

# DIMENSIONS

## WATER LOGGED

Its been a big year for the Ports of Auckland Ltd, from preparing for the America's Cup races to changing their software. *Dimensions* speaks to Dave Hoskins, Port Hydrographer.



*Wharfside redevelopment*

The city of Auckland, New Zealand, lies on a narrow isthmus with Waitemata Harbour to the east and Manukau Harbour on the west. Ports of Auckland Ltd (POAL), NZ's largest port company, operates from offices in downtown Auckland, on the Waitemata side. As the busiest commercial port, Auckland is also home to one

of the world's largest fleets of recreational craft.

POAL employs a team of three hydrographic surveyors to conduct all survey operations and a range of ancillary tasks such as maintaining navigation aids, port planning, environmental monitoring, and commercial surveys. The wharves around the commercial port are surveyed annually, while channels and approaches are surveyed three yearly.

Until recently, the team had been using Trimble's Hydro software for all of its surveying tasks. However, a requirement to routinely handle larger data sets (greater than 100,000 points) and a desire to be able to do more sophisticated modelling and design work, led to a search for a new software suite. After extensive searching and evaluation, the surveyors selected GeoNav combined with Terramodel and TerraVista.

"We see the advantages of this system to be cost effectiveness, flexibility and the ability to produce high quality charts," says Dave Hoskins. "TerraVista will enhance our graphics capabilities and improve our presentations."

The surveyors were impressed with the speed and power of the system in volume calculations and channel design. "We'll be able to work more efficiently because it will be quicker to process databases," explains Dave. "Until now, it could take half an hour or more to calculate volumes,

**but the new system allows us to make these calculations with a couple of mouse clicks."**

Quicker, more accurate volume calculations mean easier design work. "We can now undertake more design work ourselves and offer this as a service to clients," says Dave.

The new system will be phased in over the next few weeks as the team comes to grips with its operation. Existing data from the previous system can be easily merged with new data, so preserving its historical value.

*America's Cup yacht berths*

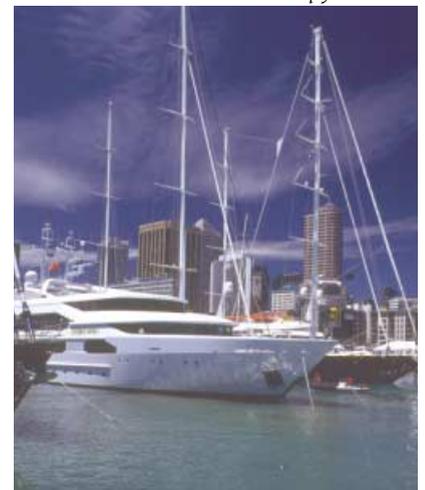
### The America's Cup Project

To accommodate the eleven competing syndicates and up to 60 visiting superyachts, the Viaduct Basin area was redeveloped into a superb, purpose-built facility.

The POAL were retained to do the hydrographic surveying, undertaking more than 50 surveys over 15 months. To make way for vessels up to 60 m long and drawing up to 5 m, 250,000 cu.m. of silt and sandstone were dredged. Some of the dredged material became fill for reclamations which form the syndicate bases.

The Challenger series began in October and will finish in early February. The winner of this series will then challenge Team New Zealand in the America's Cup Regatta from 19 Feb to 4 March.

"There are thousands of people visiting the Viaduct Basin area," says Fiona Wright, one of POAL's hydrographic surveyors. "With all of the competing syndicates, the superyachts, and the new bars, restaurants and apartments, there's a fantastic atmosphere wharfside."





## New release

### GeoCalc Version 4.20

Released November 1999. Includes new GDA parameters. This version can be downloaded free from our web site.

## Coming up in 2000

### Geocomp Version 10

Anticipated release first quarter 2000. This will include an increase in the maximum number of points to 131,000 and 99,999 DTM points. There are also some important changes to the road design module.



### Terramodel Version 9.7

Anticipated release second quarter 2000. This will include a new data collector interface. Currently finalising beta release.

### GeoNav

Development of Windows GeoNav.



The Directors  
and Staff at  
**GEOCOMP SYSTEMS**  
wish all  
Dimensions readers  
and their families  
a safe Christmas  
and a prosperous  
New Year



## Triangulation-based volume calculation

Surveying Australia Sept 1999 published a paper by AVT Kudowor and G Taylor of the Department of Geomatics, at the University of Newcastle, explaining why triangulation is used for volume calculations between surfaces.

The paper considers three main volume computation methods.

### Simple prisms

This is used by both Geocomp and Terramodel. It gives accurate net volume between two DTMs.

### Isopachytes

This determines a triangulated surface from the height differences between the points in the two surfaces. The volume is computed between the determined differences surface and a zero datum.

