 2011 academic year.

Faculty Medallists include Gary Hutchison for the 2011 academic year.

Honours awards for the 4 year programs recognise awards achieved with distinction and outstanding performance.

First class honours were awarded to Phillip Nixon and Wayne Wilson.
Surveying and Spatial Science Graduates for the 2011 Year

Grad Dip of Spatial Science Technology
- Ken Cross

Bachelor of Spatial Science (1st class Hon)
- Phillip Nixon
- Wayne Wilson

Bachelor of Spatial Science (2nd class honours – division A)
- Mike Morris
- Brian Penman

Bachelor of Spatial Science (2nd class honours – division B)
- Chris Kiernan
- Allen Ledger
- Daniel Maher
- Daniel Pratt

Associate Degree in Spatial Science
- Sebastian Algardi
- Brett Bamford
- Ian Bauer
- Sam Birkbeck
- Cameron Brown

Overall graduate statistics for the academic year were as follows, 2011 academic program graduates:

- Bachelor of Spatial Science (Surveying) 15
- Bachelor of Spatial Science Technology (Surveying) 22
- Associate Degree Spatial Science (Surveying) 24
- Bachelor of Spatial Science Technology (GIS) 1
- Associate Degree Spatial Science (GIS) 2
- Graduate Diploma of Spatial Science Technology (GIS) 1

* Data does not include Grad Cert of Spatial Science Technology.

Congratulations to the 2011 alumni of the University of Southern Queensland on their achievement.

Shane Simmons

Megan Dillon, Gary Hutchison, and Sean Robinson were recognised by the university for achieving their two/three year awards with distinction.

David Boon, Erin Counsell, Helen Cygan, Brenda Jones, Julie Shorey, Patrick Murphy, Michelle Scott, and Lee Wade were all awarded the Dean’s commendation for outstanding performance in their program.

A final year faculty project high commendation certificate was awarded to Wayne Wilson.
Have the geospatial technology frontiers changed much in three years?

A little more than three years ago, I penned a column about geospatial technology frontiers. While acknowledging the expansion of GIS technology across more and more disciplines, the column aimed to summarize some of the main areas of research and development, where the vision has been clear for some time, but where technology limitations have hampered progress.

The areas I outlined then all still seem to frame today’s challenges, so what kind of progress have we made?

Online mapping continues to be a driving force behind the industry, and if anything, its influence on R&D spending has accelerated. Online mapping isn’t a challenge as much as it is an enabler to realize meaningful advances more quickly.

Online geospatial ecosystems have continued to evolve to support more integration, and the competition for winning online experiences has led to a great deal of improved data availability in a rather short time.

Below are quoted main points from the original piece, along with an update through the lens of what’s happening and possible today.

3D Integration

“What’s still missing in geovisualization is the seamless movement between broad geography into realistic detail to include the interiors of buildings.”

On this front, recent efforts are taking interior mapping very seriously, collecting data with 3D spherical cameras as in Google StreetView, and modeling social collection points with precision. Aiding these efforts are new handheld chipsets that promise precise positioning both indoor and out.

While aimed at consumer interior navigation, the interest in creating augmented realities will spur greater investment in modelling and navigation tools, making the seamless visualization of our world at all scales an accelerated probability.

“The interoperability of data formats and models is the first step toward creating seamless models at all scales that also combine the intelligence of both BIM and CAD for the exciting concept of intelligent 3D models.”

On this front, we haven’t seen much progress on the interoperability front between vendors, but we have seen great leaps in the integration capabilities within product lines.

Major vendors are more seamlessly fusing their own environments as in Autodesk’s Infrastructure Modeler, Esri’s City Engine, and Bentley’s 3D Cities efforts.

There are real end-user frustrations with workflow among and between tools that still need to be addressed, and standards efforts continue to make progress on many fronts, although no real breakthrough has occurred.

Temporal and Real-Time GIS

In the previous assessment there were separate line items for temporal, real-time GIS, and automated change detection. I’m combining all three of these areas in this column, because increasingly we’re talking about “dynamic” or “intelligent” maps that constantly evolve with new inputs, and that vision incorporates each of these areas.

“These aren’t just new names to frame a vision, they’re quickly becoming reality.”

“Inroads are being made to incorporate live video and environmental sensors within a GIS framework, and to connect these ground inputs with space-based instruments for a deeper and broader understanding of events as they unfold.”

High-profile advancements have occurred to integrate greater input during events, with citizen feedback through social media gaining great ground. The term social media wasn’t around three years ago, and its integration has proved the value of citizens as sensors. By incorporating these inputs with mapping, a great deal of clarity has been added to situations as they unfold.
As in Twine, more sensors come with a proliferation of sensors so much easier than before seamlessly and wirelessly, making the proliferation of sensors in the context of the semantic web is much closer today. As in the previous assessment, location continues to be a key component of speeding interactions and trusting information, which are critical issues for the semantic web to become reality.

The Semantic Web

The idea of the semantic web where it “evolves as a medium for knowledge exchange to the point where it will understand the requests of both people and machines” is well on the way as the Internet of Things becomes reality. As in Twine, more sensors come with a proliferation of sensors so much easier than before seamlessly and wirelessly, making the proliferation of sensors in the context of the semantic web is much closer today.

The previous column didn’t make much mention of sensors in the context of the semantic web, but they are an integral component. In sensing we’re seeing a great deal of activity in the development of low-cost sensing pods that can be added to existing environments seamlessly and wirelessly, making the proliferation of sensors much easier than before.

As in Twine, more sensors come with a programmable interface to freely customize to the the needed environment. In addition to this tool, there have been recent air monitoring tools as well as add-ons to smart phones that automate reporting.

With greater access to sensors, and with increasing in means to process event-driven inputs (see Safe Software’s FME 2012), the semantic web is much closer today.

Spatial Analysis

“Spatial reasoning and analysis are an important aspect of geospatial technology, yet most practitioners just scratch the surface of spatial statistics and the map algebra that can reward the analyst with great insight.”

