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TRAINING

Campbell Scientific offers multi-day training courses for our data loggers and software.

These comprehensive courses are designed for new users of CS dataloggers, or for those wanting to increase their knowledge. The courses have an emphasis on programming; see individual courses for itinerary. "Hands-on" programming exercises and course handouts are used to reinforce the concepts covered by the instructors.

Our next training course will be held in Brisbane. Find out more at campbellsci.com.au/training.

MARCH 7 – 11

BRISBANE

Field Operators Training Course

Programming & Software Training Course

Communications Course

MESSAGE FROM THE MD

Steve Bailey



For those of you who think that the face looks familiar, it's because I have returned to the role of Managing Director of CSA after a five year hiatus. It has certainly taken a bit of adjustment to go from being a doting grandparent to heading up the company again but I must say that I am excited and enthused to be back running Campbell Scientific Australia. My thanks to Rob Kurz for dedicated service during his time as Managing Director of CSA.

In late October, Corinne, Gavin Hewitt and I spent a week in beautiful Bali at our South East Asian Distributors Conference discussing strategy, opportunities, case studies and training. Activity in this region is gathering momentum and it bodes well for the future growth of Campbell Scientific products to have such a great group of people representing our interest in this part of the world.

CSI's representative on the CSA Board, Greg Bangerter, visited our offices for a week in November. It was great that Greg took the time to meet with all of our staff as well as meeting with our accountants and our ERP suppliers in Sydney. A company Sunday BBQ was held by our staff at the Riverway's Lagoon in Townsville to show Greg some Aussie hospitality.

Myself and Jordan Marano attended the 36th Hydrology and Water and Resources Symposium in Hobart in the first week of December. It was great to catch up with so many old friends as well as make a number of new acquaintances.

As 2015 draws to a close and we look ahead to 2016, there are some exciting new business opportunities as well as hardware and software offerings coming up. Stay tuned for the next CSA newsletter where I am sure it will all unfold.

A handwritten signature in dark ink, appearing to read 'Steve Bailey'.

Steve Bailey
Managing Director

FMGM 2015, SYDNEY

Campbell Scientific Australia recently exhibited at the Ninth International Symposium on Field Measurements in Geomechanics (FMGM), held in Sydney.

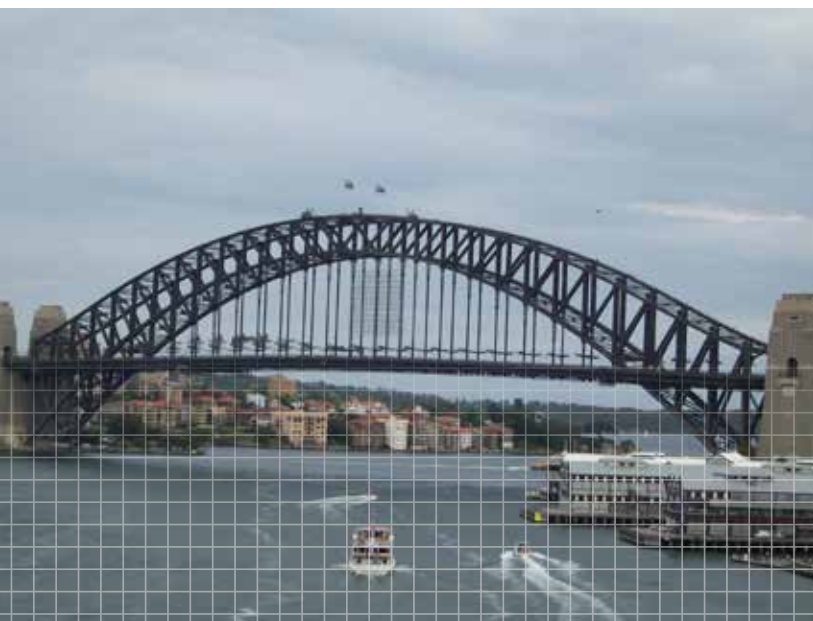
On display were a range of new Campbell Scientific products for the Geotech and mining industry, including our new CRVW3 3-channel Vibrating-wire datalogger, our soon to be released VWAnalyzer (Vibrating Wire Analyzer), the powerful CR6 datalogger with built in Vibrating-Wire, as well as our ground breaking CDM-VW300 Dynamic Vibrating-Wire Analyser.

