

**GroundProbe**<sup>®</sup>

# GROUND BREAKING

JUNE 2015 NEWS



INTRODUCING  
SSR-FX

decision confidence<sup>™</sup>

[www.groundprobe.com](http://www.groundprobe.com)

## CEO UPDATE: LAUNCH OF SSR-FX

Since our last newsletter, it has been an exciting and rewarding time for GroundProbe, and for our Product Development team in particular. After three years of intensive research and development, the SSR-FX is in production, and has been deployed commercially in six countries.

The SSR-FX is the first radar of its kind, representing one of the most exciting developments in slope stability monitoring. While its design builds on the proven strengths and reliability of its older sibling (SSR-XT), the SSR-FX introduces brand new antenna technology to the mining industry, and boasts a range of advanced specifications that position it as the best choice for fast, broad area monitoring.

The Product Development team has worked closely with our customers to carefully design and craft the SSR-FX with these needs in mind, and to ensure it achieves GroundProbe's twin goals: to make mine sites safer and maximise productivity.

We are truly pleased to introduce this innovative piece of equipment, and to share with you, its key features and benefits, and a behind-the-scenes snapshot on the three-year R&D process that led us here.

As always, we look forward to receiving your feedback, and are excited to see the SSR-FX deployed in mine sites all around the world.



## SSR-FX: SISHEN MINE

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**“IN TERMS OF PREDICTING A FAILURE, THE SSR-FX IS WORKING AS ADVERTISED.”**

Richard Carey, Chief Geotechnical Engineer,  
South Africa

For the Geotechnical Engineering team at Kumba Iron Ore's Sishen Mine in South Africa, the past year has been particularly rewarding with the implementation of a long-term, broad area monitoring strategy based around the SSR-FX. With two SSR-FX radars already purchased and deployed, they are monitoring entire pit walls out to 180 degrees which are complemented by their additional fleet of SSR-XT radars.

Richard Carey, Chief Geotechnical Engineer, states it has been a step change in monitoring for the site.

**“SISHEN MINE INCLUDES A NUMBER OF LONG WALLS WHICH REQUIRE CONTINUAL BROAD AREA MONITORING. THE SSR-FX HAS PROVEN TO BE VERY EFFECTIVE FOR THIS TYPE OF MONITORING, AND HAS THE ABILITY TO NOT ONLY PROVIDE A RAPID SCAN TIME, BUT TO DISTINGUISH BETWEEN REAL MOVEMENT AND MINE INDUCED MOVEMENT (NOISE) IN A VERY LARGE AND BUSY MINE. USING THE SSR-FX UPDATED PHOTO IMAGING SYSTEM, YOU CAN ACCESS THE RADAR FROM A REMOTE LOCATION AND ZOOM INTO THE AREA, TO ANALYSE FOR REAL OR MINING INDUCED MOVEMENT. THE ABILITY TO INTEGRATE MINE PLANS, SATELLITE IMAGES AND STRUCTURAL FEATURES TO THE VIEWER HAS ADDED A POWERFUL TOOL TO THE GEOTECHNICAL ENGINEER'S TOOLBOX.”**

**“HAVING THE SAME SOFTWARE FOR BOTH CRITICAL MONITORING TOOLS SUCH AS THE SSR-XT AND NOW THE BROAD AREA MONITORING SSR-FX, WILL REDUCE COMPLICATIONS WHEN SETTING UP AND ANALYSING DATA – ALLOWING FOR A MORE SEAMLESS USER EXPERIENCE.”**

## THE TEAM BEHIND SSR-FX

Three years ago, our Product Development team embarked on an ambitious new project. The goal? To design a state-of-the-art radar that would revolutionise the mining industry.

**“WE KNEW WE HAD A CHALLENGE ON OUR HANDS,” PRINCIPAL R&D ENGINEER DR PAT BELLETT LAUGHS, “BUT WE ALSO KNEW WE HAD A SECRET WEAPON—OUR CUSTOMERS.”**

“To truly revolutionise what we do,” Pat continues, “we needed to involve our customers in the complete design process, because they know—better than anyone—exactly what our products need. We wanted them to share their wish list with us. Only then, would we be able to create a product that genuinely reflects the priorities and ambitions of our customers—a product that not only meets their expectations, but exceeds them.”

With this in mind, the team collaborated with customers in a rigorous, three-year R&D process that culminated in the SSR-FX.