While we’re making maps more easily accessible, and even compartmentalizing map analysis in apps that automate some of the processing, deep map-based insights continue to be the exception rather than the norm.

“A need for much more research into the simplification and automation of spatial analysis in order for the geospatial toolset to reveal greater insights,” is an ongoing goal. Inroads are being made with the burgeoning area of location intelligence, and again the Web is a great enabler.

The harnessing of the cloud for rigorous and compute-intensive analysis is certainly helping by reducing the cost and aiding access to capacity. What perhaps is missing most is evangelism of the types of questions that can be answered when addressing problems through the spatio-temporal lens.

It is instructive look back from time to time in order to realize the pace of advancement. Whole new types of functionality have been realized in a short time, and many more are around the corner.

It holds true that while, “the current state of geospatial practice has come a long way since the tools were conceived, we’re still not scratching the surface of the amount of insight that can be unleashed” when the full potential of geospatial technology is realized.

Matt Ball

Spatial Science Queensland
Information Pages

Does digital cartography have more value than non-digital mapping?

A lot has been written about digital cartography over the years. Most of it relates to the advantages that digital cartography provides as compared to non-digital mapping including improved collaboration, less redundancy, greater efficiency in production etc.

Tables like the iPad and iPod, Windows and Android devices all pulling the world’s population into a mobile future

As mobility technologies develop, the need for ‘going digital’ increases. This is becoming the case as we begin to see tablets and other portable devices begin to out-sell laptops and desktops.

The switch is on. Tablets like the iPad and iPod, Windows and Android devices all pulling the world’s population into a mobile future. We don’t see people sending geospatial files through the mail, in fact, most postal agencies are experiencing rapid and fundamental changes as people share files digitally and connect through social media innovations.

As cartographic activities moved along with this change, many people experienced the benefits of digital cartography.

Another benefit that arose with digital cartography and increased sharing was the ability to integrate and re-create new data, perform geospatial analysis and to be able to push new found knowledge around the global at the press of a button.

This ability to move data quickly across long distances was not immediately available, and has only recently grown in large measure due to improved broadband availability and mobility devices that link data to internet devices (ie. tablets) – but also having the applications to due something useful through them.

As the shift continues toward online, the advantages grow well beyond paper. Even display billboards, digital billboards and other poster type displays that previously depended upon paper, are being replaced by digital displays as innovations in LED lighting improve.

In a sense, these displays are causing whole cities to become brighter, more colourful and filled with more dynamic displays – resulting in more animation from a map perspective. Are
we moving faster toward 2D linked to 4D, skipping over 3D in many cases to add time to 2D digital billboards and displays?

Because cartography has traditionally been used for large audience displays, tourism mapping, presentations, and other places where informing people is important – and paper was used, then these advantages carry forward to these circumstances as well.

Suddenly, anyone around the world can create a map for use in places where they do not live, thereby providing high quality services to the most remote of locations quickly.

It is this benefit that can perhaps carry the largest benefits, it extends well beyond the sharing data, collaborating phases, to embrace the publishing and knowledge sharing aspects of information exchange.

Transformation is often the outcome of more knowledge. As digital cartography becomes increasingly available to more people, with greater amounts of details, including cultural intelligence embedded into it, then it should be realised that we are at a time when true, effective and positive transformational change can take place – like no other time.

What do sensors add to a decision support system?

An often-quoted Business Week article from 1999 stated that, “In the next century, planet Earth will don an electric skin…”

The electric skin referred to is the concept of the sensor web, where networks of sensors monitor and interact to communicate change over time.

The sensor web had its start with NASA’s Jet Propulsion Laboratory and has spread broadly to include both sensors and ecosystems of sensors that have come down dramatically in price, with great improvements in performance and capability.

Communication is the key element of the sensor web. Through the wireless connection, the individual sensors can be programmed remotely and communicated with individually or collectively.

Sensors continually share readings with each other, and a grouping or web of sensors for one location can receive communication from a web of sensors in another location.

The web of sensors becomes an intelligent and adaptive network as data from individuals and groups become fused on the fly. Readings from individual pods detecting anomalous events can trigger adaptive behavior in nearby individual pods or the entire sensor network.

Adding sensors to systems allows for automation, where readings can trigger a series of events that allow the system to adapt to changing conditions.

Realizations in Real Time

Sensor webs add real-time data into decision support systems. The fact that the sensors share and fuse information amongst themselves provides pre-validation for data so that it can be trusted and acted upon immediately.

The adaptive and distributed nature of the sensor network ensures that the network will continue to collect and communicate information about a changing environment, regardless of sensor failures at individual locations.

What Types of Sensors?

There’s a broad range of different sensors that can be deployed in a sensor web for various observations and purposes—from environmental monitoring, to hazard detection, to security observation, and motion and location.

Sensors might include temperature, moisture, wind, noise, video, infrared, radio frequency, seismic activity, air quality, chemical and biological, etc. Individual sensor web pods might have specific sensors or a cluster of sensors that each inform one another.

Sensor pods don’t have a determined size, shape or function.

An individual sensor pod can be towered clusters of sensors such as border patrol monitoring, networks of unmanned aerial vehicles, and sensor clusters at uniformly distributed moni-
Matt Ball

How will real-time inputs, and the increasing number of sensors, impact the geospatial industry?

For decades the lack of geospatial data was a barrier to geographic information system expansion and adoption.

While obtaining high-quality spatial data continues to be a challenge, the problems of a lack of available data has quickly turned into the need to manage a glut of information.

With the number of sensors and platforms growing exponentially, the data deluge will only increase in pace.

The ability of geospatial technology to make sense of all this data will prove to be of wide benefit to increasing number of end users.

However, the old model of mapping and spatial analysis professionals at the hub of insight won’t apply, instead there will be services and automated systems that feed a broader understanding of place.

Sensor networks will continue to advance to provide a significant increase in our knowledge and understanding of our planet’s systems and those system’s interactions.