Representing Campbell Scientific Australia were Daniel Roebuck (Application Engineer), David Hammond (Sales & Business Development Manager) and Robert Kurz (Managing Director) from Campbell Scientific Australia. Also attending was Shaun Dustin, Market Manager for the Structures, Industrial and Geotechnical (SIG) Group at Campbell Scientific Incorporated, Logan, Utah. As well as providing an opportunity to showcase our latest Geotechnical instrumentation, it was a great opportunity to meet face to face with end users of our products and our Value Added Resellers who provide integrated solutions into the Geotechnical industry built around our trusted hardware and software solutions.

CRVW3 - Vibrating-Wire Measurements, Simplified

The CRVW3 vibrating-wire datalogger uses Campbell Scientific's patented Vibrating Wire Spectral Analysis (VSPECT) technology and includes an integrated 900Mhz spread spectrum radio. The CRVW3 can also act as a repeater, and is supplied turnkey in a dedicated enclosure with integrated charging regulator and a battery. Suitable for applications such as borehole pore water pressure monitoring, the CRVW3 simplifies on-site installation by providing a small form-factor turnkey system which is easily configured using our Device Configuration Utility Software.

For more information on the CRVW3 and our other products and solutions for the Geotechnical and Mining industries you can visit our website www.campbellsci.com.au, call 07 4401 7700 to speak with one of our Application Engineers, or email sales@campbellsci.com.au.



OZFLUX

OZ FLUX 2015, HOBART, TASMANIA

David Hammond, Ed Swiatek and Ivan Bogoev from Campbell Scientific recently attended the 2015 Oz Flux Conference held at the CSIRO Marine and Atmospheric Research facility in Hobart, Tasmania. The conference was hosted by Forestry Tasmania who manage the Oz Flux Warra tower, located in the Warra Long-Term Ecological Research area in southern Tasmania.

The Warra Flux tower contains a full suite of meteorological instruments including a Campbell Scientific CPEC200 Closed-Path Eddy Covariance system to measure CO₂, water and energy fluxes. The 80m Warra tower is currently the highest installed CPEC200 measurement system anywhere in the world, and contains a 3-valve module which provides the capability to automatically measure and set the gas analyser zero and span using zero and span gas tanks located on site. The gas tanks, along with the main CPEC200 system enclosure, are housed in a 3 x 3.5m steel container located at the base of the tower, where the site operator has full access to all the measured data stored on the CR3000 datalogger. Currently there is no external communication from the CPEC200 system due to a lack of NextG reception at the site, but a future plan exists to install a radio link from the top of the flux tower to the nearby Blue Hill communication tower, from where data can then be transferred automatically to Forestry Tasmania's computer network in Hobart.



The conference itself was spread over two weeks. Ivan Bogoev attended the Oz Flux Data Processing Workshop during the first week, where he had the opportunity to show attendees our patented IRGASON co-located Open-Path CO₂/H₂O/Sonic sensor, and our Closed-Path EC155 gas analyser supplied with the CPEC200 system. The second week of the conference comprised two days of scientific presentations based on current research from the Oz Flux tower sites around Australia and New Zealand. Ivan Bogoev from Campbell Scientific Inc., Logan, Utah, presented a paper entitled "Instrument-induced biases in open-path CO₂ flux measurements", which detailed the collaborative research undertaken between Campbell Scientific Inc. and the University of Montreal to reduce the differences in measured fluxes between Open-Path and Closed-Path systems by using high frequency sonic derived air temperature measurements to correct for the absorption line broadening effects of Open-Path CO₂ flux measurements.

NEW PRODUCTS

INTRODUCING EASYFLUX™-DL

Oz Flux 2015 also provided an opportunity for Campbell Scientific Australia to launch our new EasyFlux™-DL program for our Open-Path Eddy Covariance systems.

