

# Integrating Surface and Drillhole Exploration Results

One of the essential factors in mineral exploration is the ability to fully integrate results from surface geophysical surveys, and subsurface geology and geochemistry from drillholes. Swedish exploration group, North Atlantic Natural Resources AB (NAN) is one group actively seeking ways to improve their exploration knowledge and success through this type of integrated approach.

On a recent exploration project, NAN geophysicist, Jon Rasmussen had a variety of different reasons for integrating data. "As a geophysicist, it is important to be able to maximize my knowledge, for example, by comparing geophysical results with our initial drilling results," stated Jon. "This allows me to teach myself about the data so we get as much information as possible. It also helps us learn about different instrumentation systems – such as magnetics, TEM, IP and MaxMin – and responses of exploration targets. It's an ongoing process since each target and geologic environment has its own unique characteristics."

## Integrating Results in Geosoft

As Jon's primary exploration tool is Oasis montaj, he wanted a solution that would work with all of the different Oasis databases he created for the project. After contacting Geosoft Europe, his client representative suggested that he try a recently developed profile presentation GX. The GX provides a tool for setting up multiple profile windows and displaying up to 5 channels of data in each profile. The GX runs on a line-by-line basis.

Jon started by opening various databases and generating plot files for MaxMin, TEM and Magnetic data. Since the project geologist was working in WholePlot, he was also able to obtain a drill hole interpretation containing geology, sulphide content and thickness in plot file format.

After some careful planning and a few "tricks" such as importing the WholePlot results into a map window and stretching it to fit, the presentation was ready for plotting and interpretation.

## Interpreting Results

Interpretation showed a direct correlation in sulphide thickness and content with a strong MaxMin conductor to the east of the profile and massive mineralization in the easternmost drillhole. A coincident magnetic anomaly was also apparent, and a strong correlation was found between conductor location and dip, and TEM results.

These distinctive signatures give a strong indication of the optimal techniques and results to look for in tracking continuity of the target in the survey area.

