

Welcome... Since our last newsletter we have had some changes to our team. We have farewelled Heather, as she jumps into a new adventure away from surveying.

Michael Grear Surveys welcomes Rose (administration), Josh and Luke (surveyors) to our team.

Say a big hi to them when you see them about.



Luke



Josh



Rose

Our Terrestrial Laser Scanning work is continuing to grow, and in this edition, we share some interesting stories about this work. This 3D point cloud data is an amazing innovation and the technology is always improving as is the great range of ways we can provide the results.

Given the recent tragic natural disasters in our part of the world, we have also presented an interesting article on earthquakes, the measurement techniques and some other great facts.

We hope you and your families will move safely into the warmer months of spring and summer.

Michael—Ed

It's Riddle Time.... Send your answers to Annette and Rose for a prize—admin@mgsurveys.com.au

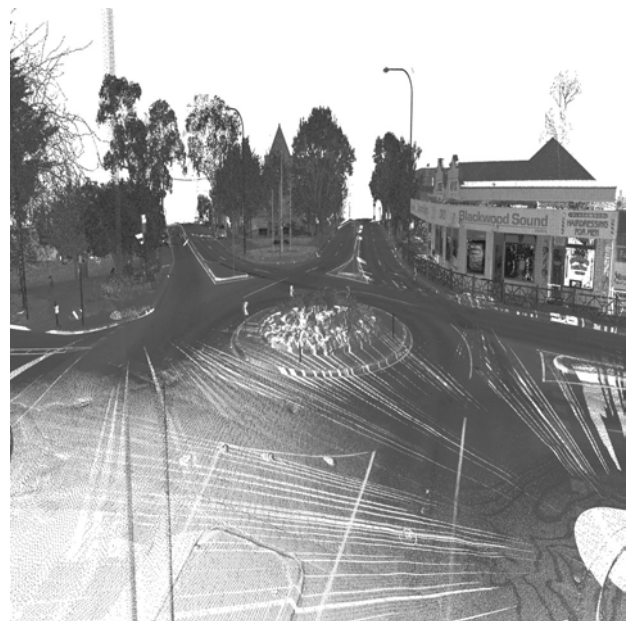
1. How many seconds in 1 year?
2. During which month do people sleep least?
3. What kind of room has no doors or windows?
4. What is the centre of gravity?
5. What's orange and sounds like a parrot?

Scanning Gives Great Detail. Read on...



Scanner in action—Salt Pan - Price SA

Scanners generate point clouds of millions of three dimensional points representing whatever scene/object we are surveying. This can include complex building facades, factory/industrial refits (pre-cast panels), road intersections (Blackwood round-about), refits of large and small ships (Dry Dock, Mannum), Electrical Substations, volume determination (Salt Works, Price),



Scan Image—

Blackwood Round-About

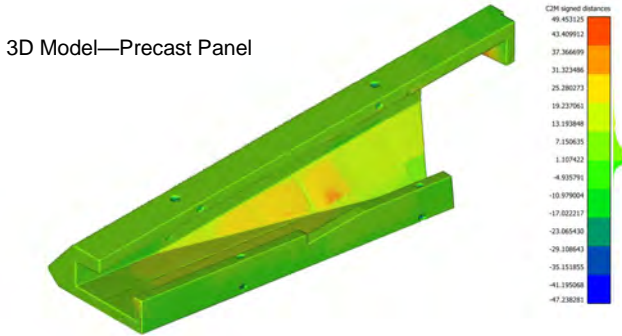
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Newsletter Quote ... A small key opens big doors. - Turkish proverb

Indonesian Under Fire

Visit the **Michael Gear Surveys** website for more information and past issues of **The Survey Datum** @ www.mgsurveys.com.au

Scanning continued....



The common theme with all these examples is providing “rich” survey information that accurately reflects the shapes and sizes of what is currently there, allowing greater confidence when designing new items to fit. The point clouds allow us to create surfaces of features, or we can generate cross sections through the models at any location. This then provides great information for engineers, architects, surveyors, archaeologists, builders and scientists to analyse, design and interrogate in ways not possible before. Items can be designed and built off site, brought in and confidently fitted on site, even with the most complex of shapes.

Now Michael Gear Surveys can ‘Do it all!’ Call Mark or Luke to discuss your project and how a scan may be your best option.



Indonesian Aftermath—2018

2018 has seen Indonesia ravaged with earthquakes with significant loss of life. Simplistically earthquakes are described as the moving /breaking of the earth’s tectonic plates and these are measured by a seismograph; but what else?

A seismograph measures the amplitude of the seismic waves and using a formula converts them to a magnitude. This is a measure of energy released by the earthquake. For every unit increase in magnitude, there is roughly a thirty-fold increase in the energy released. As an example, a magnitude 6.0 earthquake releases approximately 30 times more energy than a magnitude 5.0 earthquake, while a magnitude 7.0 earthquake releases approximately 30x30 times more energy than a magnitude 5.0. That’s 900 times more energy!

A magnitude 8.6 earthquake releases energy equivalent to about 10 000 atomic bombs of the type developed in World War II.

Geoscience Australia monitors seismic data from more than 60 stations on the Australian National Seismograph Network and in excess of 300 stations worldwide in near real-time, 24 hours a day, seven days a week.

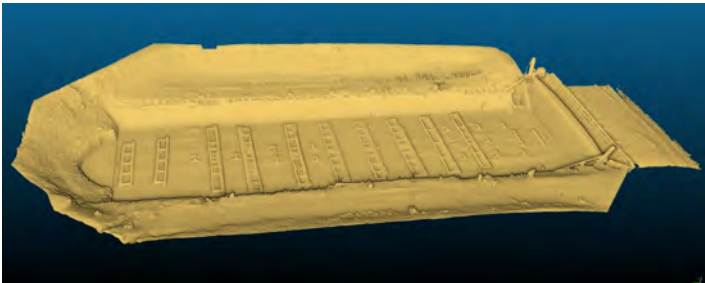
Earthquakes can also cause landslides, sediment liquefaction (becoming like quicksand) or a tsunami.

February 22nd 2011 – a magnitude 7.9 earthquake struck Christchurch causing 185 deaths predominately from one building collapse.

August 5th 2018 - a magnitude 6.9 earthquake struck Lombok causing over 430 deaths, injuring more than 1300 and displacing hundreds of thousands of people.

September 28th 2018 – a magnitude 7.5 earthquake struck Sulawesi with a death toll still rising from 2000 people. This earthquake also caused a tsunami with both destroying villages and blocking access to rescuers.

These are all significant natural disasters that require the monitoring by sciences including marine surveyors and support from land surveyors to recognise and re-calculate personal property to support post-earthquake reconstruction.



Morgan Dry Dock Mesh from Laser Scanner

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Christchurch Cathedral 2011