SensorWare Systems, a spin-off of the NASA’s sensor web project, has deployed a number of networks in a variety of environments. Projects have included agricultural sensors to test irrigation methods, a network in Antarctica that tested the performance of their system in the ultimate of harsh conditions, and a flood monitoring network in the Tucson desert.

The U.S. Army is also heavily interested in sensor webs for their Future Combat System and Objective Force for the Warrior Program. They’ve tested a network to coordinate ground sensors, robotic vehicles and unmanned aerial vehicles for battlefield operations.

Earth Monitoring Advancements

An area of ongoing interest is Earth observation. There’s a research movement afoot to connect earth observing satellite sensors with ground-based sensors for optimal use of resources. The combination of these sensors with adaptive earth system models should provide considerable added insight into our planet’s complex systems.

Sensor networks will continue to advance to provide a significant increase in our knowledge and understanding of our planet’s systems and those system’s interactions.

Spatial Perspectives

Real-Time Data Hubs

Earth observation is of particular importance right now, with increased populations, reduced resources, and visible global change in climate patterns. The uncertainty of these changes, and their impacts on humans and economies, is being met with a new and more ubiquitous view on planetary patterns.

With today’s satellite constellations and airborne platforms capable of imaging the same spot on the earth multiple times per day, we get a much more complete picture of our planet.

This ability is being met with new approaches that are illustrated at a few different scales.

- DigitalGlobe’s Analysis Center shows the marketability of rapid insight and views of newsworthy topics.
- The UN Global Pulse is mining data from the Internet and from phones to gain a better understanding of human well being across the planet.
- China has made a commitment to create a national geographical conditions monitoring database by 2015.

Together these different approaches show a need and interest to harness multiple inputs for a real-time awareness of change in order to mitigate damage and impacts.

New Insight on Design

The combination of sensors and systems, and 3D data capture at high precision, is also helping to revolutionize our management and understanding of our built environment.

With precise models of the as-built environment, along with sensors that return details on

- Smart phone purchases grew 49% last quarter according to Gartner, with these devices containing an increasing number of sensors to make sense of our surroundings
- The number of sensors are increasing, with an Internet of Things approach that allows the devices to interact (see Twine and Cosm)

Together, this collection proliferation is termed Big Data, and with all this data there are increasing interests to quantify these inputs to get a better awareness about operations and to increase efficiency.

- With the Federal Aviation Administration relaxation of laws on unmanned aerial systems (UAS), a proliferation of personal observation platforms is set to take off
- The Global Satellite Navigation System constellations are increasing with Russia’s Glonass and China’s Compass improving precision and performance

...the old model of mapping and spatial analysis professionals at the hub of insight won’t apply, instead there will be services and automated systems that feed a broader understanding of place.

- The number of earth observation satellites continues to rise, with China illustrating that trend a few weeks when they launched four satellites in one week
- The number of drones that the U.S. military deploys is now equal to one third of their aircraft, up from 5 percent in 2005

- There’s a research movement afoot to Earth Monitoring Advancements

- Sensor networks will continue to advance to provide a significant increase in our knowledge and understanding of our planet’s systems and those system’s interactions.
resource use and other factors, we gain a better handle on the full lifecycle of our structures.

Inputs inform designs that return the highest possible performance, and constant monitoring lets us achieve the optimal operation. In the middle the new connectivity with a model-centric workflow, has a great improvement on construction efficiency.

These sensored systems are manifest at many scales, from the better heating and cooling of buildings, toward the better management of utility networks, and all the way to smart cities that include intelligent grids and transportation.

The adoption of a smart city approach is a global phenomenon that will spur wider proliferation of sensors to address a wide array of city-scale problems.

Toward Automation
Looking back at the seeds of this new sensor and system approach there are a few industries and applications that foretell a whole new level of automation.

With precision agriculture, farmers have long reaped the benefits of greater insight into local conditions at a fine scale through automated machines coupled to detailed digital models to improve crop yield.

The broad geospatial industry can take cues from the progression in that sector as it’s moving from informing farmers toward the robotic automation of tools and systems.

Traffic sensors and feeds are perhaps the best example for the impact of real-time data coupled with nimble actors. Users of real-time traffic sharing applications such as Waze can expect great deal of time savings for their effort of monitoring and reporting conditions.

However, here again we may see a large leap toward automation as today’s sensors have proven capable of driving cars without human control.

It will take years if not decades for the automation trend to take hold, if it does at all. In the meantime, the foundation that the geospatial technology industry has built to make sense of massive amounts of data is set to pay off.

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[Geoff Thurston and Matt Ball write in Sensors and Systems, an online magazine about spatial information and technologies in monitoring, analysing and adapting to global change]

Matt Ball

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Delivering innovative solutions from mine to market
A learning activity with low-tech and high-tech spatial tools

Over past few decades, the spatial technologies, both in the form of software and hardware, have become easy to use leading to their increased application in diverse areas.

However, this is offering a fresh challenge where technological component is dominating the use, and the users are often noticed ignoring the theoretical component resulting into their possible misuse.

One of the major recommendations of the Geographical Information Science and Technology Body of Knowledge (GIS&T BoK) is to consider the fields of science, technology, as well as applications of spatial science (DiBiase, DeMers et al. 2006).

Moreover, today’s spatial science courses offered across universities, especially the GIS courses, emphasise spatial data analysis, and these courses are increasingly replacing traditional courses such as cartography.

This is leading to two major concerns: one is the tendency of the new work force to perform spatial analyses without a sound understanding of the spatial data, and the other one is communication of the spatial information with a poor cartographic presentation.

Interestingly, a research paper recently published by two well-known cartographers in American Association of Geographers analysed recently published articles of two leading international geography journals indicated that most of the maps presented in these scholarly journals are poorly designed.

This is quite worrying because with modern spatial tools the map making has become a much easier task and many of the cartographic rules are implemented in these tools, but still it requires complete knowledge of cartographic principles to present maps as a communication model.

