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As 2010 draws to a close, SPAN can reflect on yet another busy year supporting research projects across the many disciplines of the university. These have ranged from tracking individual sheep within a paddock to following flood pulses through the Murray-Darling Basin and from creating the new campus maps to 'mapping' the mouth feel of wines.

The addition of a real time corrected GPS unit to the equipment SPAN has available for researchers to use, allows collection of highly accurate location data. Coupled with the new Getac hand held PDA with an inbuilt camera, standardised and complete collection of field data is easy and accurate.

I hope everyone has a Merry Christmas and a safe and happy New Year.

Wagga Wagga Campus

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SPAN is a research support unit within the Centre for Research and Graduate Training at Charles Sturt University. It has offices at Wagga Wagga and Thurgoona campuses to provide postgraduate and staff research support in three main areas: remote sensing, Geographic Information Systems (GIS) and spatial statistics.

SPAN might be able to assist your research in ways you do not anticipate. From simple data retrieval and map making to complex spatial and statistical data analysis, SPAN is available to enhance the quality of your research. If you are a researcher, academic or postgraduate student at Charles Sturt University and believe that some aspect of your research might be assisted by using our skills, do not hesitate to contact the Manager, Gail Fuller, on 32004 or gfuller@csu.edu.au to discuss your project requirements.

Want to know more? Visit www.csu.edu.au/research/span/

Equipment

More accurate location fix than standard hand held GPS.



The new StarFire™ real time corrected GPS gives a location fix to approximately 50cm accuracy in the field without the need for post processing back at the desk. StarFire™ utilizes a network of more than 60 GPS reference stations around the world to compute GPS satellite orbit and clock corrections. These corrections are broadcast via three geostationary satellites, providing worldwide coverage and enabling precise real-time navigation without local ground base stations.

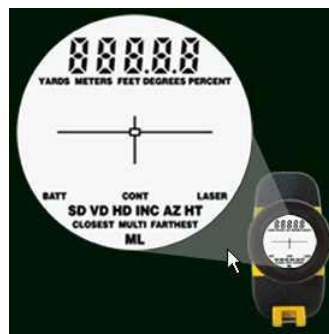
Carried in a back pack, this system conveniently allows the operator to collect location details and enter field data into the hand held PDA.

As there is an annual fee for the corrections broadcast, there will be a small charge for use of this equipment to cover the subscription costs.

Two further enhancements to SPAN's location equipment are the TruPulse 360 and Leica Disto 8 laser measuring devices. The TruPulse measures distances to an accuracy of 30cm over hundreds of metres, as well as inclination (slope) and azimuth to better than 1°. The Disto is even more accurate over shorter distances, 1mm over 200m, and can plot profiles and calculate areas.



TruPulse 360



Through the lens data view

Leica Disto 8



Scan and copy large documents in colour

SPAN is now able to scan and copy documents up to A0 in size in full colour. This capability complements SPAN's poster printing service. The Descan system consists of a frame and back board with a movable calibrated track on which a scanning head runs. The scanner head track is moved across the document allowing strips of the document to be scanned consecutively. These strips are then merged together by the Descan software to give a complete image of the entire document.

The scanner track is mounted over a clear glass base, which is lowered onto the object to be scanned so that no contact is made between it and the scanning head. This protects the object, ensuring that no damage is done to even fragile materials such as very old documents or fine fabrics.

Handheld GPS / PDA



The Getac PS236 fully GIS capable, rugged PDA with in built GPS, compass, altimeter and 3MP camera can be used for collecting and processing data in the field. Forms can be created for the device to ensure consistent, standardised and complete data collection.

Projects

'Water on Tap?' exhibition

SPAN staff member, Deanna Duffy, assisted Dr Rachel Whitsed to create a virtual fly-over of the Murray River for the 'Water on Tap?' exhibition at the Albury Art Gallery (Deanna and Rachel are pictured at right with the flyover projected onto the gallery wall). Celebrating National Water Week (17 – 23 October), the water themed exhibition is designed to help the community understand, protect and conserve Australia's precious water resources and habitat. It includes photography, textiles, mixed media, sound, sculpture, video and the virtual fly-over of the river.

Deanna utilised Google Earth Pro and satellite imagery to generate the flyover, which begins at the source of the river in Kosiuszko National Park and follows its route to Barmah near Echuca. The exhibition is supported by Charles Sturt University, the Institute for Land Water and Society, the Murray Catchment Management Authority and Albury City and will be open until 12th December.



Survey and questionnaire design

Following training with the Australian Bureau of Statistics, SPAN is now able to offer researchers assistance with designing surveys and creating questionnaires. To develop this capability further, SPAN has subscribed to the Professional version of SurveyMonkey, an on line survey system.

