

Mensura

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- Case study - using the SX10 in place of a UAV
- Creating impressive 3D models with SketchUp
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- New Trimble releases



Strong KOREC presence at GeoBusiness



We have a strong KOREC presence at GeoBusiness 2018. This year you can find us in several places at this prestigious London event on 22nd -23rd May:

- Stand L6, KOREC's dedicated stand and the place to be for information on our full survey and mapping portfolio including the Trimble SX10, the newly released Trimble TSC7 controller, Trimble R10 GNSS, S-Series Total Stations and Catalyst GNSS receiver (a low cost and subscription-based GNSS and this issue's front cover shot). Additionally, we'll be exhibiting HoloLens technology, our K-Mobile data capture software and GeoSLAM's ZEB-REVO handheld laser scanner. L6 is also the place to be for numerous KOREC competitions with fabulous prizes...fancy a trip to Trimble's Stockholm SX10 factory?
- For all things 'Mobile Mapping', including information on Trimble's newly launched MX9 system, you'll find us outside the main entrance.
- For information on our SenseFLY UAV portfolio and training we'll be with our partners, The Drone Pilot Academy on their stand, M18.
-and of course, we'll be assisting on Trimble's showcase stand, L1

You'll also find us presenting on monitoring applications and represented in the discussion on instrument theft/tracking through our customer, SUMO Services. ■ ■

New - Trimble TSC7 Controller

Rugged, reliable and unrivalled, the new TSC7 Controller brings increased speed and power and a modern 7" screen. Plus, with the power and flexibility of Microsoft Windows 10 Pro, sharing files and synchronizing data between the field and office is easier than ever before.

Top features include:

7-inch Touchscreen - the TSC7's rugged Gorilla Glass display (1280 x 800 pixel) is ideal for easy reading in rain, snow, or bright daylight and of course perfect for use with SX10 scan data.

Trimble Access 2018 Software - a revamped, intuitive user interface designed to take advantage of the large screen on the TSC7. Integration with Trimble Sync Manager, for easy synchronization between field and office.

Dual Cameras - 8-megapixel, field-facing camera improves documentation, whilst the 2-megapixel, user-facing camera allows for better communications between field and office.

Modern Connectivity - connect across GSM, LTE, Bluetooth, and Wi-Fi for face-to-face communication from the field.

Call your KOREC Consultant to book a demonstration. ■ ■



Stop Press: We are GDPR ready and protecting your data. Renew your preferences for KOREC communications at <http://bit.ly/KORECGDPR>

K-Mobile - latest updates

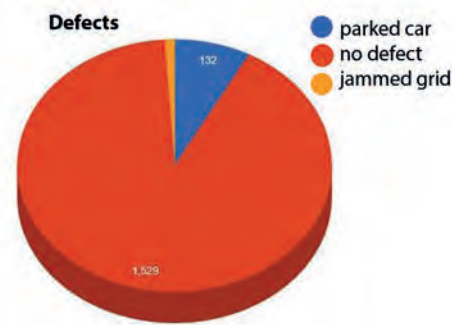
Progress never stands still and neither does **KOREC**’s K-Mobile mapping/data capture software development team! Here’s a round-up of what they’ve been working on over the past few weeks:

Android Bluetooth link to laser rangefinders

It’s been available in the Windows version of K-Mobile for a while and now we’ve added this useful function to the Android version too. Suitable for any Bluetooth enabled laser, its perfect for ensuring your offset measurements (eg shooting to points in inaccessible areas or GPS blackspots) or height and width measurements (ideal for tree surveys) are recorded directly into your data entry form.