Similarly, spatial analysis performed without understanding the data sets can be misleading. While teaching introductory GIS course, similar issues were noticed where students were more tempted to use spatial tools without having a sound understanding.

To overcome this worrying issue, a combination of low-tech and high tech methods was implemented in a series of activities that started with drawing a map of the University Campus using a pencil on an A4 size paper in the early phase of their learning.

As expected from any lay person, the students draw rectangles to show buildings, lines to show roads, and few of them used points to show location of trees.

This provided a good example for learners to demonstrate how the real-world features are abstracted into points, lines and polygons, and how human beings are using this approach for several hundred years.

This further explained how in spatial tools we use points, lines, and polygons to represent...
all the real-world features, and how different symbols and colours can be assigned to these abstractions that are referred as object-based data models.

The web maps such as Google Maps and Bing Maps were used to demonstrate how the same area is presented as map using the combination of points, lines, and polygons as well as an image that is a separate data model called field based data model.

The differences in representation of the same area by different web maps indicated varying assumptions behind the abstraction process (Figure 1).

Later in the course, when students learnt about cartographic principles and using the spatial tools to create a cartographic quality map, they were again asked to draw a map of the university campus on an A4 size paper and submit it as a digital file as a part of an assessment task (Figure 2).

This time they were marked for the cartographic quality and feedback emphasising the cartographical principles were provided. Even later in the course; when students learnt about creation of spatial data set, rubber sheeting, and geo-referencing; they were again asked to submit the same digital map, but this time they were asked to submit a cartographical quality geo-referenced map.

The maps were marked on again for their cartographical qualities, students’ capacity to correctly geo-reference the map using coordinates from Google Earth, and to create a geo-referenced bitmap or jpeg images that overlay correctly on a high resolution satellite image of the area.

While doing this task, students experienced rubber sheeting of the map they had drawn as well as limitations of the data set they had created (Figure 2).

This learning activity spanned over several teaching weeks, and had a positive impact on students’ performance in other assessment tasks that mainly involve their capacity to perform spatial analysis to address a real-world problem.

The number of students presenting maps with poor cartographical qualities markedly decreased, and a similar decline was noticed for the use of inappropriate data sets.

Furthermore, many students were able to convert images taken from Google Earth to spatial data sets for GIS after geo-referencing.

The detail of the activities and its influence on students’ learning are documented as a research paper and has been published in Journal of Geography in Higher Education.


Sanjeev Srivastava
Surveying programs in NSW and the USQ and introduction of a new major at USQ

The structure of a four year tertiary degree program generally comprises the study of thirty-two courses. The term course will be used to describe a unit or subject that is studied as a discrete element of theory within a semester. Students undertake the study of eight courses per year.

The following discussion is concerned only with the 4 year program and does not consider the NSW/ACT TAFE system graduates, nor the graduates from the USQ Associate Degree in Spatial Science (2 year program) and Bachelor Spatial Science Technology (3 year program) whereby competencies will be diluted in accordance to the length of the program.

It also does not address core competencies that may be achieved through graduates of post-graduate programs (Masters/Graduate diplomas/Graduate certificates) such as the USQ Spatial Science Technology suite of post-graduate programs by distance.

The four year program represents the program most likely to be accredited by the Board and hence concentration on the four year programs.

The principal function for the Surveyors Board in each of the states of Australia relates to the registration of surveyors. The registration of surveyors can include the assessment of applicants for registration and registration endorsements across a range of surveying disciplines, with land/cadastral surveying arguably being the most important to ensure public confidence in the cadastral and land registration system. The other disciplines may include mining, engineering and hydrographic registrations.

Each Board has a framework or process of assessing the competence and academic qualifications of an applicant seeking registration. Persons seeking registration are generally classed as applicants from either overseas or interstate/ New Zealand or local and subject to any reciprocating arrangements with other Boards or equivalent.

Applicants having undertaken studies at a local university will usually be subject to a review process between the local institution seeking accredited program status and the Board as an accrediting authority. An accredited program for an institution has been subject to review by an accrediting authority (the Board) after the institution has met specific requirements and criteria.

The registration and regulation of surveyors and other professions has been determined by the principles of national competition policy. The national competition policy agenda was set in 1995, when state, territories and federal governments in Australia reached agreement on a National Competition Policy (NCP), underpinned by three inter-governmental agreements: the Competition Principles Agreement; and the Agreement to Implement the National Competition Policy and Related Reforms (National Competition Council 2006).

The impact on surveying resulted in the National Competency Standards for Professional Surveyors, the “brown book” published by the Institution of Surveyors, Australia in 1996.

The National Competency Standards for Professional Surveyors, Institution of Surveyors, Australia (1996) identified the following core units of competency:

1. Professional practice
2. Collection of data and information
3. Management of data and information
4. Presentation of information
5. Business, management and supporting quality assurance programs
6. Communications
7. Spatial reference systems and core databases
8. Land administration and property development
9. Controlling, measuring and locating developments
10. Research, development and commercialization
11. Education and training

Ideally a competency framework addresses qualifications, skills, experience and knowledge for the required level of assessment. Units 1 to 4, unit 6 and at least one unit from units 7 to 10 were generally expected for entry level as a professional surveyor and membership as a graduate to the Institution of Surveyors, Australia.

However these units of competency do not necessarily align with the structure of tertiary programs and unfortunately many courses...
When a Board accredits an institutional program, the broad structure of an academic program should satisfy by association, the competencies expected of a graduate surveyor.

Rather than use the core competencies developed in 1996 for comparison, a comparison of the University of Newcastle and the University of Southern Queensland for 2012, has been undertaken by discipline area.

The following table represents classification across 16 classes (aimed to represent an average of 2 courses per class) and the core competency identified with that class, where that core competency can be identified.

Some of the major differences across the three universities have been highlighted in the table e.g. civil engineering focus and flexibility in a program through elective choices.