SPAN has created and implemented an on line survey for Professor Nick O'Brien and Adjunct Professor Mick Keelty of CSU's Australian Graduate School of Policing. The survey will investigate the implications of 'social networking' for covert police operations. This survey will collect information to measure the level of exposure from personal identification data shared on social networking sites such as Facebook and MySpace. Data is currently being collected from various cohorts of police and security personnel who could potentially be involved in covert operations.

Following analysis of the data collected in the survey, current government policy will be reviewed and the need for innovative ways of dealing with the identified problems will be examined.

Staff



Deanna Duffy, SPAN staff member at Albury gave birth to a baby girl earlier this year. Deanna is pictured on the right with Rachel Whitsed who, coincidentally, also became a mum before the exhibition.

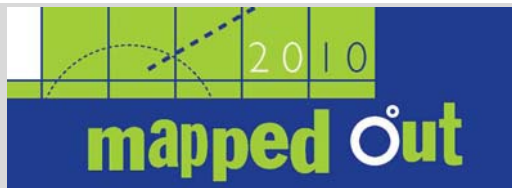
Deanna has been on maternity leave since early May and will return in February 2011. In the interim we have been very fortunate to gain the assistance of Lisa Winsemius from July on a casual basis to fill in for Deanna.

Lisa (nee Seberry) will be known to some from her study at CSU Albury where she completed a BAppSc – Parks, Recreation & Heritage (Hons). Subsequently, Lisa's expertise in spatial technologies, GIS mapping and data sourcing were further developed during periods of employment with the Dept of Sustainability & Environment in Victoria and the Dept of the Environment, Water, Heritage and the Arts in the ACT. Her skills have been valuable in continuing the support of various projects.

Campus Maps

The campus maps creation has been a major project, the results of which are now on line. Work is continuing with specialty and on line interactive maps goals for future development.

Conferences



The annual **Mapped Out Conference** was held at the CSU Convention Centre on Thursday 21st October. This event, co-organised by SPAN and RivSIG, the Riverina Spatial Information Group of the Riverina Eastern Region Of Councils (REROC), showcases spatial technology, techniques and projects from a wide variety of industries and organisations.

This year's presentations included the use of web technologies to create mashups and interactive on-line mapping, ground penetrating radar for locating underground assets, fire ecology and using spatial data to guide prescribed burning for ecological outcomes, 3D visualisation of high resolution imagery for vegetation classification and mapping, geophysical surveying from fixed wing aircraft, practical precision agriculture and flood mapping using near real-time satellite data.

Five minute 'spotlights' were included in the program so that trade representatives could highlight new developments in their product ranges and attract delegates to their stand exhibits. The conference was attended by over 70 delegates from government and non-government agencies from regional NSW and Victoria.



15th Australasian Remote Sensing & Photogrammetry Conference

The biennial ARSPC, held in Alice Springs in September, was attended by around 300 delegates from all over Australasia. Five strands ran concurrently through the four day conference and covered topics such as vegetation cover and condition, landuse mapping, agriculture, forestry, fauna, carbon and biomass estimation, spectrometry, active sensing, palsar, radar, unmanned aerial vehicles (UAVs), fire and emergency detection and management, water, evapotranspiration, meteorology, atmospheric modelling, object based image analysis, sensors, software and data. Special sessions addressed the formulation of a National Space Policy and the ramifications for the Australian remote sensing industry and community, as well as future research.

Alice Springs was experiencing unusually high rainfall and cold temperatures during the period of the conference, necessitating late changes to some activities and venues. The typical stark red soils and blue skies were absent, replaced by lush green vegetation, cloud cover, temperatures below 20°C and a flowing Tod River.

Proceedings from this conference are available to browse and download from <http://www.15.arspc.com/proceedings>

Software

ArcGIS 10 has now been released and SPAN staff are familiarising themselves with the various changes in the software before rolling it out to other users. Licensing for the new version should be more straightforward, with licences able to be checked out for longer periods off network.

According to ESRI, the software creators, this release provides greater ease of use, more powerful analysis tools, new mobile platforms and additional web GIS applications. It also promotes collaboration via an online system for using, sharing, and organising geographic content.

ArcGIS now includes Python scripting for automating common tasks and analyses. Using Python, the capabilities of ArcGIS can be combined with other scientific programming to create powerful solutions.

This release also makes it much easier to see data in 3D and introduces the notion of time in both visualisation and analysis. Users can create, manage, and visualise time-aware data.

Along with the release of ArcGIS 10, a new version of the mobile mapping software ArcPad has also been released. **ArcPad 10** has had performance improvements and quality enhancements as well as the addition of some new capabilities, such as a new dynamic toolbar that allows quick capture of new features with a simple tap on the screen. This toolbar requires no customisation and can be used across all of the user's ArcPad projects.