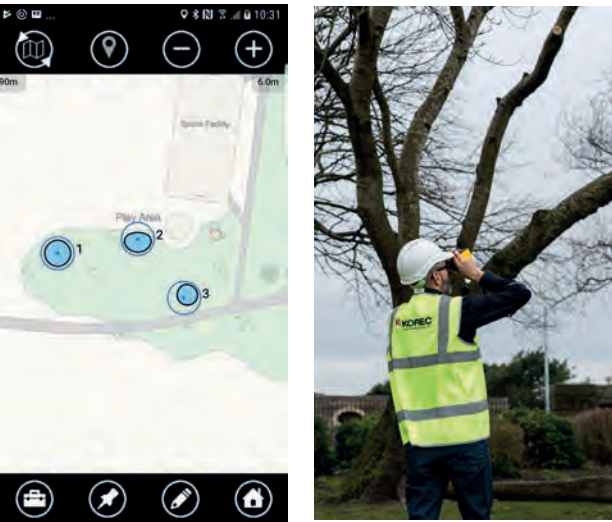
Live Portal Update

Imagine you are cleaning gullies or checking street furniture. Permitted office users can now log into the secure K-Mobile portal and track a service vehicle through a ‘bread crumb’ trail watching dots turn from red to blue as work is completed. Updates occur once a minute and this useful information can be used to illustrate all work done in a day or even show live dashboards, for example as an interactive pie chart. Simply click on a segment to view the location of recorded defects etc bringing live analysis to your data collection projects.



New product – K-Mobile Tree Edition

All the functionality of our fully featured K-Mobile data capture software with extra built-in tree functionality and visualisation tools. Perfect for undertaking British Standard tree surveys, key benefits include live graphic representation of tree canopy measured in four directions (N,S,E,W) and calculations and graphic representation of root radius. Also visible back in the office via the Live Portal. We have a new case study on exactly this application at <http://bit.ly/2FRtMRb>



▲ New - calculations and graphic representation of root radius (left) and Android Bluetooth link to a laser rangefinder (right)

Rail Update

Trimble GEDO IMS announcement

We are really excited to welcome the latest addition to the Trimble GEDO family. The new Trimble GEDO IMS is a real game-changer, offering fantastic productivity in a user-friendly, lightweight, familiar package. We will be officially launching this fantastic new solution alongside a new rail design package and updated scanning system very soon. Watch this space.

See us at Rail Live



It’s the largest outdoor rail exhibition in Europe with nearly 400 exhibitors and 4000 visitors each year and of course **KOREC** will be there. Visit us on 20–21 June at Quinton Rail Technology Centre, Warwickshire. And don’t forget, we are equipped to advise, install, train and support a wide range of solutions for the rail industry including GPS, UAS, track measuring devices, levelling/alignment instruments, rail monitoring solutions and asset management systems.

SUMO Services using SketchUp to create impressive 3D models

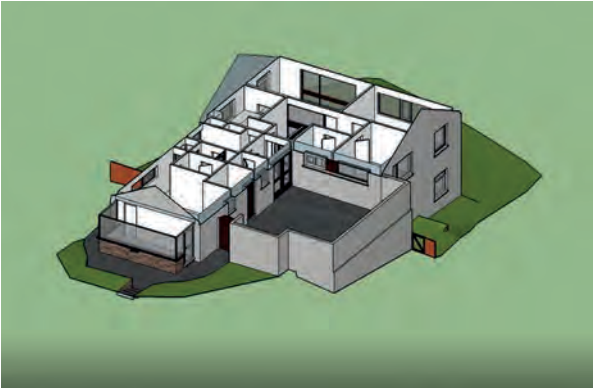
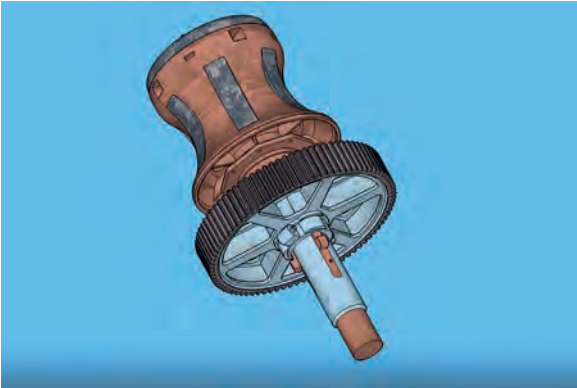
It used to be that registering pointcloud data from a 3D laser scan was a major part of the job and required significant time and effort back in the office. Fortunately, it’s a far simpler process these days.

It’s simpler thanks to the implementation of software advancements such as Trimble RealWorks which provides cloud to cloud registration along with options for target based registration as well as plane based registration. This automated process provides us with additional time to consider what we do with our 3D scan data rather than how we register it.