Another point of note is the difficulty in addressing core competencies to courses that may be considered essential to a four year surveying program e.g. statistics, mathematics, programming, science, geography etc.

These disciplines may not necessarily be considered a core competency in surveying but they are core disciplines for a balanced academic surveying program structure.

It is interesting to note the differences across the examined university program structures. Can those differences be explained by different educational curricula principles or pedagogies or by individual university strengths and staffing or by influence of the accrediting authority?

There are difficulties in comparing program course structure and the competencies expected of a graduate/professional surveyor for registration purposes, as per the ‘brown’ book of 1996. It is time for the brown book to be laid bare and a new framework to sprout and take root from the grounds initially established by the ‘brown’ book.

New Urban Planning Major

As of 2013, a new major will be introduced into the USQ Spatial Science suite of programs. Urban and regional planning undergraduate majors will be introduced for the 2 year Associate degree program and for the 4 year Bachelor of Spatial Science program.

The new major will require re-badging of two existing planning and development courses from surveying codes to urban planning codes and also to have four new URP coded courses developed as follows:

- S1, 2013 URP1001 Introduction to Urban and Regional Planning
- S1, 2014 URP2001 Planning Structures and Statutory Planning
- S2, 2014 URP2002 Local Government Planning Practice and Technology
- S2, 2015 URP4001 Movement Network Planning

The development of the urban and planning major has been undertaken as a case study in program development with the USQ Learning Innovation Teaching Enhancement Project (LITE) unit.

The role of the LITE team is to facilitate the integrated developmental design of a program, including required media objects and course design for URP coded courses through the delivery of industry relevant, educationally sound and technologically enhanced URP courses.

The courses will be designed using current pedagogical and technologies trends including opportunities for practical application, alternative assessments for students enrolled in the program, developing student awareness of the relevance of materials in other courses (non-URP), audio-visual Open Education Resources and framing pedagogies for audio-visual resource use in the program.

The project has included extensive industry collaboration and industry consultation including workshops with experienced practitioners and recent graduates, both in private practice as well as local government.

A comprehensive set of workshops were undertaken with both groups during the program and course design and development phase.

Industry partners will assist sourcing course content, evaluating content and writing the course material and assessment items. Industry practitioners have included Dy Curry – Manager Strategic Planning, Toowoomba Regional Council and the National President of the Planning Institute of Australia and Paula Grant, Executive Project Specialist Toowoomba Regional Council.

The mid-year intake to USQ for those intending to study by distance closes on 29 June, applications can be completed on-line (http://www.usq.edu.au/future-students).

Shane Simmons, USQ

Classes (core unit competency) | UNSW courses | U.Newcastle courses | USQ courses
---|---|---|---
Basic survey introductory courses (2) | 3 | 4 | 2
Non-cadastral specialised survey (2) | 1 | 1 | 2
Cartography/GIS/CAD (4) | 2 | 1 | 2
Photogrammetry/Remote sensing/Imagery (2) | 0 | 2 | 1
Science/geography type courses (1?) | 2 | 1 | 3
Professional practice/communication/society (1) | 2 | 1 | 2
Land administration and management (8) | 1 | 1 | 1
Urban planning and development (8) | 1 | 1 | 2
Business/project management/economics (5) | 1 | 1 | 2
Undergraduate project (6) | 4 | 2 | 2
Geodesy/global navigation satellite systems (7) | 2 | 2 | 3
Civil engineering (9) | 1 | 6 | 1
Cadastral/land law (8) | 1 | 2 | 2
Programming/computations and analysis (3?) | 1 | 3 | 3
Statistics/mathematics (??) | 3 | 2 | 2
Flexible elective choices (could be any) | 7 | 2 | 2
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geolocation in iOS: Mobile Positioning and Mapping on iPhone and iPad</td>
<td>Alasasd Allan (Author)</td>
<td><a href="http://www.amazon.com/dp/1449308449/">http://www.amazon.com/dp/1449308449/</a></td>
</tr>
<tr>
<td>Advances in Geo-Spatial Information Science</td>
<td>Wenzhong Shi, Michael Goodchild, Brian Lees, Yee Leung (Editors)</td>
<td><a href="http://www.amazon.com/dp/0415620937/">http://www.amazon.com/dp/0415620937/</a></td>
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This book is a job-hunting strategy guide for people entering or already in the geographic information systems (GIS) industry. It tackles issues that are most important to job hunters in a very direct, no-nonsense manner.

“No single comprehensive text or website exists that addresses the needs of those looking for GIS jobs in this current job market in a direct, concise manner,” says Todd Schuble. “The GIS industry is dynamic and job hunters need to adapt quickly with regards to the education and skill sets they need. The strategies for even finding available GIS positions changes on a regular basis.”

Education, salary, employers, networking, and motivation are only a few of the issues touched upon in this text. This is the resource for the GIS industry.

A career in GIS will definitely be more attainable with the roadmap of information within its pages. The book is available from Amazon.com in electronic format for $4.99.

http://www.amazon.com/dp/Boo8oKYSTQ
OpenGeo Suite 2.5 Released
OpenGeo has released version 2.5 of its flagship product, The OpenGeo Suite. Version 2.5 bundles many improvements and bug fixes from the open source communities and adds special OpenGeo features.

The highlight of version 2.5 is the introduction of the OpenGeo Suite Client SDK. The much anticipated SDK provides tools for developing and deploying web mapping applications backed by the OpenGeo Suite.

http://opengeo.org/

X-Info Connect, now with integrated, live property data
Mipela GeoSolutions and Property Data Solutions have created Australia’s first live property data update service, which involves the integration of Mipela’s X-Info Connect stakeholder information management software with the PriceFinder online property search application.

This new service embedded into X-Info Connect automates workflows and eliminating manual searching of government databases.

It also eradicates the need for subsequent data entry of information into corporate databases and geographical information systems.


Intergraph Releases Key Update to LPS
Intergraph announces the release of LPS 11.0.5, a service pack for LPS 2011.