EasyFlux™-DL enables CR3000 and CR6 dataloggers to report fully-corrected fluxes of CO₂, latent heat (H₂O), sensible heat and momentum from a Campbell Scientific Open-Path Eddy Covariance system.

 EASY FLUX-DL



Final fluxes are processed in the datalogger from raw time-series (10Hz) data by applying commonly used corrections found in scientific literature. This negates the need for post-processing software, allowing fully corrected fluxes to be reported at the end of each Eddy Covariance averaging interval.

For further information on EasyFlux™-DL and our range of Eddy Covariance measurement systems, please contact Campbell Scientific Australia either by phone +61 (0)7 4401 7700 or email info@campbellsci.com.au.

NEW PRODUCTS

MET200

MET200 Weather Stations – Professional Weather Monitoring Made Simple

Campbell Scientific weather stations are world renowned for their quality, reliability, flexibility and longevity. Furthermore, they're now easier than ever to deploy thanks to the new MET200 weather stations from Campbell Scientific Australia.

The MET200 Meteorological System recently launched in July 2015 is already proving to be a popular option for clients wanting quality meteorological measurements in a complete turnkey package. Utilising rapid deploy mil-spec connectors for faster field installation, these stations are simple to install, and specially designed to withstand the harsh Australian environment.

With a MET200 system, Campbell Scientific have already done all the hard work for you. Systems are supplied programmed and pre-wired ready for deployment. Simply select your communications and mounting options for the Core Unit at the time of placing your order, along with your sensor choice(s) from the 5 available options. The system will be dispatched to you pre-configured, with all your required mounting brackets for rapid deployment. It really is that simple!

MET200 ORDERING OPTIONS

Core Unit (Required):

MET200

Mounting Options:

- 3M (3 metre Ground Mounting Pole with Lightning Protection Kit)
- TPK (2-3 metre Galvanised Tripod with Guy Wires and Lightning Protection Kit)

Communication Options:

- IP (Next G Modem Kit) e.g. MET200-3M-IP

MET200 Sensor Options

CS215-MET2 – Air Temperature and Relative Humidity
03002-MET2 – Wind Speed and Wind Direction
CS703-MET2 – Rainfall
SP-212-MET2 – Solar Radiation (sun plus sky)
CS106-MET2 – Barometric Pressure

MET200 PakBus Routing and Data Hosting Service

Campbell Scientific Australia is also pleased to announce our new MET200 PakBus Routing and Data Hosting Service.

What is PakBus Routing?

With PakBus Routing, a client configures their LoggerNet software to connect to Campbell Scientific Australia's LoggerNet Server. This IP traffic is then routed through to the clients MET200 weather station, which is pre-configured to connect back to the same LoggerNet server. For a small monthly fee, Campbell Scientific Australia will manage this communications link, to make it simple and easy for clients to directly access their remote MET200 weather stations.



What is MET200 Data Hosting?

For clients wanting a web based interface to view real-time MET200 Weather Station data, MET200 Web Hosting is the solution for you. For a small monthly fee, Campbell Scientific Australia will provide a MET200 web interface, allowing clients to access their data from any computer with an internet connection. For a sample MET200 web interface, click [here](http://weather.campbellsci.com.au/met200) to see live data from Campbell Scientific Australia's MET200 weather station located in Townsville, North Queensland.

For further information on our MET200 Weather Stations and our PakBus Routing and MET200 Web Hosting Services, call 07 4401 7700 to speak with one of our Application Engineers or email sales@campbellsci.com.au.

CASE STUDY

ENTURA

At Entura, the consulting company of Hydro Tasmania, the Resource Investigations (RI) team exclusively use Campbell Scientific loggers and equipment for managing their client's data collection needs in the field.

RI manage a large fleet of Campbell Scientific loggers and associated equipment for multiple clients in a very diverse range of locations around the world. These range from the remote mountains of Western Tasmania, to the jungle of PNG and barren plains of South Africa, Campbell technology is being used by RI daily to meet their client's data collection requirements.

Campbell Scientific loggers and associated equipment provide Entura with very versatile, robust and reliable platforms to ensure the remote site data is collected, collated, stored and transmitted to Entura's and other client databases via multiple communications methods (dial up, FTP, IP pull, landline, radio, 3/4G and satellite networks).