Product Development Manager James Usherwood agrees. “Our team consists of scientists, engineers and technical writers, but it takes the entire GroundProbe community—from the CEO through to our customers—to deliver an intuitive and high-quality long-term product. Involving everyone and accessing their broad mix of skills is what makes our products so successful in the market.”

Due to the team's collaborative approach, the SSR-FX has become the industry's only fast broad monitoring radar. “We are so proud of the SSR-FX for many reasons,” Principal Technologist Benny Chen explains. “We're proud of the great teamwork that led us here, we're proud of the radar's unprecedented speed and capacity to monitor an entire site, and we're proud that it offers the features and benefits we know our customers truly value. We've had great feedback and we're really excited about the benefits and the peace of mind the SSR-FX will bring to mine sites around the world.”

# SSR-FX

IDEAL FOR BROAD AREA MONITORING

## 180° SCANNING LOW PROFILE ANTENNA

Our low profile antennas allow the system to monitor 180° in azimuth by 60° in elevation in less than two minutes. This high-speed scanning capability allows the system to manage changes in the atmosphere and deliver data faster whilst also tracking fast moving walls.

## EASE OF DEPLOYMENT

There is no requirement for straining manual winding when deploying your radar, as our SSR-FX unit comes with an in-built electric jack kit. This allows you to rapidly speed up deployment time, safely deploy your radar, and eliminate physical exertion and risk of muscle strain.

## ENHANCED PLAN VIEW SOFTWARE

The Plan View software links plan view and front view images to provide you with a clearer understanding of the data. It also allows you to visualise all areas of your mine at once, and to instantly detect and locate any potential hazards, and identify exactly where the movement is occurring. This software is user-friendly and is compatible with any plan view map, including DTMs, weekly mine plans, aerial photographs, and many other formats.

## HIGH QUALITY RESOLUTION

The SSR-FX captures more pixels per scan than any other radar. This high resolution allows you to identify new risks and hazards to make quick, accurate in-pit decisions. It also provides unrivalled coverage of your mine, to further assure safety.

## 3D REAL APERTURE RADAR DISH

Our 3D real aperture radar (RAR) dish is ideal for monitoring safety-critical risks for short periods in a targeted scanned area—allowing you to confidently manage a known risk.

## HIGHLY MOBILE

The SSR-XT is highly mobile and quick to set up. Thanks to its parabolic dish, the SSR-XT has the capacity to scan from anywhere in your pit—guaranteeing every targeted area of concern is monitored in real time.

## SSR-VIEWER SOFTWARE

SSR-Viewer software provides front view photographs and 3D data, which specifically focuses on known risks and instantly detects fast-occurring changes. This revolutionary piece of software enables you to monitor with ease and confidence.



## COMMON HARDWARE AND SOFTWARE

The SSR-FX shares hardware and software with our new series of SSR radars, offering cost savings with the ability to use interchangeable parts. We offer full technical support services to allow you to maximise the use of your radar.



## GEOMETRY INDEPENDENT

This geometry independent radar is a truly flexible system that can be deployed at the crest, mid-slope or on the pit floor. It does not require importation of any other data to start monitoring. Over the past 12 years, it has proved itself to be the industry's benchmark tool to manage geotechnical risk for maximum production and safety.

# BROAD AREA & TARGETED MONITORING STRATEGIES: HOW DO THEY DIFFER?

For detecting new risk areas, you need broad area monitoring. SSR-FX does this best by monitoring a thin vertical stripe on the wall that is rotated left-to-right—like a fan—and does not have to move up-and-down—like a spotlight. This saves a lot of time as our SSR-FX can scan 180 degrees in less than two minutes. Saving time delivers better data quality over a large area.

Both systems are specifically designed for safety-critical monitoring. Processed

data is immediately available for viewing and alarming at the end of every scan. This feature is specifically unique to GroundProbe.

Both systems use GroundProbe's SSR-Viewer 8.3 software with integrated visual images and stackable alarms, and all systems are covered by GroundProbe's global support network and geotechnical support services.



With the introduction of the SSR-FX, GroundProbe offers two slope stability radar technologies: 3D Real Aperture Radar such as SSR-XT, and 2D Real Aperture Radar such as SSR-FX. While both systems are critical monitoring radars, each has their unique strength.

For known high risk areas, a targeted monitoring strategy is needed.