LPS 11.0.5 extends the product’s broad range of support for both orbital and airborne sensors by adding the Pleiades Rational Polynomial Coefficient (RPC) model, the DEIMOS RPC model and the VisionMap A3 Super Large Format (SLF) model.

http://www.intergraph.com/

Google Earth Builder renamed to Maps Engine – free for non-profits
In September 2011, Google launched its Earth Builder – a product that allows customers to use Google’s cloud computing infrastructure to store, manage and share their own geospatial data and maps.

In addition to this news, Google also announced the launch of its Google Maps Engine grants program for non-profits, which offers free mapping for non-profit organisations.

http://www.google.com/enterprise/mapsearth/products/mapsengine.html

New Release of SuperGIS Biodiversity Analyst 3.0
SuperGeo announces that SuperGIS Biodiversity Analyst 3.0 is officially launched. The analysis tool is one of SuperGIS Desktop 3.1 extensions that used to analyze and explore the richness, diversity, and evenness of the distribution of flora and fauna.

SuperGIS Biodiversity 3.0 can integrate the GIS properties of exploring, displaying, querying, and analyzing spatial and attributes data.


Blue Marble Releases Global Mapper 13.2
Blue Marble Geographics announced the release of Global Mapper version 13.2. This release features updated DigitalGlobe premium imagery with improved access to new DigitalGlobe servers.

http://www.bluemarblegeo.com/

Intergraph ERDAS IMAGINE 11.0.5 Now Available
Intergraph has announced a new minor release of ERDAS IMAGINE, now available to all customers with ERDAS 2011 software. Users can download ERDAS IMAGINE 11.0.5 from the product webpage. This release includes changes from all previous service packs released for ERDAS IMAGINE 2011.

http://www.erdas.com

OGC Adopts City Geography Markup Language v2.0
The Open Geospatial Consortium (OGC) has adopted Version 2.0 of the OGC City Geography Markup Language (CityGML) encoding standard. CityGML is a community-defined information model and XML-based encoding for the representation, storage and exchange of virtual 3D city and landscape models.

In comparison to Version 1.0, CityGML Version 2.0 defines additional feature types and new feature properties including new thematic modules for tunnels and bridges, the ability to model footprint and roof edge representations for buildings in order to allow users to derive 3D models from existing 2D building data, and generic attribute sets allowing users a more powerful way to customise CityGML without the need for additional coding.

http://opengeospatial.org/

TerraGo Technologies Releases Publisher for ArcGIS v6.0
TerraGo Technologies has released its Publisher for ArcGIS v6.0 software to enable Esri users to produce interactive, portable and intelligent TerraGo GeoPDF maps, imagery and geospatial applications with unprecedented collaboration capabilities.

TerraGo Publisher for ArcGIS permits Esri users to extend, exchange and exploit their enterprise geospatial assets by producing multi-layer TerraGo GeoPDF maps and imagery. Users without sophisticated GIS tools or training can access, dynamically update and share compact geospatial information from any source and roundtrip it back to the enterprise GIS.

http://www.terragotech.com/

Leica Geosystems Updates Its Zeno GIS Series of GNSS/GIS Products
Leica Geosystems is pleased to announce Leica Zeno Field v3.0, Zeno Office v3.0, and Zeno Connect v1.2 software updates for the Zeno GIS series. The main improvements are the support of Esri ArcGIS 10, and simplified use of transformations in the field.

http://www.leica-geosystems.com/Zeno

Trimble’s Survey Software Improves Productivity for the Office and Field
Trimble introduced today new versions of its office and field surveying software—Trimble Business Center Software version 2.70 and Trimble Access software version 2012.10. The software is part of Trimble’s portfolio of Connected Site survey solutions. The new software enhancements allow surveyors to collect, share and deliver data faster to improve accuracy, efficiency and productivity.

http://www.trimble.com
CMT Release iCMTGIS II App for the Apple iPad

CMT has released iCMTGIS II App for the Apple iPad, one of a series of apps the company is presenting to the iPad and iPhone users in 2012.

iCMTGIS II provides a host of powerful and user-friendly functions to facilitate GPS/GIS data collection and mapping for a variety of applications, such as forestry, land management, utility pole data collection, wildlife management and archaeology.

iCMTGIS II functions include:

- Display the coordinates of a geographic location
- Create Feature Lists for data collection
- Create sampling grids
- Display Google Map as the background map
- Import and Export Shapefiles
- Collect multi-layer GPS/GIS data
- Update the coordinates for Point Features
- Create new points using angles and distances
- Digitize points, lines and areas
- Assign symbols and attributes to Features and Topics
- View/Edit the collected data
- View the area of an enclosed region
- Measure distances on the displayed map
- Send and receive job files via email
- Store job data on the Cloud
- Get and send job data via ftp

iCMTGIS II is available now from the App Store

Hemisphere GPS AgJunction Mobile for iPhone and iPad

Hemisphere GPS today announced the new AgJunction Mobile for iOS, an enhancement to AgJunction, its precision agriculture data services platform. AgJunction Mobile is an in-field data collection system featuring GPS-enabled boundary mapping and soil sampling.

To take advantage of the latest technologies, AgJunction and Cogent3D, maker of PrecisionEarth, have come together to release AgJunction Mobile for iOS. Available for both iPhone and iPad, AgJunction Mobile for iOS is based on the PrecisionEarth platform with the time-saving enhancement of being able to directly sync with the AgJunction cloud system.

http://www.agjunction.com

SuperGeo Technologies Introduces SuperPad 3.1

SuperGeo Technologies introduces SuperPad 3.1, which mainly enhances the user interface, adjusts toolbar icons, adds SBAS extension, and improves the display of GPS status.

For customization, SuperPad 3.1 provides sample codes for developing extensions and offers Microsoft Visual Studio templates to assist users in developing the functions they need.

To have a smoother GIS workflow, SuperPad 3.1 improves the connection with SuperGIS Server 3 to make data synchronization more effective.

http://www.supergeotek.com

Esri ArcGIS for iPad

ArcGIS is a great way to discover and use maps. Maps come to life in ArcGIS. Tap on the map or use your current location and discover information about what you see.