To keep such a large fleet of loggers and equipment in check is not an easy task. The ability of tracking Campbell logger and/or communications scheme changes and knowing what is currently deployed is not always the easiest of processes. Incorporation of any new logger for field sites brings with it inherent risks and requires rigorous QAQC testing before deployment.

Entura has set about alleviating these issues by building a standard Campbell program that works across 90% of sites encountered in the field including geotechnical, hydrometric, water quality and meteorological monitoring. This program has a number of key features to simplify all aspects of the management lifecycle:

1. Wizard like setup of new sites to determine what modems, sensors and reporting methods are required
2. Automated deployment of new programs from a centralised server
3. Push button change from test environment to production environment when new sites are installed in the field
4. Centralised system to automatically track IP addresses, OS versions and program versions
5. Real-time data feeds and control options over encrypted HTTPS channels
6. Secure access via iPads or Tablets to remotely access and configure sites as well as view the collected data

Entura has also built a comprehensive testing facility where sites can be rigorously tested and the data collected compared with calibrated master equipment before deployment. A significant reduction in build times have been achieved through the use of the standardised logger programs as well as through standardised cabinet and wiring layouts, and the quality of installs and the data collected has increased dramatically as a result of the extensive automated testing regime.



In the pictures above are examples of the recent use of Campbell technology at client sites, including a picture of our testing facility at the Entura office in Cambridge Tasmania.



OUT AND ABOUT: SE ASIA VISIT

Our SE Asian region is booming! With a growing economy and an increasing interest in the advantage of instrumentation for commercial development, research or environmental concerns, it is not surprising that our equipment is rapidly gaining interest in this region.

This success has been aided by the opening of our Campbell Scientific South East Asia (CSSEA) office earlier this year in May 2015, which is now benefitting the whole Indochina region (Thailand, Vietnam, Cambodia, Laos and Myanmar).



Campbell Scientific Australia has visited the region twice this year in support of our committed distributors.



DISTRIBUTOR AND CUSTOMER VISITS 27TH OF JULY TO 7TH OF AUGUST 2015

The end of July saw former Managing Director Rob Kurz and Corinne Malot, SE Asian Coordinator, visit our distributors and key customers.

Areas visited were Thailand, Philippines, Singapore, Malaysia and Vietnam and our Indonesian distributor joined us in Vietnam for a catch-up. The time spent in Thailand and Vietnam also couples as a great opportunity to discuss the final handover of the region now being looked after by CSSEA.

Customer visits showed an increased interest in flood warning equipment, especially in countries such as the Philippines, Indonesia and Vietnam which have recently experienced major environmental events.

General weather stations with reliable communication, alongside disaster management equipment supporting fail proof alarming features were also a high priority topic.

A year after our last visit, the growth and increased knowledge of our distributors was significantly noticeable bringing faith in knowing that this region is in good hands for supporting our SE Asian customers through high quality service and advice.

FOCUS ON

SE ASIA CONFERENCE IN BALI 26TH TO 30TH OF OCTOBER 2015

With direct flights from Townsville (CSA headquarters) to Bali opening as of the 1st of September 2015, holding our second annual SE Asia conference in Bali seemed like an ideal choice.

Bali was a perfect destination to discuss how well the region has been performing over the last year and what would need to be implemented in the future to increase our presence and satisfy customer demand in SE Asia.

CSA and CSSEA worked collaboratively towards this event. It was great to see all countries represented this year with the following participants attending:

COUNTRY	DISTRIBUTOR	SPECIALTY
Indonesia	PT Gistec	Geotechnical and Environmental
Malaysia	GDS Instruments	Geotechnical
Malaysia	Surechem	Environmental
Philippines	PT Cerna	Geotechnical and Environmental
Singapore	Wetec	Environmental
Thailand	STS Instruments	Geotechnical
Vietnam	Megatech	Environmental
Vietnam	Geotech International	Geotechnical

Steve Bailey (CSA Managing Director), Gavin Hewitt (CSA Head Trainer), Corinne Malot (CSA SE Asia Coordinator), Thitipong “Jeep” Chindavijak (CSSEA Managing Director), Wasin Suknikom and Nutthanun Chotinavin (CSSEA Application Engineers) coordinated the event by presenting material and offering hands on assistance to all our attendees. Our International Sales Manager – Global Project Coordinator, David Daines from Campbell Scientific, Inc. also made the trip all the way from Logan Utah to meet our SE Asian distributors and provide a very experienced insight on World Bank-type funded projects and how to manage these, a reflection of the globalisation trend our industry is currently being exposed to. His presence and contribution was a great asset to the conference.

