

DIMENSIONS

MAPPING THE WILD

'Over 44 years, we've had surveyors climbing all over the place,' said Michael Larmer, of Arman Larmer Surveys (ALS), Papua New Guinea.

'They've worked hundreds of thousands of field days and we've mapped every major town and most plantations, roads, provinces and minor towns.'

From humble beginnings in a home office in 1964, Mike Larmer, Graeme Arman and their dedicated crews battled unforgiving jungles, crocodile-infested swamps, endless tribal wars and socio-economic turmoil to become the leading private survey company in PNG, training locals to work with them.

Mike spoke of jungle so steep and dense that getting a line of sight was very difficult. 'Fortunately, one time we had "Tarzan" from a nearby village swinging from tree to tree, slashing the canopy.'

'We still work in a number of remote aircraft-only places. Our chainmen would have had thousands of helicopter rides, often commuting to a site daily from a base camp.'

Many of the characters who worked with the company tell their stories in a new 416-page, full-colour, hardbound book. And if you aren't in the book, you probably know someone who is.

Geocomp Systems also has a part in this ripping story. In 1987, ALS purchased Geocomp for an NEC APCIII computer, taking their first steps into surveying software, enabling them to convert their manual data acquisition and plan production systems to full digital methods.

ALS used Geocomp for manipulating their ground surveys and digital terrain mapping. 'We use Geocomp and have kept with it. We make sure it's compatible with our client's requirements and are constantly upgrading to keep ahead,' Mike said.

'The new survey technology has made our work easier, but the expectations of local villagers are higher—if they see a surveyor, they up their labour costs. We now spend a lot more time negotiating compensation and workforce details.'

Graeme Arman considers field work to be the true heart of surveying. Mike says, 'Many of the people who've worked here with us—even for a year—say that this stint has been the outstanding part of their career. It's hard work and you take a few mozzie bites along the way, but there's a great deal of adventure and satisfaction.'

A Measure of Papua New Guinea—the Arman Larmer Surveys Story, by Christine Larmer, Focus Publishing Interactive, Woolloomooloo, Australia 2008. www.focus.com.au

WEBSITES

www.geocomp.com.au/spot

SPOT Satellite Personal Tracker uses GPS to track your location. Press OK to send preconfigured "I'm OK" messages or press Help to trigger an action from someone, such as to come and get you.

You don't need to be in mobile phone range. The messages are sent by satellite, then email or SMS. In an emergency, the 911 button can alert rescue services.

www.photosynth.net

Upload overlapping digital photos of a work site to this Microsoft service which matches pixels to build a 3D panorama you can move through.

As a step onwards from the much-loved Photostory, this application will add a new dimension to slide shows of holiday snaps.

If you want to derive measurements from your photos, use iWitness.

INDUSTRY NEWS



iWitnessPRO

Our new iWitnessPRO extends iWitness software. Now, using specially coded targets, you can automatically orientate your network to save time and improve accuracy.

iWitness Classic and Pro are photogrammetric systems for 3D coordinate location.

Working from two or more digital photos of an object or place you want to survey, they allow you to construct your object digitally. The process is so simple an office junior could do it.

It means several surveyors on the one site can take photos on different cameras and then merge their information to create one model. Very useful as a back-up for traditional survey methods—might save you a trip back to the site.

Available from Geocomp Systems.

TerraPos

TerraPos revolutionises high-precision kinematic GPS positioning applications, such as road and rail mapping, hydrographic and seismic surveying, airborne photogrammetry and LIDAR, by dramatically decreasing costs and increasing accuracy.

TerraTec, a major airborne-data supplier in Norway, developed TerraPos in conjunction with the Norwegian University of Life Sciences. It is now used by a rapidly increasing number of mapping industry companies who no longer need any form of differential correction for high-accuracy work.

Their clients include the Norwegian Polar Institute, which used it to position their expedition towards the south pole last summer.

How does TerraPos do it?