One person who has been doing exactly that is Steve Dash, Senior Measured Building Surveyor at SUMO. Having been equipped with Trimble RealWorks, Trimble SketchUp Pro and Trimble’s Scan Explorer Extension plug-in for some time, Steve has been converting SUMO captured pointcloud data into impressive 3D models which have provided SUMO’s clients with even better visualisation of their survey data.

Steve explains, “It all started when we were asked by one of our clients to produce a 3D SketchUp model as the final deliverable. Our client was delighted with the result which met their exact requirements. This first project was back in early 2016 and since then we’ve been offering a 3D SketchUp model service as an addition on many of our projects. On completion of the models, we provide the client with a download-link for a SketchUp viewer where they can easily view and share their 3D model.

“We’ve been running this service for some time now and we are still making exciting developments in this area. The great benefits of these SketchUp models are that we also have the floorplan elevations and can provide as many sections as required. Furthermore, as we continue to provide this quality service, we are aiming to produce a 3D model with all of our 2D drawings as a standard. Our clients have been delighted with the results and we’ve been really impressed with the software’s ease of use. SketchUp Pro is a friendly and forgiving 3D modelling software and whilst it doesn’t provide the same high-level of functionality as some other more expensive modelling packages, it remains a highly operational and cost-effective entry level option for many of our clients which SUMO is happy to provide.”



▲ SketchUp allows SUMO to produce work quickly and economically

New Trimble Releases

Trimble next generation MX9 Mobile Mapping System

Lightweight and compact premium mobile mapping system

The latest addition to the **KOREC** mobile mapping portfolio is the next generation Trimble MX9 which combines a vehicle-mounted mobile lidar system, multi-camera imaging and field software ideal for high-volume data capture.

Replacing our previous flagship MX8 mobile mapping system, the MX9 is three times faster (capable of capturing 2 million points per second) and can be easily managed through a tablet or laptop as opposed to the MX8’s bespoke multiscreen configuration.



The MX9 has clearly been developed for use by a broader customer base in a wider range of applications thanks to its simple installation on a large range of vehicles, light weight design and easy operation.



Trimble Alloy GNSS Reference Receiver

Replacing the Net R9 reference station is Trimble’s next generation GNSS Reference Receiver, Trimble Alloy. Setting a new industry standard with 672 channels, it is powered by Maxwell 7 GNSS dual chipsets for future proof tracking and is sleek and rugged with an IP68 rating. Once again, Trimble has raised the bar extending their dominance in this field.

Stolen instrument recovered in 2 hrs

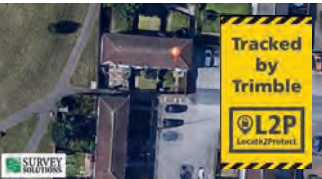
National survey and engineering services company, Survey Solutions, has notified **KOREC** that following the roadside theft of one of its total stations fitted with an L2P tracking device, Police recovered the instrument within 2 hours and made several arrests.

The stolen instrument was a **KOREC** supplied Trimble S5 Total Station and one of several recently purchased by Survey Solutions. All of these instruments came equipped with Trimble’s Locate 2 Protect (L2P) tracking technology which allows logged-in users to see their instrument positions at any time.

The theft happened whilst an engineering surveyor was completing a topographical survey in the Midlands only a few miles from a Survey Solutions regional office. East Midlands Police were immediately informed of the theft and sent a Police car to assist local Survey Solutions staff in the search. The tracking software not only managed to identify the street where the instrument was located but also pinpointed the actual house. The data from the tracker, along with a positive identification of a car used in the crime outside the house, provided the Police with sufficient grounds to gain access to the property where the Trimble S5 was found along with several other stolen items. The Police subsequently made several arrests.

James Cooper, Managing Director of Survey Solutions said, “This isn’t the first time that we’ve been affected by total station theft having had 12 instruments stolen in similar incidents, only one of which has since been recovered. None of them had tracking devices. On this occasion, the ability to track our Trimble S-Series instrument with L2P technology is clearly a step in the right direction. The cost of asset theft goes way beyond equipment replacement, it causes tremendous distress to the surveyors involved and significant financial loss, therefore the successful recovery of stolen property and consequent arrests are something we need to make a noise about if tracking technology is to become a deterrent to thieves as well as a way to recover instruments.”

