Unidata Newsline

Unidata Newsline No. 1, April 2005

Exciting developments at Unidata

Unidata have been servicing the hydrographic and general environmental sciences industry for nearly 30 years. Now, a company restructure signals an exciting year ahead.

In the first edition of what will be a quarterly newsletter, we announce the long-awaited release of Starlog Version 4.0 and give details of product upgrades that are currently underway. We are also pleased to announce the appointment of Measurement Engineering Australia (MEA) as the major Australian distributor (excluding Western Australia) for Unidata products, and we profile one of our many different users.

A new company formed

Following a period of administration for Unidata Australia in early 2004, a new company, Unidata Pty Ltd, was formed with NIWA (the National Institute of Water & Atmospheric Research, New Zealand) as the major shareholder. Since that time, we have focused our energies on re-establishing the company by:

- restoring traditional product manufacturing,
- addressing quality control and documentation issues, including EMC compliance and C tick accreditation for products,
- rebuilding customer confidence in the company and its products.

We are well on the way to achieving these aims, and look forward to a bright future building on the history of a proud Australian manufacturer of data loggers and associated instrumentation based in Perth.

Focus on excellence

The new Unidata will continue to:

- strengthen its manufacturing capability – ensuring its products fully meet compliance and quality control standards,
- provide excellent support to our customers,
- invest significantly in research and development to deliver new, high quality, innovative products.

We are delighted to announce the launch of StarLog Version 4.0, a windows-based software package providing operational support for the Unidata range of loggers. As you will see in the following pages, we have already initiated upgrades to some of our other major products, and you can look forward to these coming on to the market shortly.

In addition to this newsletter, we will be upgrading our website and our product catalogue over the next couple of months, so watch out for these changes. We will also be making a concerted effort to get out and visit all our clients within the next few months, and we plan on participating at the OzWater Convention and Exhibition in Brisbane in May.

A major focus of the new Unidata's philosophy is to build closer relationships with all our customers and to ensure that we provide new and innovative products, technologies, and services to support environmental monitoring. We look forward to telling you about our new products and services, but if there is anything you are not being provided with, please let us know.

So, welcome to Unidata Pty Ltd, and an exciting and fulfilling future together in environmental monitoring!

M. James

Mark James
General Manager

Unidata and the rise of Measurement Engineering (in) Australia

New technology often makes new applications possible, and these in turn breed new companies. If ever there was a company that relied on being 'clever' for its very existence, that company is MEA (Measurement Engineering Australia). And the technology it piggybacked into existence on was the data loggers built by Unidata in Perth.

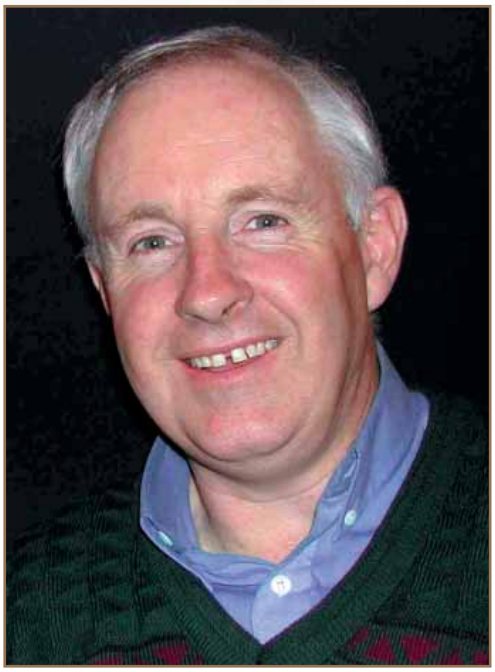
MEA was founded in 1984, when data loggers were only just beginning to appear in the environmental measurement market. Data loggers rely on computers and computer-style technology, so the half-dozen Australian companies that drove the Australian surge in data logger development in the early 1980s arose in part from the arrival of the IBM PC. This machine brought computing power out from behind closed doors, where mainframe computers were tended by their own high command, on to the desk tops of hydrographers, scientists, and researchers of all breeds.