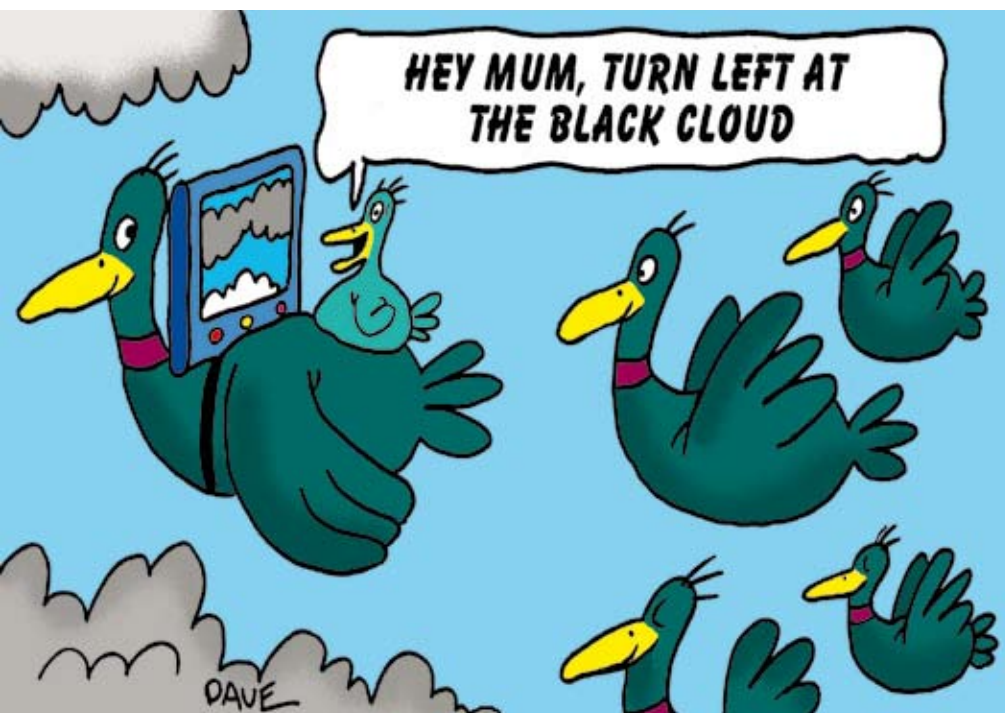
Essentially TerraPos functions similarly to normal GPS, but whereas GPS uses the Broadcast or Predicted Ephemeris which can have satellite location errors of up to 10 metres, TerraPos uses the post-mission Precise Ephemeris that has an accuracy of 1 to 3 centimetres.

TerraPos is similar to the popular AUSPOS PPP service provided by Geoscience Australia; however, while AUSPOS only processes static data, the pioneering TerraPos can work with both stationary and kinematic data producing accuracies of 1 cm horizontally and 2 cm vertically for static data, and 3 cm and 4 cm respectively for kinematic data.

How will TerraPos save me money?

You no longer need to buy and set up RTK base stations and radios, worry about receiving dGPS signals, work out how to operate within 10 km of a base station or buy and deploy a monitoring station for quality control.

Available from Geocomp Systems.



GPS for migrating birds



EXPERT ADVICE

Terramodel 10.60

Terramodel 10.6 includes lots of changes—especially new commands—and can now handle projects up to 20,000,000 points.

One of the first changes you'll notice is the new DeleteSegment command. This deletes segments for sets and plines like the old Break command did with sets.

Now, the Break command breaks sets and plines at a location the way the old Break used to with plines.

Contact Geocomp Systems for your copy of Terramodel 10.60.

Terramodel controls

Browse for objects

For any command that selects a single object, put the cursor in the Obj: control. You can then click on a record, type a point number, type a name (if unique), or type 'r=' then the record number.

If you right click in the graphics area, you can Browse to select an object, so you can use Previous and Next buttons to choose between objects in the same location. If the command requires a segment or vertex, you can step through them with arrow keys.