The event was twofold with the first couple of days focusing on analysing our successes of 2015, identifying our challenges and suggesting strategic tools suitable for each country. The last two days of the conference saw hands on sales and technical training delivered to our distributor team members with a higher focus this year on communication techniques, advanced programming as well as new products and applications. In between our 2 conference sessions, we decided some team bonding would be welcome. The day saw us take a bus to visit some of the many wonders of Bali. The day was a huge success with great company, beautiful scenery and craftwork, and of course a little bit of fun thrown in.

The camaraderie between all of our representatives was contagious and made the event a real success and pleasure to attend. CSA would like to thank all attendees for their contribution, dedication and personal involvement in our collaboration towards representing Campbell Scientific products, services and culture within SE Asia.

Hope to see you all again next year!

LOGGERLINK

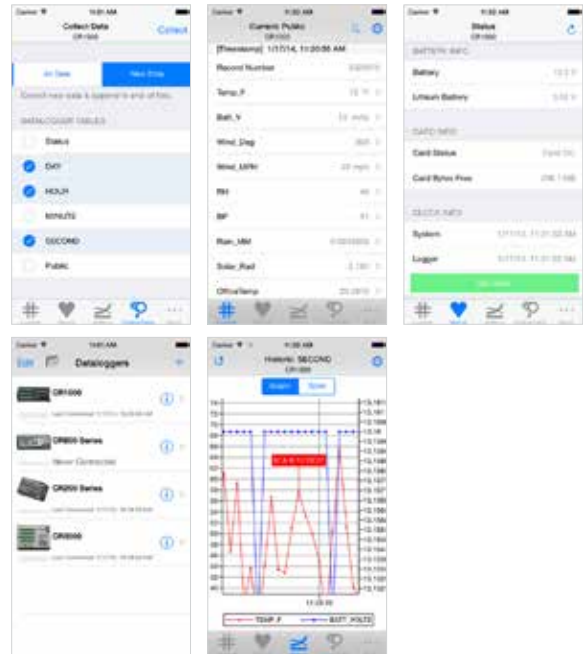
LoggerLink mobile apps are now free of charge and available through the Apple Store or Google Play.

These apps are simple yet powerful tools that allow an iOS or Android device to communicate with your IP-connected datalogger anywhere your mobile device has a data connection. LoggerLink Mobile App for Android also supports Bluetooth communication.

LoggerLink packs a surprising number of features into a mobile application. Specifically, you can:

- View real-time data
- Graph historical data
- Collect data
- Set variables and toggle ports
- Check important status information about the health of the datalogger
- Perform field maintenance such as send program, set clock
- Manage files

Whether you prefer the versatility of a tablet or the portability of a smartphone in your pocket, LoggerLink allows you to get your data in the field or remotely. Why carry around a phone and laptop computer when you can have the convenience of carrying one device?



TE525 METRIC OR IMPERIAL?

TE525 FUNNEL

For your ET107 station, we give you the choice between an imperial (0.01 inch increment - TE525) or a metric (0.1 mm increment -TE525MM) version for your tipping-bucket rain gage.

The two versions can be differentiated by the funnel shape as illustrated in the drawings to the right:

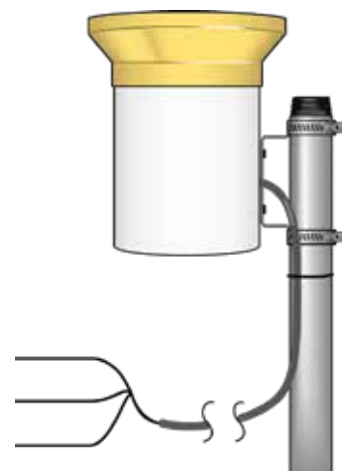
If you need to replace your funnel, please make sure you tell use if you have an imperial or a metric version of the TE525.

