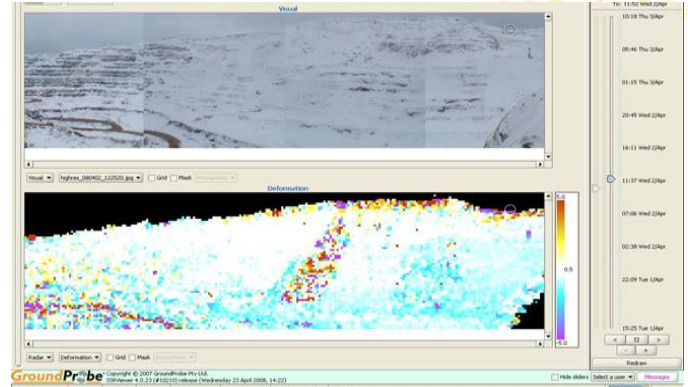


**CASE STUDY**

# ArcelorMittal Mines Canada's Mont-Wright Mine SSR-X Use in Extreme Winter Conditions



▲ Mont-Wright Mine in winter as viewed by the SSR-X



▲ SSRViewer display of movement of snow-covered benches

## ArcelorMittal and GroundProbe:

Overcoming  
challenges  
through  
ingenuity  
and  
teamwork

### Extreme conditions

Québec Cartier Mining Company, now ArcelorMittal Mines Canada, leased the GroundProbe Slope Stability Radar (SSR-X) in January 2008 for use at their Mont-Wright Mining Complex in Northern Québec, Canada.

ArcelorMittal Mines Canada is one of Canada's leading suppliers of iron ore to steel markets around the world, responsible for 40% of the total volume sold by Canadian iron and steel producers internationally.

Prior to their use of the SSR, ArcelorMittal Mines Canada engineers were using prisms to monitor slope stability in specific regions of their pit. After seeing an article about the capabilities of the SSR, they decided it would compliment their prisms and be a useful tool that would provide a more detailed picture of areas of instability.

Due to the extreme weather conditions in the region both the health of the radar system and integrity of the data were serious concerns. In winter, the average temperature is -10°F but extreme lows can reach -40°F. Snow accumulates to depths of 15 to 18 feet and wind speeds can reach 25 to 30 miles per hour.

ArcelorMittal Mines Canada engineers and GroundProbe technical staff worked together on the following concerns:

- whether the radar data would highlight actual wall movement as opposed to snow movement;
- whether the radar signal would reach the wall and differentiate between wall movement as opposed to snow movement;
- if the radar data would accurately represent movement in the extreme weather conditions;
- whether real time alarming would be compromised due to the weather conditions at this site;
- whether the radar system could continue to function in extremely low temperatures.

### Overcoming challenges

The SSR measures surface changes. During winter the pit at Mont-Wright is virtually frozen solid and there is no movement. The radar did detect drifting snow and could potentially be used to warn of avalanches in the pit. Using the SSR's other tools (weather station, coherence data, and change in amplitude) a clearer understanding of what movement was displayed in the SSRViewer software could be obtained. With other enhancements (eg. insulating wraps, heaters, cables and components modified for cold temperature) the SSR-X was able to function in the extreme cold. As a result of the reliability and real time data monitoring, ArcelorMittal Mines Canada decided to purchase their SSR-X in mid-2008.

December 2008