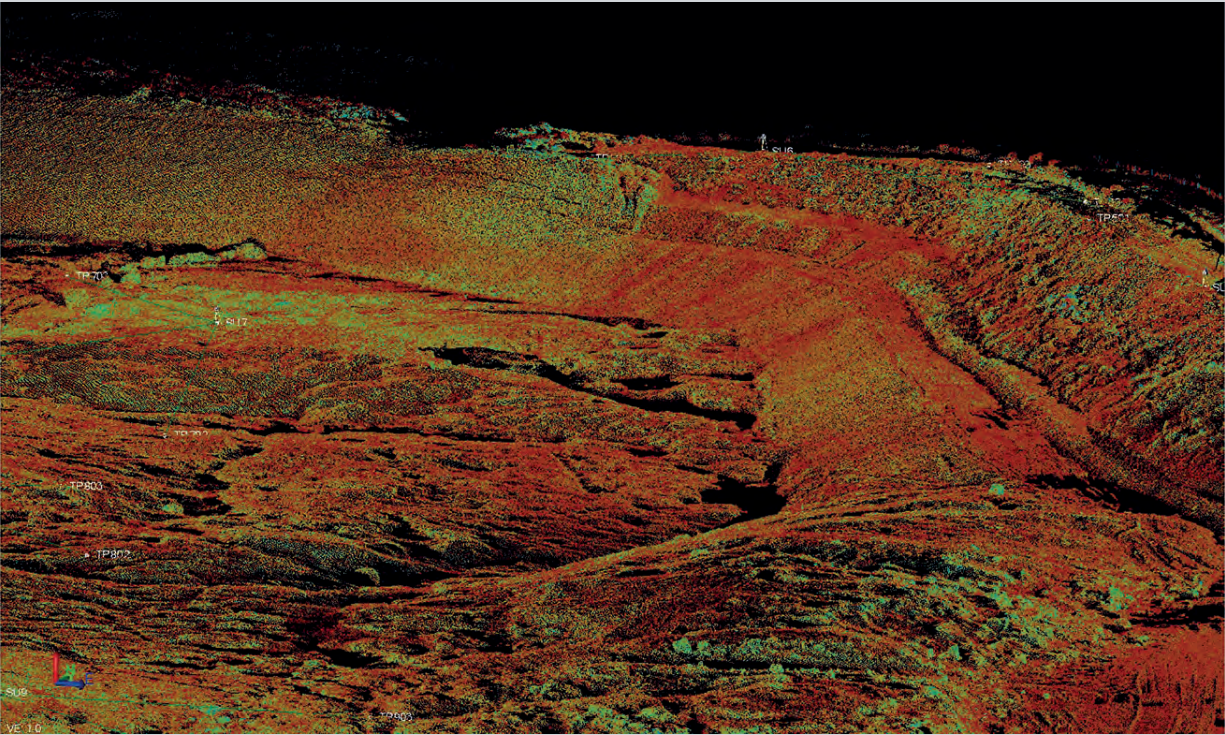
James is a vocal member of the TSA and was at their April AGM on the panel that discussed this subject with input from SmartWater, the Police, the insurers and of course other TSA members.



▲ Clearly showing the location of the tracked instrument

Beating the ‘Beast from the East’ with the Trimble SX10

Using the SX10 in place of a UAV to carry out a monthly measure in snowy condtions



When snow derailed a monthly UAV overburden survey, Tri-Tech Ltd ensured that their client wasn't disappointed thanks to the 600m range of Trimble's SX10 Scanning Total Station.

Based in Yorkshire, Tri-Tech Ltd is a company that prides itself on getting the job done, a 'can do' ethos instilled from the top by Owner, Ted Harland. Having worked for one of the first company's in the UK to adopt robotic total station technology, Ted has ensured that the Tri-Tech survey fleet reflects a similar commitment to innovative technology with instruments including Trimble's R10 GNSS, S Series Robotic Total Stations and TX8 Laser Scanner, along with a UAV and most recently a Trimble SX10 Scanning Total Station. Consequently, the company is equipped to carry out a wide range of land and engineering survey services throughout the UK.

For Ted any new purchase of survey equipment must make perfect business sense with that instrument increasing the efficiency of his survey team, bringing in new work or solving a problem. In the case of the SX10, it was all three.