The PC revolution and the art of data processing were fuelled as much as anything by such software innovations as 'spreadsheets', hitherto unknown. Data loggers were the low-cost alternative to the old chart-recorder, audiotape, and punched paper-tape technologies then doing service in remote data collection applications.

In Australia, data loggers sprang up largely to answer the needs of the hydrographic industry, which was looking for low-cost, low-power measurement systems capable of measuring water level, interpolating flow, and monitoring rainfall. Measurement of water quality followed years later when more sophisticated technologies had been developed.

... the arrival of the IBM PC brought computing power out from behind closed doors on to the desk tops of hydrographers, scientists, and researchers ...

Twenty to thirty years on, the remnants of the Australian data logging industry face competition from overseas products and the winds of technological change. Three successful Australian data logging companies remain, and only the Unidata data logger has stood the test of time, despite some commercial traumas in recent years. One of the reasons for that survival was the odd and informal alliance between the founders of two independent Australian companies, Ray Godley at Unidata and Andrew Skinner at MEA. The former strove for flexibility and low cost in his data loggers. The latter used that flexibility to scout unknown territories in the use of data loggers outside the entrenched hydrographic market.



Andrew Skinner

MEA has engineered measurement systems based on Unidata loggers for 21 years now, and has been a key player in the Australian wind energy industry, soil moisture and climate measurements, and a myriad other applications mentioned in their MEA logbook at www.mea.com.au/logbooks/logbooks.html

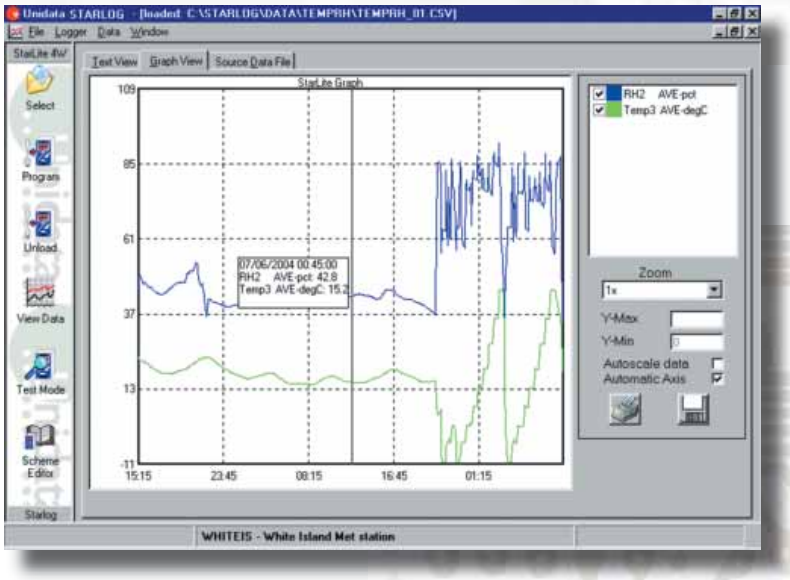
Today, that alliance has at last been formalised by Unidata and its major shareholder, NIWA in New Zealand.

NIWA have recognised that data loggers and software are complex technologies that require high-level technical support to successfully convert a potential sale into a real measurement system. Only one company on the Australian corporate landscape has consistently stayed focused on data-logger-applications-support as a vehicle for growth, and that company was already using the excellent data loggers from Unidata.

The company is, of course, MEA – newly appointed as Unidata's Australian agent outside Western Australia.

Starlog fully revised and Windows compliant

Unidata is pleased to announce the eagerly awaited release of Starlog Version 4.0 data logger support software. This new Windows-based software will send the workhorse version 3.0 into well deserved retirement.