Here are the replacement part numbers depending on your version:

1. Imperial version (0.01 inch): 30278 - Replacement Funnel/Collector with Screen and Snap Ring for TE525
2. Metric version (0.1 mm): 30279 - Replacement Funnel/Collector with Screen for TE525MM.



TE525-L
(0.01 inch increment)



TE525MM-L
(0.1 mm increment)

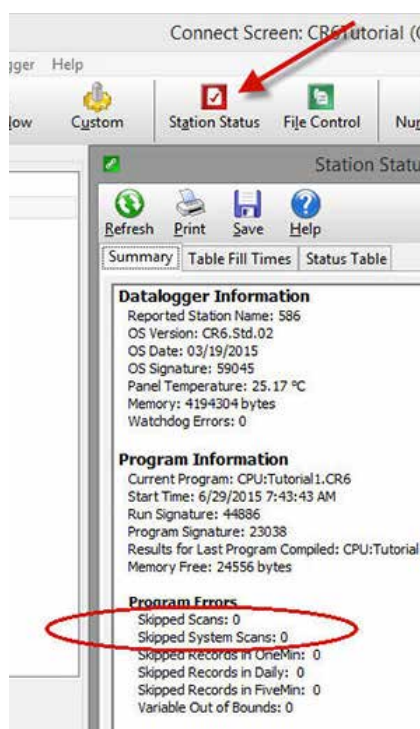
TECH TIP:

DATALOGGER SCANS

Does summertime make you think of skipping? Skipping stones on a cool lake, skipping rope with friends, or skipping through cool grass in your bare feet? Ah, if only datalogging was so carefree.

Your datalogger's program runs on a precise interval called a **Scan**. If your scan interval is set to five seconds then your datalogger will wake up and run its program every five seconds, exactly five seconds, synchronized to the datalogger's clock. What happens if your program takes longer to run than five seconds? The datalogger will complete the instructions in its program then wait until the next scan to run again. It skips the scan it missed the start of. In that instance it will be ten seconds between scans.

Your datalogger's **Status** table counts these skipped scans. Looking at the Station Status Summary you can see **Skipped Scans** and **Skipped System Scans**.



Parameter Type	Value	Comment
ScanInterval	1	
ScanUnits	Sec	
BufferOption	0	
Count	0	

Skipped System Scans

Your Campbell Scientific datalogger automatically updates its calibration factors in the **system scan**. When the system scan skips, the datalogger will try to repeat that step of the calibration process next time around. This simply extends calibration time. The **LastSystemScan** in the Status Table reports the time of the last automatic calibration.

Skipped Scans

You'll notice that these skipped scans occur under the **Program Errors** heading. Skipped scans result in skipped measurements, which affects how much data is included in your output processing, such as **Average()**, **Maximum()** and **Minimum()** calculations. Particular attention should also be paid to **Pulse()** measurements configured for frequency output.

When possible, adjustments to your datalogger program can eliminate or reduce skips. If the datalogger is running in sequential mode, look for unnecessary instructions or programmer-adjustable delays. When those cannot be reduced, the program scan interval should be increased. For programs running in pipeline mode, an increase to the number of scan buffers (using the **Scan()** instruction's **BufferOption**) should help.



MEET OUR STAFF:

NATACHA

Natacha has been a part of the operations team at CSA since July 2013. She grew up in Valence (France) and has lived in several parts of France before moving to Paris for her degree.

She studied environmental sciences and project management before starting at Campbell Scientific France as an Application Engineer. After a few years, she left Campbell Scientific to start a new job at AREVA as a Scheduler for the EPR nuclear power plant. Natacha worked for 2 years on the processes, instrumentation and control schedules for EPR tenders before deciding that she wanted a change of scenery. She certainly found her change – she moved to Australia.

Natacha is currently working on process optimisation and quality systems at CSA. In her spare time, she enjoys mountain biking, swimming and BBQ's around Townsville.