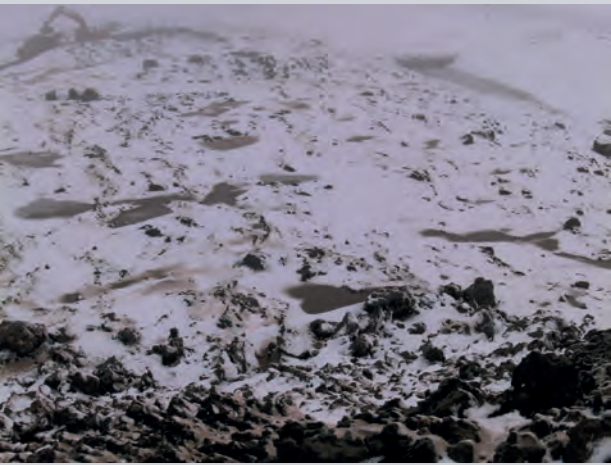
Increased efficiency: The SX10 combines imaging, survey precision measurement and fast HD laser scanning (up to 26,600 points per second) in a single instrument along with tried and tested workflows and importantly for Ted, integrated surveying (IS) with his Trimble R10 and S-Series total stations. This would allow him to tie scans into the OS Grid with maximum efficiency and also to multi-task, setting up the SX10 to scan and then flipping to an R10 GPS survey as required, all with the same logger.

New business areas: Following a demonstration of the Trimble SX10, Ted was immediately convinced that its fast scanning, easy capture of high resolution site imagery and straight forward set up would make it ideal for him to expand his work into meeting more complex projects on behalf of his civil engineering clients and also improve their workflow on measured building surveys.

Solving a problem: One of the drawbacks of UAV surveys is that windy weather can derail a project for days. Ted saw an immediate use for an SX10 in his survey fleet as a reliable alternative to a UAV for his quarry work if conditions proved too windy for an aerial survey on the day – something that had occurred twice on recent trips to Scotland. The 600m scan range of the SX10 would enable him to set up at a safe distance away from works and still produce the high level of data required by his clients. This was a key driver in his decision to purchase the SX10 and one that is already starting to pay off.

First opportunity – using the SX10 as an alternative to a UAV

Although Ted had been taking the SX10 with him on all his UAV jobs as a back-up to ensure that there would be no more fruitless long drives for the Tri-Tech surveyors or disappointed clients, it wasn't until the bad weather in



▲ Soft, uneven ground ruled out a GPS or total station survey

March that he had a chance to use it as an alternative solution. Since September 2017, Tri-Tech had been visiting a site near Glasgow to undertake a monthly measure of excavated materials. On each occasion, the client required a volume report showing how much cut material had been excavated with the materials broken down into peat or clay etc backed up by an isopachyte drawing. Usually this work required a half day of flying with data delivered 2-3 days after.

The day before this particular scheduled visit, the 'Beast from the East' was already biting hard and Ted was aware that conditions would likely render an aerial survey impossible. The site was on uneven soft ground with active heavy plant so Ted knew that it would not be possible to carry out the survey on foot using a GPS or a total station. He therefore loaded the

SX10 into the van and set off at 4.00am on the morning of the job.

Despite blizzards and drifts, the SX10's 600m scan range meant that Ted could set up in elevated positions around the perimeter of the site and take a total of 10 scans using the R10 for IS setups, so no targets were required. These scans included full dome scans as well as more detailed high-density scans. Laser scanners often capture significantly more data than needed so Ted therefore scanned some areas selectively. The SX10 is driven by Trimble Access on a tablet which means he could draw a polygon over the tablet's live video feed enabling him to define the scan area and scan density based on the software's estimated time frame. The tablet also gave him clear visuals of the scans captured so he could be sure that all areas had been covered. Despite the difficult weather conditions Ted completed the work in less than 3 hours – a comparable timescale to flying the site with the UAV.

Back at the office, the registered scan was dragged into Tri-Tech's Trimble Business Center software which was used to clean up the data removing plant noise and unwanted areas. The final pointcloud was good enough for the measure and compared to the UAV, very close to the

“The SX10 is a great bit of kit and the support from KOREC has been second to none with the team sharing great advice, often out of office hours.”