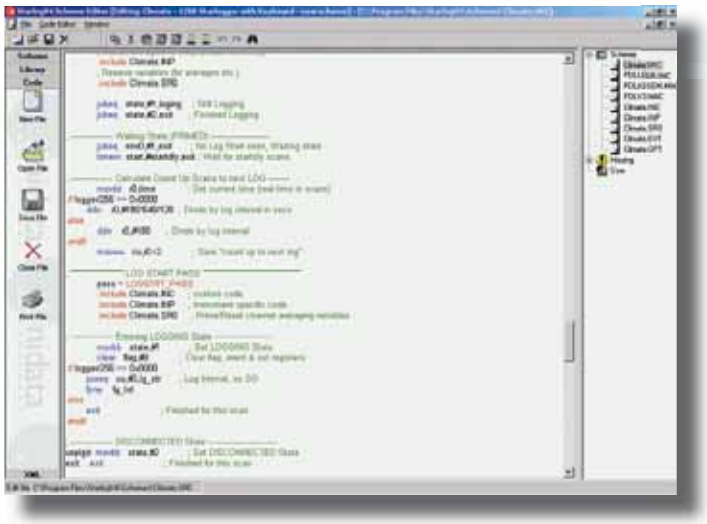


The faithful Starlog Version 3.0 has served us well, but we have been working hard behind the scenes to develop a revitalised, fully Windows-compliant, product. The new software will be released officially in May after a period of beta testing.

Starlog 4.0 will be feature rich and will have several new components that will optimise the performance of your data logging system.

The new software will be intuitive and easy to use, with the following features:

- a powerful scheme creation wizard and editor with multi-buffer support,
- a comprehensive instrument library for the easy integration of a wide range of common devices into your scheme,
- specialised setup windows for system developers to create complicated schemes,
- an explorer tree for browsing archived data by scheme name, with drag and drop functions,
- a powerful drag and drop function to define open channel cross-sections,
- stage-to-flow computation,
- a volume proportional sampling extension,
- a real-time test mode,
- intuitive graphing and data presentation tools,
- new connectivity and alarm options,
- backward compatibility with version 3.0 schemes.



The CDT editor was replaced and the logger treated as a separate instrument; normal CDT parameters such as SDI-12 mode, RS232 timeouts are set more easily.

Starlog 4.0 will be a worthy replacement of its predecessor. Contact us for a new product brochure.

Product updates

The following product upgrades will be available over the coming months.

Precision water level instrument – Model 6541B

- upgraded to new microprocessor technology,
- uses less power and extends battery life,
- allows a choice of additional output options, such as SDI-12,
- features improved PCB design to aid manufacturing and serviceability,
- retains the existing form factor.

ETA: third quarter 2005

Prologger version 3.5 – Model 7001B

- upgraded power supply,
- enhanced data security through non-volatile memory,
- increased reliability through the use of new surface mount (SMD) circuit boards,
- new communications options (GPRS and others),
- complies with the latest standards for electromagnetic emissions,
- improved manufacturability and serviceability.

ETA: third quarter 2005

Starlogger version 3.5 – Model 6004D

- improved non-volatile memory,
- increased reliability through SMD implementation,
- new communications features (GPRS and others),
- complies with latest standards for electromagnetic emissions and susceptibility, with improved input/output protection,
- improved manufacturability and serviceability.

ETA: third quarter 2005

Four electrode conductivity instrument – Model 6536D

- improved internal battery power connection,
- twice as many analog instrument input channels,
- improved non-volatile memory,
- increased reliability through SMD implementation,
- improved manufacturability and serviceability,
- complies with latest standards for electromagnetic emissions and susceptibility, with improved input/output protection.

ETA: second quarter 2005

Starflow ultrasonic Doppler instrument – Model 6526D (phase 1)

- redesigned instrument housing,
- improved non-volatile memory,
- new stainless steel pressure transducer,
- SMD-based technology,
- new Kevlar-reinforced vented cable,
- new Windows-based user support software,
- updated user manual and support documentation,
- improved manufacturability and serviceability.

ETA: fourth quarter 2005

Starflow ultrasonic Doppler Instrument – Model 6526D (phase 2)

- incorporates phase 1 benefits,
- redesigned ultrasonic front end to improve performance,
- improved reliability through redesigned instrument housing,
- upgrade to new microprocessor technology,
- multiple drop instrument support,
- improved connectivity and support for third party loggers,
- improved output options,
- redesigned housing as smaller package,
- intrinsically safe option.