This method gives a reasonable cut and fill estimation where the surface elevation does not change rapidly.

This method can be used in Terramodel and in Geocomp, using options such as SDS240.

### Complex prisms

Every triangle intersection is considered. While it is accepted as the ultimate method for volume estimation, few programs have implemented it because of the amount of processing required and the computer resource costs.

Since Version 9.5, Terramodel uses this method by default. Check that in your Link Settings you do NOT have "Quick isopach generation" enabled, otherwise Terramodel will use the isopachyte method.

This paper would have been more thorough had they compared end-area methods and considered the effect of breaklines on triangulated surfaces, issues both Geocomp and Terramodel consider.

However, it is worth reading as it does present an overview of the principles of volume computation from triangulated surfaces.



## On the road

Paul Fulton has been on the road in Asia again. He spent two weeks in Malaysia, Hong Kong, Korea and Japan. Paul photographed our Japanese distributor, Masamichi Bisaka from Kawaso Electric Industrial Co., reading Dimensions in a public place.

## Y2K bug

Geocomp 9.13 is Y2K compliant. For further information regarding Geocomp and Terramodel's compliance, please see our web site at: [www.geocomp.com.au/y2k](http://www.geocomp.com.au/y2k)

## Sports report

The final of the Allan Van Tennis Challenge saw Geocomp Systems defending their trophy against the in-form team from Bosco Jonson.

Bob Jonson and Andre Fijan finally defeated the former champions, Geocomp Systems' Brad Quick and Jerry Cresp, in a tie-breaker.

Having already recovered from this devastating loss, Brad and Jerry are planning next year's comeback.

## And over at Kingston Heath

In a force nine gale with sideways rain, the ACSV/LTO Golf Day raised \$2,475 for the Anti-Cancer Council. Geocomp Systems' Jerry Cresp was proclaimed to be the Overall Winner. The ASCV defeated the LTO and reclaimed the perpetual trophy.

# EXPERT ADVICE



*Our technical experts add these tips to your files*

## Terramodel hint

If you are using IMPORT to bring in an ASCII file, as well as selecting the file format, you can also geographically limit the imported data. Simply create a closed pline defining the region and note the record (object) number of the pline. When you run IMPORT, enter the record number in the pline filter field.

## Dynamic links to text files

If you have text in your data that may change during the project—perhaps blocks of text that might need later editing—you can link to that text. Also, since many projects can reference the same text file, you can

use it for setting a common date or disclaimer on a set of plans

In Geocomp, "Add text from file" in SDS92. In Terramodel, enter \$File:path/filename.txt anywhere in any text entry field. Simply refresh to display edits to text files. Subsequent plots will also reflect the changes.

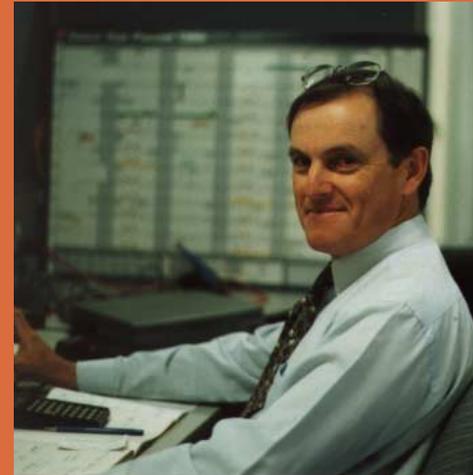
## Extra support

If you hadn't noticed already, there have been changes to our Geocomp web site ([www.geocomp.com.au](http://www.geocomp.com.au)) recently.

We have a lot more content including a recently extended support section with current Geocomp Manuals, shape files, TML list, notes about co-ordinate transformation and a new members-only section.

Come and look, there are even back issues of *Dimensions*.

## STAFF PROFILE



**“Hello Jerry?  
I’ve got a problem ..”**

Jerry Cresp studied Civil Design (Engineering) and his work included a position with Warrnambool City Council. After joining Geocomp Systems, he spent a year in England keeping in touch with our UK clients.

**Q.** Why is contact with the customer so important?

**A.** It's the most effective way of becoming familiar with each customer's business. Geocomp is a small company, so we can respond much more quickly to our clients' problems or changing needs than a large software company could.

**Q.** And you have a hand in r and d?

**A.** Yes, and its exciting working on the cutting edge of technology for both us and our customers. We are always searching for ways to make our software more useable.

**Q.** But how do the training sessions fit it to this?

**A.** I'm one of Geocomp's 3 trainers. Often new impetus comes from existing clients and ideas bubble up during our sessions. We follow up with further investigation and testing, working closely with our clients.