Ted Harland

Tri-Tech Ltd

tie in points which gave Ted confidence in both the new and previous work. “I was surprised at just how well the SX10 performed in these conditions and I now appreciate that in our quarry work, I can be a lot less choosy about the weather knowing that the SX10 can be used in place of our UAV. Whilst we pick up more detail with the UAV, we get better accuracy with the SX10, either way I know that I am equipped to supply high quality data within our client's requested time frame.”

Flexibility and Versatility

Ted reports that the SX10 has been received with enthusiasm by the Tri-Tech surveyors. In particular, they find that driving the instrument through the tablet has brought a powerful visual edge

that they didn't have previously as well as bringing a few useful extras like 'pinch and zoom' on the graphics page and 3D orbit.

He concludes, “The SX10 was always going to make great business sense for us in that we saw an immediate need for it as a back up to our UAV scans as well as it being an overall useful addition to our general survey and scanning work. For example, we've just used it for a topo survey of 1.5 acres of trees and stumps, including their diameters. We just set the SX10 on to a horizontal band scan and with just 3 or 4 locations were able to digitise every tree and the top and bottom of surrounding embankments. The time saving was massive and we were able to capture lots of additional data as well.

However, for us, it will always be about choosing the best instrument for the job and the SX10 brings versatility and flexibility to the equation. The SX10 is a great bit of kit and the support from KOREC has been second to none with the team sharing great advice, often out of office hours. It's the people that make an organisation and the SX10 is backed up by a support service that's worth its weight in gold.” ■ ■ ■



▲ Set up was in elevated positions thanks to the SX10's 600m scanning range

KOREC News

KOREC customer bonus

We're delighted to be a Trimble distributor bringing world leading technology to the UK and Ireland and we've been backing up this great offering with heavy investment in both our field support, office support, workshop and sales teams. But we don't want to stop there! Being a **KOREC** customer brings some exciting extras including our recently hosted customer trips to the 6 nations rugby in France and Ireland. We've plenty more good things on offer so follow us on Twitter @KORECGroup for news on all of the following:

Win an all expenses paid trip to Trimble's SX10 factory in Sweden June 11th -13th

KOREC is giving 6 lucky winners the chance to win an all expenses paid trip to Stockholm for a Trimble SX10 Factory Tour in June. This is a fabulous prize and also includes a city tour.

Tickets are still up for grabs at GeoBusiness and via our scratchcards.

Join us at the British Grand Prix at Silverstone, Friday 6th July

We still have one more ticket up available for a lucky attendee at our Trimble Express day in Hertfordshire on June 19th.

KOREC Scratch Cards

Ask your geospatial consultant our new **KOREC** scratch cards. Who can resist scraping off our Trimble themed symbols with prizes like the SX10 Sweden factory trip, **KOREC** hoodies and **KOREC** mugs all up for grabs. Only available until the end of May.

KOREC Photo Competition

Our photo competition runs monthly and you can email your entries any time to marketing@korecgroup.com. Congratulations to Chris Shelley of Clugston Survey and Tim Henry of Storm Geomatics, the winners of KOREC jackets for our February and March competitions. Their winning shots are pictured to the right. ■ ■



▲ Feeling lucky? Ask for a KOREC scratch card



▲ Congratulations Chris Shelley of Clugston Survey (February)



▲ Congratulations Tim Henry of Storm Geomatics (March)

Events Update

GEObusiness

It's our industry's showcase event and of course **KOREC** and Trimble will be out in force! See our frontpage feature for full details about this London event on the 22nd -23rd May.

KOREC Monitoring Day

Learn about all things monitoring on the 12th June at the Rail School in Doncaster.

Trimble Dimensions 2018!

Trimble's fantastic international user conference offers an unparalleled combination of technology, networking and education between November 5-7 in Las Vegas and it is now open for registrations. As ever, **KOREC** will be attending and taking some lucky customers with us. Visit Trimble's dedicated website for all the details, www.trimbledimensions.com

Trimble Express Days

Our 7th Trimble Express day will be held on Tuesday 19th June at Hatfield House in Hertfordshire. Register and view the agenda at bit.ly/2pQ7Lfy

Rail Live

It's the largest outdoor rail exhibition in Europe with nearly 400 exhibitors and 4000 visitors each year and yes **KOREC** will be there! Visit us on 20-21 June at Quinton Rail Technology Centre, Warwickshire.