You can query the map, search and find interesting information, measure distances and areas of interest and share maps with others.

Find community hosted maps from ArcGIS Online – ESRI’s online GIS. Alternatively you can use the authoring tools on ArcGIS.com to create your own maps that can be used in ArcGIS.

If you are an existing ESRI customer this application is part of your ArcGIS system. You can share your corporate maps and extend the reach of your GIS to your iOS devices within your enterprise using ArcGIS Server.

Russian satellite's 121-megapixel image of Earth is most detailed yet

There's been a long history of NASA-provided “Blue Marble” images of Earth, but now we're getting a different perspective thanks to photos taken by the Elektro-L No.1 Russian weather satellite.

Unlike NASA's pictures, this satellite produces 121-megapixel images that capture the Earth in one shot instead of a collection of pictures from multiple flybys stitched together.

The result is the highest-resolution single picture of Earth yet. The image certainly looks different than what we're used to seeing, and that's because the sensor aboard the weather satellite combines data from three visible and one infrared wavelengths of light, a method that turns vegetation into the rust colour that dominates the shot.

An educator named James Drake obtained over 350 full-resolution photos from the NTs OMZ (Russian Research Center for Earth Operative Monitoring), and used them to make several videos showcasing a day in the life of Earth.

http://www.youtube.com/watch?v=3hdyRh60R-Q

The satellite takes a full image of Earth from its stationary point over 35,000 kilometers above the Indian Ocean every 30 minutes, providing the material for the video.

The images have a resolution of one kilometre per pixel. Check a zoomable version of the image to see the detail for yourself and be reminded of just how tiny we really are.

http://gigapan.com/gigapans/103187
CHC releases the LT30 GPS/GIS handheld collector

CHC’s new LT30 series enters the GIS data collection market with a cost-effective, rugged and connected GPS/GIS handheld collector for a wide range of applications such as natural resources, forestry, utilities, agriculture, emergency response.

Designed for real outdoor conditions, LT30 combines superb brightness and crisp 3.7” full VGA sunlight readable display, all day battery life and a high-sensitivity 20-channel GPS receiver to capture data wherever you need. It is powered by Windows™ Mobile 6.1 Pro operating system.

http://www.chcnav.com

Maiden Flight for Australian Air Survey Plane

GippsAero, the Australian aircraft manufacturer and subsidiary of the Mahindra Group, has successfully completed the first flight of its new aircraft, the GA10. The aircraft is a 10-seat multi-role aircraft based on the GA8 AIRVAN utility aircraft.

The GA10 fits a niche in the market and will suit a wide range of applications from passenger and freight work to air survey and surveillance roles.

http://www.gippsaero.com/index.asp.htm

FOIF Reflectorless Total Stations

FOIF announces its commitment to remaining China’s leading manufacturer with a series of new reflectorless total stations from this year, excelling in terms of performance, speed, accuracy.

Absolute isolation of the transmitting light path and receiving the optical path reduces the light interference and improves the instrument’s accuracy.

Thanks to the laser beam with wide-angle in prism mode, the instrument can obtain higher measurement accuracy without fully aiming at the target or being affected by strong air turbulence. The long measurement distance and high precision is obtained by dynamic lock-in phase EDM technology.

http://www.foif.com.cn

Trimble Introduces New DR+GPS Module for Vehicle and Asset Tracking Applications

Trimble introduced today the Aardvark DR+GPS module that combines Dead Reckoning (DR) with Global Positioning System (GPS) technology on a single, compact board. The Trimble Aardvark DR+GPS module provides reliable and accurate positioning information when GPS signals are limited or not available, such as in urban canyons and tunnels.

http://www.trimble.com

Leica Geosystems Announces Leica RCD30 Multi-head Camera Concept

Leica Geosystems has announced that it is expanding the very popular Leica RCD30 series of medium format cameras by adding dual-head and penta-head solutions to the portfolio.

The Leica RCD30 combines unique design features such as bi-directional motion compensation and beamsplitter technology. The Leica RCD30 is the only medium-format camera to generate highly accurate, co-registered multispectral imagery from one camera head for photogrammetric and remote sensing mapping applications.

http://www.leica-geosystems.com

Laser Scanners for Accident Mapping

More than half of police forces awarded funding by the UK’s Department of Transport for the purchase of high-tech laser scanners have purchased RIEGL devices from 3D Laser Mapping.

The laser scanning systems will be used to rapidly collect evidence at the scene of collisions, thus helping to reduce the length of road or lane closures and minimise congestion on the country’s roads.

Data collected by the scanners will be used by Collision Investigators to produce high-quality graphics and detailed plans of collision scenes for use in subsequent inquiries and court cases.

http://www.riegl.com/

CS25 Tablet Computer with Long Range Bluetooth

The Leica CS25 LRBT is the new model of Leica Geosystems’ Leica CS25 rugged tablet computer.

The Leica CS25 LRBT offers the possibility to wirelessly connect to a remote device, such as a Leica Geosystems total station equipped with the RH16 Long Range Bluetooth radio handle. Such a feature was requested by many Leica Zeno GIS users.

http://www.leica-geosystems.com/zeno

Optech introduces CZMIL, environmental and bathymetric system

Optech has announced the release of the new airborne Optech CZMIL Coastal Zone Mapping and Imaging Lidar system.

http://www.optech.com
that navigation devices that can receive both GPS and Beidou signals will be most popular.

Cao said such devices are likely to “take a majority share of the market if their prices are lowered following scale-production of chips for Beidou terminals”.

http://www.chinadaily.com.cn/

Navipedia: the reference for satellite navigation know-how

Satellite navigation is progressing swiftly, in fact so swiftly that its printed textbooks can’t keep pace – so ESA has introduced its own wiki-based information source, Navipedia.

