CASE STUDY

Monitoring of sub-bench scale failure
MONITORING OF SUB-BENCH SCALE FAILURE

Introduction

The Yara Siilinjärvi Apatite mine in Finland is a good example of radar monitoring of the entire pit with sub-bench resolution.

Here the IBIS-FM radar unit was selected because of its unique performance and the capability to guarantee reliable data even under extreme weather conditions (ice fog, snow and sub-zero temperatures).

Most of the rock mechanic challenges at Siilinjärvi are related to several continuing and steeply dipping shear zones almost parallel to the pit slopes.

The shear zones are partly highly altered and locally heavily jointed, causing slope instability typically associated with toppling, plane and wedge failures.
One of the most critical shear zones is located in the east side of the pit, in the ore near the contact with the waste rock. This shear zone runs almost the entirety of the eastern pit wall.

Shortly after the commissioning of the unit, a small sub bench-scale failure was timely detected by the radar and the working personnel alerted.

The IBIS unit covers a 1.9 km section (75%) of the western pit wall from its current placement, providing refreshed information every 5 minutes, guaranteeing the safety critical monitoring of the pit wall.