GeoDATA Scotland

See **KOREC** on Thursday 14th June at this free-to-attend GeoDATA showcase event offering a content-rich seminar programme and accompanying exhibition for the geospatial community. Register at: bit.ly/2lcEsL8

UAV Demonstration Days

We've been running a series of UAV demonstration days with our partner, The Drone Pilot Academy across the UK. Our next event is on the 14th June in Wakefield, West Yorkshire and it's the perfect opportunity to learn about senseFly UAVs and CAA regulations in a single day. Register at bit.ly/2pNOGwe ■ ■



▲ KOREC and Trimble will have an even bigger presence at GEObusiness 2018

Careers with KOREC

Ever wondered what it would be like working for **KOREC**? You can get a taste of **KOREC** life at www.linkedin.com/company/328211/life/

We're always interested in talking to people who feel they could make a great contribution to **KOREC** and fit into a culture that promotes hard work but with lots of fun. All our current opportunities can be viewed on our website at: www.korecgroup.com/opportunities/



Contact us:

For further information on any of the products or services mentioned in Mensura, please contact your nearest **KOREC** Sales Consultant or visit our website

T: **0345 603 1214** IRE: **01 456 4702**
E: **info@korecgroup.com** **www.korecgroup.com**

Webinars

Our 2018 webinar programme is in full flood. Not to worry if you've missed any of our webinars, they can all be viewed after the event via our **KOREC** Group YouTube channel.

Booking now (30/05/2018):

Monitoring for everyone – how to bring monitoring into the everyday survey company. Register at bit.ly/2GK6p0H



If you've missed our live webinars, why not catch up via the **KOREC** GROUP YouTube channel where you can find:

- Trimble Catalyst (03/2018) – Everything you need to know on how Catalyst delivers affordable, high-precision GNSS positioning on-demand for Android phones and tablets.
- Trimble RTS Robotic Total Stations, Field Link and Connect (02/2018) – Entertaining, fast moving and full of useful information.
- Trimble S5 (12/2017) – The ultimate workhorse with Trimble's Locate 2 Protect (L2P) Asset Tracking Solution.
- Trimble SX10 (10/2017) – **KOREC** SX10 expert Chris Harris provides a great in-depth presentation looking at all aspects of this versatile scanning total station. ■ ■

Technical news

Training

Introduction to Topographic Surveying, May 8th-10th and June 12th-14th
Trimble Business Center, May 15th-17th and June 19th-21st

Updates

The latest version of Trimble Access is 2017.11 and includes a number of minor fixes and updates, including support for the new Trimble T10 tablet and SPS986 receivers.

The latest GNSS firmware version is 5.33, with the improvements shown in the table below:

| Issue | Type | R10 | R9s | NetR9 | R8s | R8 | R7 | Geo7 | R6 | R5 | R4 | R2 |
|--|-------------|-----|-----|-------|-----|----|----|------|----|----|----|----|
| General WebUI enhancements | Enhancement | * | * | * | * | * | * | * | * | * | * | * |
| GNSS signal tracking & processing enhancements | Enhancement | * | * | * | * | * | * | * | * | * | * | * |
| RTX signal tracking & processing enhancements | Enhancement | * | * | * | * | * | * | * | * | * | * | * |
| Improved post-processing accuracy for measurements collected in challenging environments | Enhancement | * | * | * | * | * | * | * | * | * | * | * |
| No GPS L1 observables written to RINEX 2.x files | Bug Fix | * | * | * | * | * | * | * | * | * | * | * |
| Approx. antenna position added to RINEX 3.x header | Enhancement | * | * | * | * | * | * | * | * | * | * | * |

If running Trimble Business Center v4 and post processing GNSS data, install the most recent patches to update the Internet Download links following changes to the data location URLs for precise ephemeris data.

Update your SX10 to the latest firmware S1.106.6, to take advantage of the newest enhancements.

Tips

To view the scale factor at any point within a TBC project, open Project Settings, select the View section and then Point Spreadsheet. Change the status of the Projection, Height and Combined scale factor entries from Hide to Show.

When a point spreadsheet is opened, the scale factor information at each point is displayed.