ETA: third quarter 2006

Software and support documentation

With the ever-changing technology of desktop pcs and field computers, Unidata will soon supply all instrument software and support documentation, such as user manuals, on CD-ROM. Printed copies of user manuals will still be available on request or can be downloaded from our website [www.unidata.com.au].

Asset Monitoring Services, WA Water Corporation

by Jacquie Bellhouse
Engineering Hydrographer
Asset Monitoring Services

Asset Monitoring Services (AMS) was established within the Perth Region Customer Service Division to undertake data collection to support the planning and operation of Water Corporation assets. It specialises in hydrographic and environmental data collection and monitoring. The group has a long history of achievements in the industry through its previous association with the Water Authority of Western Australia and the Public Works Department of Western Australia.

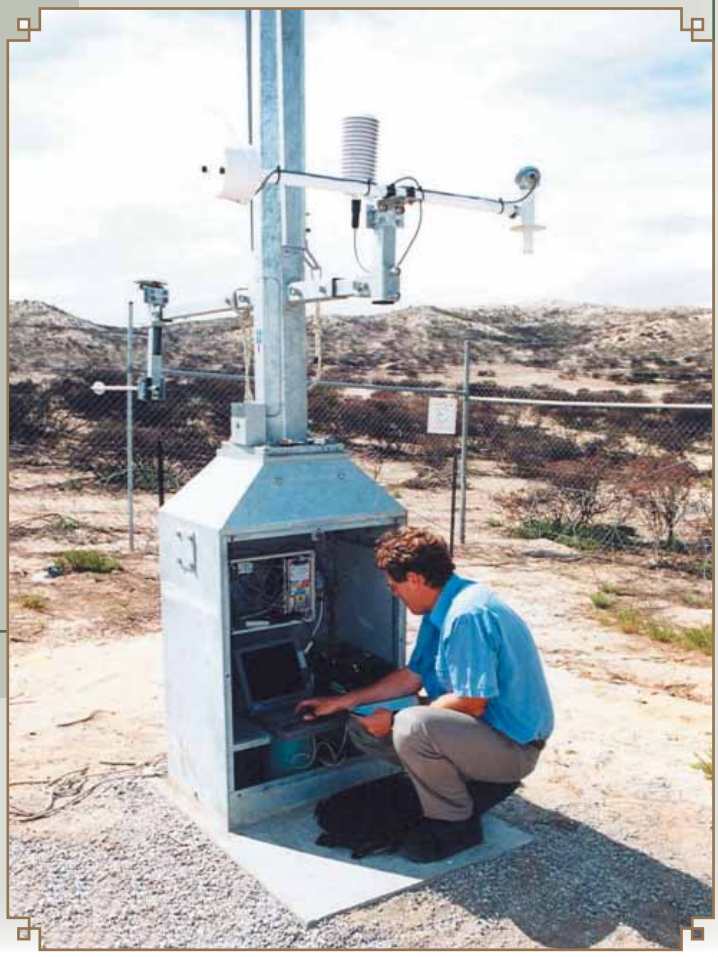
AMS operates and maintains more than 450 current model instruments supplied and supported by Unidata

Asset Monitoring Services employs a number of permanent staff and specialist contract staff. It also maintains an extensive network of specialist suppliers, including analytical laboratories and instrument repair/calibration facilities.

The group also maintains a large instrument and equipment asset base, with a long association of using the Unidata range of products. At present, AMS operates and maintains more than 450 current model instruments supplied and supported by Unidata. Over half of these are Unidata data loggers.

At present AMS, has data loggers deployed at more then 120 field locations spread across WA, from Kununurra to Esperance and across the Perth metropolitan area. Station types range from pump activity, flow gauging, and rainfall to multi-parameter automatic weather stations (AWS). To date AMS has collected over 1500 station-years of continuous data using the Unidata range of loggers.