Entering coordinates

When prompted for a coordinate, you can enter E,N,Z or E N Z [the space bar is easier to use than the comma].

For a relative distance from a previous location, use @—like this: @50 @100.

In Profile and Xsect views, you can use

- @ for a relative chainage
- % or P for percent grade
- : or R for grade by ratio.

Entering distances

Distances are horizontal unless you add SD to create slope distances like 123.45SD. You can also enter a distance or an angle as a formula: $100 * 0.3048 + (1.1 / 2)$.

Entering bearings

If you enter a bearing, you can use the up and down arrows to add or subtract 90 degrees.

Windows Vista

Windows Vista does not support DOS, so will not run Geocomp without installing some messy intermediary like MS Virtual PC. Geocomp users should select Windows XP.

After you install Terramodel 10.60 on Vista, we highly recommend that you:

- Enable Terramodel Help. Install WinHlp32.exe for Vista from support.microsoft.com/kb/917607
- Right click on the Terramodel shortcut, select Properties / Shortcut / Advanced, then enable Run as Administrator.

Managing curves

When Terramodel uses curves for volume boundaries, extracting profiles

or screen display, it actually uses the number of segments as specified in the display settings.

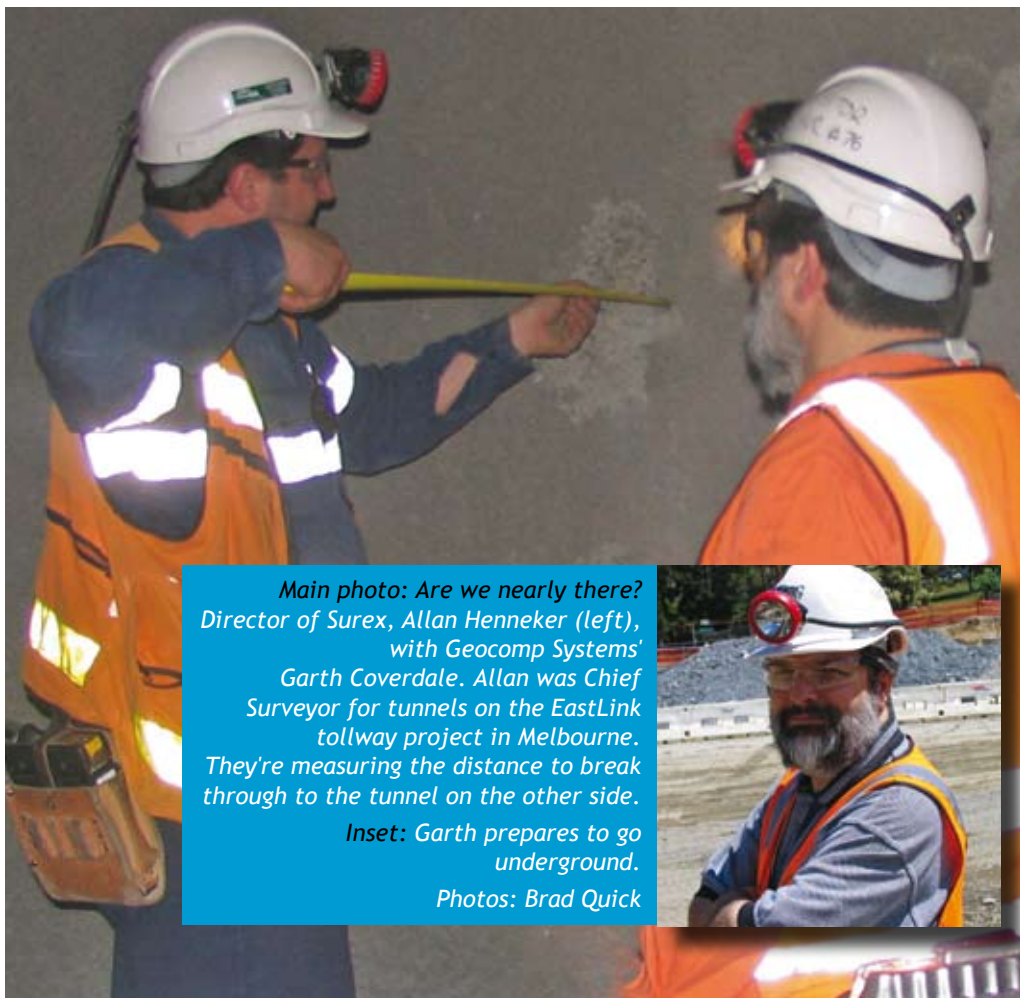
The higher the number, the better the accuracy, up to a total of 100 for one arc plus two spirals. Similar segmentation applies for plotting curves.