SSR-XT does this best by monitoring a small spot on the wall that is rotated left-to-right and up-and-down—like a spotlight—to completely cover the known high risk area. Because each spot points directly to a physical spot on the wall, the confidence in precisely measuring movements of the wall is very high.

## SSR-VIEWER 8.3

The SSR-Viewer 8.3 supports both the SSR-XT and SSR-FX—adding a new dimension to slope monitoring analysis.

Our patent-pending plan view software links plan view images and data with front view photos. The images are linked by an eye-line and interact much like a 'rack and pinion' gear set. The top image pans as the bottom image rotates. This allows you to instantly identify where movement is occurring in your mine.

To catch a glimpse of the software's full capabilities, contact your local GroundProbe office for a personal software demo.



Alternatively, you can watch the demo video either by scanning the QR code below or visiting our website:

<http://www.groundprobe.com/news-and-publications/videos-and-images>



## SEE THE SSR-FX IN ACTION

Catch a glimpse of the key features and benefits of the SSR-FX by scanning the QR code below.

Alternatively, you can visit our website:

<http://www.groundprobe.com/news-and-publications/videos-and-images>



## SLOPE STABILITY SYMPOSIUM 2015: COCKTAIL EVENT

GroundProbe is continuing the tradition of holding first-class cocktail parties as part of Slope Stability Symposium, and this year's event in Cape Town is no exception.

At the conclusion of the first day on October 12, we will be holding our event at The Table Bay Hotel.

If you will be attending the symposium, and would like to secure your place at our exclusive, invitation-only cocktail event, please come, and visit us at stand #13.

For more information, please contact us: [events@groundprobe.com](mailto:events@groundprobe.com)



## RECOGNITION FOR EFFECTIVELY MONITORING PIT WALL STABILITY

Anglo American Managing change from safe distances is a crucial part of FutureSmart mining. At Thabazimbi mine, this radar system monitors pit wall stability and safeguards operations from afar.



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**"ANGLO AMERICAN HAS INVESTED IN SOME VERY INTERESTING MINING-SAFETY AND MINING COMMUNITY-DEVELOPMENT TECHNOLOGIES. PT-FUEL CELLS FOR SMALL COMMUNITIES. RADAR-CONTROLLED MINING AND BLASTING. IF ALL MINERS THOUGHT AND INVESTED THAT WAY, AND, BELIEVE ME, MANY DO, EARTH-RESOURCE EXTRACTION AND GLOBAL SUPPLY OF RAW MATERIALS COULD BECOME EVEN SAFER AND MORE ECONOMIC. WE HOPE THAT ANGLO AMERICAN MAKES THESE TECHNOLOGIES AVAILABLE TO THE INDUSTRY, FOR THE SAKE OF THE INDUSTRY AND GLOBAL MINERAL-RESOURCE SUPPLIES."**

Franciscus Baars  
Director, Rock Geologia

**"MY COLLEAGUE EDDIE POSING, THESE RADARS HAVE SAVED US!!"**

Pretty Mashego  
Safety superintendent at Anglo American

**"WHERE RESEARCH IS APPLIED, ULTIMATELY MUCH SAFER WORKING CONDITIONS. WELL DONE."**

Brendan Ostwald  
CEO | Civil Infrastructure and Resources | Non-Executive Director | MAICD

**"SO TRUE... WE HAVE PROVEN IT WITH OUR SSR 152XT"**

Rahmad Ujang  
Jr. Geotechnical Mine Engineer (Pt Bayan Resources Tbk)

**"DECISION CONFIDENCE!"**

Andro Prabowo  
Geotechnical Engineer of PT. Kaltim Prima Coal

**"IMPRESSED!! KEEP UP THE GOOD WORK"**

Nompumelelo Sithole  
Risk Manager at Department of Higher Education and Training

Keeping in line with our vision of making mining safer, we are delighted to be publically recognised as a company that develops products and services to effectively monitor pit wall stability and safeguard operations from afar.


We would like to thank Anglo American for the recognition post on LinkedIn, and those who provided comments of support.


It is great to see Thabazimbi mine utilising the full capability of our SSR-XT, and focusing on maintaining their practice of safe operations.


## STAY CONNECTED

For the latest on GroundProbe, follow the conversation here:

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# MAKING MINING SAFER

FROM THE PRODUCTS WE DEVELOP,  
TO THE SLOPE MONITORING SOLUTIONS WE TAILOR,  
OUR VISION IS MAKING MINING SAFER

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