



# CASE STUDY

## SUCCESS UNDER EXTREME CONDITIONS

# EXTREME COLD TEMPERATURE SUCCESS AT CHERNIGOVETS AND ZARECHNAYA SIBERIAN COAL MINES. *UPDATE.*

### OVERVIEW

Siberia's summers are short, while winters are long and harsh and have an annual average temperature of 0.5°C with thick layers of snow remaining on the ground for at least six months.

### CHALLENGE

In 2017, GroundProbe was challenged by the owners of two coal mine sites in South Western Siberia, Chernigovets and Zarechnaya, to provide a slope stability radar solution to function autonomously, without a shelter, in temperatures as low as -40°C.

### SOLUTION

GroundProbe's key solution included the deployment of their safety-critical mobile radar Slope Stability Radar (**SSR-XT**), complemented by their intuitive visualisation software, **SSR-Viewer**.

SSR-Viewer provided the geotechnical team with data to pinpoint movement hotspots by representing the data visually through a colour gradient heatmap draped over a photographic representation of the area, making the complex information more easily reportable.

### UNEXPECTED ISSUE

Although mains power was to be provided to the site, the 240V power supply needed to run the SSR-XT, including all the heater assemblies, was powered from the radar's own Continuous Power Supply (CPS) system.

*"Initially, the sites were going to provide mains power to power up the heater assemblies, however, due to various reasons, this did not occur."*

– Simon Pitt, Senior Technical Specialist, GroundProbe.

## RESULT

Utilising over 12 years of experience operating our radars in arctic conditions in Northern Canada, GroundProbe was able to engineer our radar systems to overcome Siberia's extreme climate and function at -40°C without a shelter, any external power, or other external systems.

Data sensors were fitted to the various radar components to verify the running temperatures and aid in fine-tuning the heater settings so that the heaters run with the least power consumption possible for the radar to function, conserving power and reducing the frequency of re-fuelling.

GroundProbe achieved the objective of running all of the radar's systems and heaters from the CPS with acceptable charge cycles during Siberia's coldest winter months.

At the same time, another vendor's radar system was on site but was forced to be stored for three months, unable to function in the extreme conditions.

Following this successful deployment, GroundProbe has now proven to provide 24/7 reliable radar usage in less than -40°C temperatures across some of the coldest parts of the world, including; Russia, Canada, Mongolia, and the USA.

**GroundProbe is proud to have shared their world-class expertise in providing real-time solutions for measuring and monitoring geohazards to restore ongoing onsite mine safety.**



Image 1. GroundProbe's SSR-XT

GroundProbe is the most trusted brand for real-time geohazard monitoring.

With a track record that speaks for itself, our fleet of cutting-edge technologies deliver the most precise and valuable data.

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