Written and reviewed by experts, there are more than 400 articles on the site to date covering the fundamental principles of satellite navigation, how receivers operate, the various systems in current or future operation around the globe and GNSS-related services and applications.

http://www.esa.int

Nexteq Navigation Announces New Flagship Data Collector

Nexteq Navigation, based in Calgary, Alberta, Canada, has announced the TS4, its new flagship multi-functional GNSS handheld data collector.

The device is a high-accuracy GPS unit capable of 2-centimeter accuracy using real-time kinematic (RTK) and 50-centimeters globally using Nexteq’s i-PPP technology.

http://www.nexteqnav.com/

ikeGPS Releases New Remote Measurement Tools and Solutions

ikeGPS, creators of mobile GIS solutions that enable users to measure everything, faster, announces several exciting new products that add new measurement capabilities and streamline operations for ikeGPS users.

Now available are new ikeTools measuring capabilities, new ikeSolutions, industry-oriented tools and workflows, and ikeConfig Center, drag and drop software that allows you to create custom forms and workflows.

http://www.ikegps.com/

ProFlex 800 GNSS for positioning applications

Spectra Precision new ProFlex™ 800 is a powerful GNSS solution with revolutionary Z-Blade™ GNSS-centric technology. It delivers fast and reliable RTK positioning, even in environments where GNSS signals may be difficult to acquire.

Rugged and IP67 rated, it is built to withstand harsh operating conditions for a variety of positioning applications.

http://www.ashtech.com

Trimble’s New GNSS Timing Antenna Adds GLONASS Capabilities

Trimble introduced today its latest generation of timing receivers — the Acutime GG smart antenna with multi-Global Navigation Satellite System (GNSS) capabilities.

Slightly larger than a baseball and housed in a rugged, environmentally sealed enclosure, the Acutime GG provides a pulse-per-second (PPS) output synchronized to UTC within 15 nanoseconds (one sigma).

http://www.trimble.com

Chinese Navigation System to Cover Asia-Pacific

China’s homegrown Beidou Navigation Satellite System, or Compass Navigation System, will be able to provide high-quality services to most users in the Asia-Pacific region this year, an unidentified official from the system’s management office said Wednesday.

The official said at a seminar held in the southern city of Guangzhou that three satellites will be launched this year to help expand the system.

Lockheed Martin gets GPS III contract

The US Air Force has awarded Lockheed Martin a USD 68 million contract to provide mission readiness, launch, early orbit checkout and on-orbit operations engineering support for the first two GPS III space vehicles.

The first and second GPS III satellites are on schedule for launch availability in 2014 and 2015, respectively. The GPS III programme will replace aging GPS satellites while improving capability.

Laugh a Little

**Australian Computer Terminology**

As the term ‘Digital Economy’ comes into the everyday language, we came across the following play on words that will only serve to further confuse the general public.

1. LOG ON: Adding wood to make the barbie hotter.
2. LOG OFF: Not adding any more wood to the barbie.
3. MONITOR: Keeping an eye on the barbie.
4. DOWNLOAD: Getting the firewood off the Ute.
5. HARD DRIVE: Making the trip back home without any cold tinnies.
6. KEYBOARD: Where you hang the car keys.
7. WINDOW: What you shut when the weather’s cold.
8. SCREEN: What you shut in the mozzie season.
11. CHIP: A bar snack.
12. MICROCHIP: What’s left in the bag after you’ve eaten the chips.
13. MODEM: Where the cat sleeps.
14. LAPTOP: Where the cat sleeps.
15. SOFTWARE: Plastic knives & forks you get at Red Rooster.
17. MOUSE: The small rodent that eats the grain in the shed.
18. MAINFRAME: What holds the shed up.
20. WEBSITE: Usually in the shed or under the verandah.
21. SEARCH ENGINE: What you do when the Ute won’t go.
22. CURSOR: What you say when the Ute won’t go.
23. YAHOO: What you say when the Ute does go.
24. UPGRADE: A steep hill.
25. SERVER: The person at the pub who brings out the counter lunch.
26. MAIL SERVER: The bloke at the pub who brings out the counter lunch.
27. USER: The neighbour who keeps borrowing things.
28. NETWORK: What you do when you need to repair the fishing net.
29. INTERNET: Where you want the fish to go.
30. NETSCAPE: What the fish do when they discover the hole in the net
31. ONLINE: Where you hang the washing.
32. OFFLINE: Where the washing ends up when the pegs aren’t strong enough.

**Tsunami debris found on Orcas Island**

Thursday, 12 April 2012: A San Juan Islands boat owner has found a piece of debris from the tsunami that hit Japan in March 2011.

Tom Avena was on Orcas Island when he saw a small spike floating next to his boat. It is the first known piece of debris to wash up in the San Juan Islands.

The inscription on the object means “National Land Survey”. *It’s a survey peg!*

Where are the San Juan Islands? Try Google.

**Murphy’s Other 15 Laws**

1. Light travels faster than sound. This is why some people appear bright until you hear them speak.
2. A fine is a tax for doing wrong. A tax is a fine for doing well.
3. He who laughs last, thinks slowest.
4. A day without sunshine is like, well, night.
5. Change is inevitable, except from a vending machine.
6. Those who live by the sword get shot by those who don’t.
7. Nothing is foolproof to a sufficiently talented fool.
8. The 50-50-90 rule: Anytime you have a 50-50 chance of getting something right, there’s a 90% probability you’ll get it wrong.
9. It is said that if you line up all of the cars in the world end-to-end, someone from California would be stupid enough to try to pass them.
10. If the shoe fits, get another one just like it.
11. The things that come to those who wait, may be the things left by those who got there first.
12. Give a man a fish and he will eat for a day. Teach a man to fish and he will sit in a boat all day drinking beer.
13. Flashlight: A case for holding dead batteries.
14. The shin bone is a device for finding furniture in the dark.
15. When you go into court, you are putting yourself in the hands of twelve people who weren’t smart enough to get out of jury duty.

*Anonymous*