Anyone who has seen Jerry Cresp the sportsman in action has witnessed the intense determination that he can apply to a task. Jerry is also one of Geocomp's longest-serving employees.

## WEB SITES

Entry to secure section of Spectra Precision's web site  
This site gives you access to updates and tips that you cannot get anywhere else.

To access the site, go to <http://www.geocomp.com.au/support/cc> and enter your licence details.

Programmer's File Editor: great for editing data files, and it's free  
<http://www.lancs.ac.uk/people/cpaap/pfe/>

Check your HP-GL, HP-GL/2 or DXY-GL plots by displaying them before you plot them  
<http://www.czechia.com/anovy/index.htm>

TC Fonts: suppliers of SHP and SHP fonts you can convert to FNTs  
<http://www.tcfonds.com/>

Adobe Acrobat Reader 4.0 for reading TM and Geocomp manuals  
<http://www.pacific.adobe.com/prodindex/acrobat/readstep.html#reader>

## PIC-A-CAP

Thanks to the many who sent entries to our first Pic-a-cap competition.

Our expert judging panel deliberated for some minutes, judging the winner. Special mention was made of "Watch out! I can't hold it up much longer" from Carla de Goede.

The winner is Don Phillips of Ararat Rural City Council for this animated entry. Don will be off to the flicks this holiday season with his prize of 10 movie passes. Look out for Pic-a-cap in our next issue.

Everyone,  
stand back!  
It's cocking its leg!



# IN ACTION

## ALL IN ONE PACKAGE

**“I couldn’t use a computer four years ago,” says construction surveyor Steve Waters, who now relies on this technology to run his business, SP Site Setout.**



“There’s an extraordinary amount of building work in Sydney at the moment,” says Steven. “My contracts have included high-rise buildings and lots of volume calculations in and around the city. I’m working on an industrial estate at Cashula, setting out roads, building pads and services for contractors John R. Burton.”

Among other projects, Steve spent two years as the Senior Surveyor for the new British Library in London and more recently he was contracted to Multiplex as Site Surveyor on Sydney’s Olympic Stadium.

### The main ingredients

Steve uses a fully robotic Geodimeter 600 Pro, totally integrated with Terramodel 9.6.

**In very little time, he developed procedures to use his technology to its fullest capabilities.**

“Architects’ drawings these days are so complex you need to use a computer to set them out,” Steve explains. “I upload the drawings straight into Terramodel which sets out exactly what the architect has designed. Then I manipulate the files and upload the whole lot into a theodolite.”

All sub-contractors that he uses run Terramodel. “I’ll do a field survey as accurately as possible, then email it straight to the client and they can begin

design work immediately,” Steve says. “Or, I can overlay the new data onto the original plans to see where changes have been made.”

Steve’s work in volume calculations has grown enormously. “It’s my bread and butter ... I can record about 2000 shots in 6 hours (or about 1200 full detail shots). Once it’s set up, Terramodel takes about 10 minutes to make the volume calculations, and then I can manipulate the volumes straight away.”

“I produce very detailed reports to clients, just using Terramodel and the instrument.”

**“Because I spend nearly all of my time on-site, I get through an amazing amount of work.”**

Steve taught himself to use Terramodel. “If you know basic Windows, then you can learn it easily,” he says. “Learning what the computer needs to know is the key, and that took a day.” Learning to do ‘vol calcs’ required an additional day.

### Planning for the future

Steve bases the future of his business on the speed and flexibility of Terramodel. “I carry a laptop with Terramodel in my vehicle, so I can give clients their results on-site,” Steve says, then grins, “And hopefully after the Olympics there will still be work, possibly reconfiguring the stadiums.”

## GEOCOMP SYSTEMS

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Web site: www.geocomp.com.au

### Upgrade & Support Help Hotlines

Toll free: 1800 800 754 (in Australia)  
Email: support@geocomp.com.au

8.30 am–6 pm EST every working day

For help with all queries about using our software, including:

- installation
- systems compatibility
- converting data
- applications.

### 2 hour response time

We aim to respond to your call 95% of the time within 30 minutes, and 100% of the time within 2 hours.

### Staff

DIRECTORS	Barry Smith Brad Quick
SALES MANAGER	Paul Fulton
TRAINING/CONSULTING	Jerry Cresp
CLIENT SERVICES MANAGER	Bill Lazaris
CLIENT SERVICES ENGINEER	Garth Coverdale

### Products

Geocomp Systems supports:

GeoCalc	GeoNav	Geocomp
Terramodel		TerraVista
Trenchwork		Paydirt®

*DIMENSIONS* is published quarterly by Geocomp Systems, Australia. Produced by Susanna Bryceson for Geocomp Systems.