All Unidata loggers maintained by AMS use a custom version of Starlog Version 3.



AMS Senior Hydrographer Gary Bruecher at one of the 19 automatic weather stations operated around WA using Unidata loggers.

NIWA Instrument Systems

Monitoring artificial wetlands

How can we measure the effectiveness of artificial wetlands in reducing agriculture drainage pollutants (nitrogen, phosphorus, and faecal microbes)?

A constructed wetland in the Bog Burn catchment in Southland, New Zealand, is one of three being studied by NIWA's aquatic pollution group. The study is funded by the NZ Dairy Research Institute (now part of Fonterra) and conducted with AgResearch.

The wetland, complete with instrumentation, was finished in 2003. Instruments at the site record the total flow from a tile/mole drain that feeds water to the wetland, the portion of this flow that is received by the wetland (the inlet flow), and the wetland outlet flow. During winter some of the flow from the drain may bypass the wetland. Automatic samplers at the inlet and outlet are controlled by the station data logger. Loads of nitrogen and phosphorus entering and leaving the wetland are estimated from the flow information, and nitrogen and phosphorus concentrations are determined from the samples collected.

The instruments were configured and programmed by NIWA's Instrument Systems group and were installed by a NIWA field team.

The tile drain inlet and outlet flows each pass through individually calibrated flumes. A Unidata encoder at each flume senses the stage and a Unidata Starlogger reads the signals from the three encoders. The logger estimates the flow for each flume by applying the respective stage/discharge relationships. Flows at the inlet and outlet are integrated over time, and Manning automatic water samplers are triggered whenever pre-set inlet and outlet volume thresholds are exceeded.

Mean concentrations of nitrogen and phosphorus over a sampling period are determined. The use of a volume-proportional based sampling programme allows a mean concentration to be determined by a single analysis of the combined samples. The mean load of nitrogen or phosphorus entering or leaving the wetland is the product of the mean concentration and the corresponding mean flow.

Quantities recorded by the logger every 5 minutes, and whenever a sample is taken, include:

- stage and flow at the tile drain inlet and outlet points,
- accumulated volume at the inlet and outlet points,
- bottle numbers for the two samplers,
- battery voltage.

Data from the station are retrieved via a digital phone modem.

Looking along the wetland, before planting.

The tile drain and inlet flumes, stilling wells, and encoder housings.

Introducing Unidata

Mark James – General Manager, Mark has a PhD and 26 years' experience in aquatic research and consulting. He is also the Director of Operations for the National Institute of Water & Atmospheric Research, a technology-driven innovative company with over 600 employees based in New Zealand. He has worked extensively throughout Australasia, Antarctica, and parts of Europe on ecosystems where environmental monitoring is a key component. He is committed to restoring Unidata as a leading environmental instrumentation company which creates new technologies, quality products, and systems which meet client needs.

Nick Efthyvoulos – Operations Manager Nick has 23 years' experience as an electronics engineer and has enjoyed being part of the management team at Unidata for the past four and half years. With a personal interest in business, research and development, and customer support, Nick is well positioned to lead the team at Unidata into an exciting era where new product and technologies are introduced and a world class level of service is achieved.

Matthew Wall – Sales Coordinator Matthew is a new member of the team, and since beginning with Unidata in June 2004 he has brought with him 15 years' experience as an instrument technician and an interest in environmental monitoring which he discovered whilst employed as an airborne geophysical survey operator. Customer service is high on Matt's list of priorities.

Elena O'Neill – Finance Administrator Elena has been part of the Unidata team for the past 5 years and thoroughly enjoys the interaction with customers. Always having a smile on her face, and the occasional laugh with our customers, she brings a warm, fun-loving feel to her professionalism.

Dale Kemp – Software Engineer Dale has been in the software business for 17 years after graduating from university and has been instrumental in the development of the Crossramp server technology. Dale is dedicated to stretching his skills over many programming languages and keeping current in new software developments, yet still finding time to learn something different, the bass guitar.