Solid colour between contours

Here's how you can create solid colours for contours or isopachs under your plan. Use TVLITE command to display your DTM.

In Settings / Coloured elevations, choose suitable colours and elevations. In Navigation, select Plan View and Orthographic Mode.

Now when you Export the image, you can tick 'Geo-reference' to add a .jgw or .tfw file. These files enable both Terramodel and Visualizer to place the coloured contour image precisely under your plan.



Main photo: Are we nearly there? Director of Surex, Allan Henneker (left), with Geocomp Systems' Garth Coverdale. Allan was Chief Surveyor for tunnels on the EastLink tollway project in Melbourne. They're measuring the distance to break through to the tunnel on the other side.

Inset: Garth prepares to go underground.

Photos: Brad Quick

CARTOGRAPHY IS COOL!



Since *Dimensions* last wrote about geocaching in 2004, cartography has barged into our daily consciousness through technology.

Terrain mapping is undergoing usability revolutions. We can now download detailed maps about places all over the world. GPS-linked navigation systems for cars have become commonplace and you can even access street maps on your mobile phone.

Mapping is now available to the general public to see, use and manipulate in all kinds of ways. It's up-to-date and inexpensive.

The public's expectations are pushing the technology ahead too—people love being able to zoom in on their ancestral village in Hungary, but may be less happy about pictures of their own front yard appearing in Google Street View. The privacy issues are just as complicated as the copyright ones, and our laws can't keep up.

It's hard to decide whether the whole thing means we are all becoming more interested in our world—or just fascinated seeing those incredible Google Earth images on a computer screen.

For example: as you head off interstate on holiday, you grab the car navigation gizmo to use in your hire car. Smart thinking—or is it? By relying on the little screen and that voice, perhaps you're missing out on the knowledge that comes from exploring a new city using a paper map and your own wits.

How many kids today will learn to read a map by navigating for mum or dad in the car?

But back to geocaching. Tap it into a search engine—six million hits. Lots of host sites, a YouTube intro, a *Dummies* guide, discussion forums, an education spin-off, children's games, on-line shops and blogs. There's also geocaching lingo, like 'cache and dash' and 'geomuggles'.

While geocaching starts with the little screen, it's largely about experiencing the world outdoors. Could geocaching tourism ever become mainstream like ecotourism, to be the next cool thing?

With Terramodel 10.60, you can use the new GCKMLOUT command to overlay Terramodel points onto Google Earth then capture images from Google Earth for use in Terramodel.

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HELP HOTLINE

For Customer Care Members with queries about using our software.

We aim to respond to your call within 1 hour.

Toll free: 1800 800 754 (in Australia)

Email: support@geocomp.com.au

8.30 am-5.30 pm Melbourne time, each working day

PRODUCTS

GeoCalc	GeoNav	Geocomp
Terramodel	Visualizer	GCGeocode
TerraPos	iWitness	Paydirt Sitework

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Left: Spending time and money saved using Terramodel.

Neil Sellars of Civil Engineering Surveys and his racing crew put our caps to good use during the Audi Hamilton Island Race Week last year.