Adam Baldwin – Software Support Adam is also new to the company and since beginning with Unidata in June 2004 he has been an important part of our team. Coming from the UK, Adam has brought 10 years' experience in firmware programming across several languages and experience as a high school maths teacher, perfect credentials for assisting customers with firmware support.

Rob Symmans – Hardware Engineer Rob began his employment with Unidata 12 months ago and has brought with him much practical engineering experience. Being employed in engineering roles across many different projects, from orbital engine applications to medical laser systems, Rob has a wealth of electronics experience and a sharp sense of humour; he always keeps us on our toes.

Richard Lehman – Service Manager Richard is one of the most experienced technicians in our team. After working with Unidata for the past 8 years he is a gun technician and there would not be too many situations where Richard could not nut out the problem. With an interest in product design and development he is a great asset to our engineering team. Richard is currently studying mathematics to sharpen his skills.

(Left to Right): Matthew Wall, Nick Efthyvoulos, Ines Mikulic, Bill Cutler, Kendrick Htay, Elena O'Neill, Damien Head, Adam Baldwin, Rina Burrows, Vinko Jelicic, Rob Symmans, Richard Lehman, Dale Kemp, Paul Trinidad, and Vic Varischetti.
Inset: Mathew Dear.

Mathew Dear – Service Technician Mathew has been an important member of the team for close to 3 years. Starting as a member of our production team, he has moved up into the service department. Always keen to help customers with technical questions and looking for new ways to use our products, he is a credit to the industry. Mathew is currently studying environmental sciences at TAFE to add value to his practical electronics skills.

Vic Varischetti – Production Supervisor Vic is one of the company veterans. He has been part of the production team for the past 27 years. Starting his trade apprenticeship with Unidata as a machinist, Vic has been with the company through the good and bad times. Being so experienced in the manufacturing processes of Unidata products, Vic has recently stepped up into the management role. He is a credit to our company and has a good rapport with his production team.

Vinko Jelicic – Instrument Technician Vinko has been part of our manufacturing team for the past 2 and half years and is experienced in the manufacturing processes for most of our products. Being a valuable contributor to the production team, he is highly respected for his quality of workmanship and his productivity. With family in Europe, he has been studying German for the past three years.

Kendrick Htay – Instrument Technician Kendrick has been a member of our production team for the past 3 years and is predominantly the sole manufacturer of our Starflow product. He completed his diploma of electronic engineering at TAFE and has been in the employ of Unidata since. He is a well respected member of our staff.

Rina Burrows – Instrument Technician Rina has recently become part of the production team and has brought with her a wealth of electronic assembly experience. Being in the industry for the past 10 years has made her a highly productive technician. Rina had previously managed her own business in component assembly and has completed a diploma in business management.

Paul Trinidad – Instrument Technician Paul is another new member of the production team and has brought with him 5 years of electronics experience. Paul is currently studying electronics communications at university and holds advanced diplomas in electronics engineering and computing systems.

Bill Cutler – Machinist Bill is another longstanding veteran of the Unidata family. Being with the company from its conception, Bill has been a faithful member of our production team for 27 years.

Ines Mikulic – Purchasing Coordinator Ines began with Unidata as an instrument technician with the production team 2 and half years ago. Having an eye for detail, she has recently taken up the role of materials procurement. Ines is a highly respected contributor to the team and is often seen training our junior staff in the highly technical aspects of instrument manufacturing.

Damien Head – Despatch Damien has been Unidata's storeperson for the past 18 months, and having previous experience in the freight industry he is always striving to ensure product is consigned in the most efficient and reliable manner, watching the purse strings so the customer doesn't pay to much in freight costs.

Contact us

This newsletter will be a quarterly publication bringing the industry news of the various projects that Unidata is undertaking, as well as stories from users.

If you would like more information on any of the material in this newsletter, or would like to contribute, please contact our customer service department.

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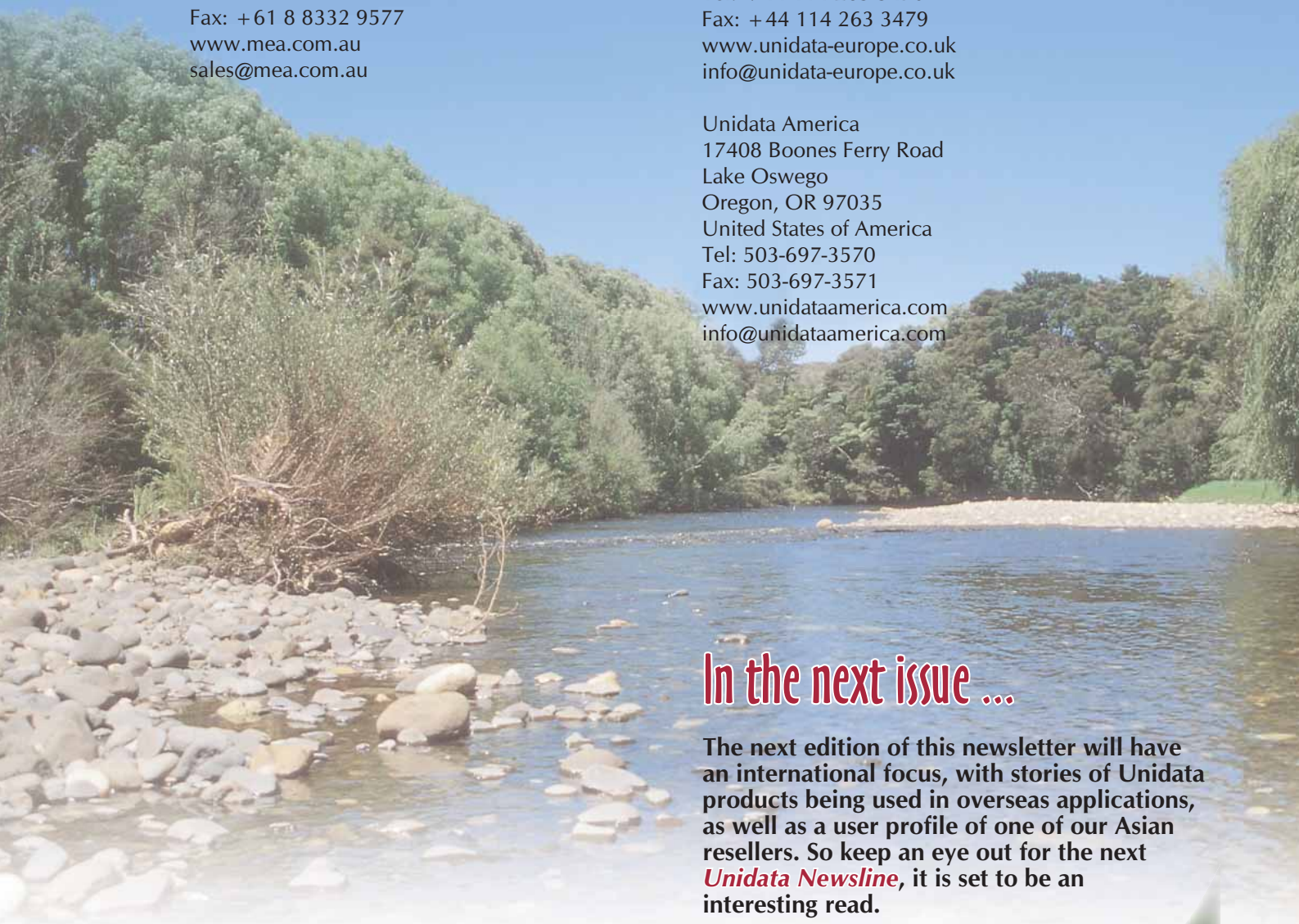

In the next issue ...

The next edition of this newsletter will have an international focus, with stories of Unidata products being used in overseas applications, as well as a user profile of one of our Asian resellers. So keep an eye out for the next *Unidata Newsline*, it is set to be an interesting read.