

# SPECTRAL EVOLUTION

## Alteration Zone Mapping

As geologists explore a region, oreXpress spectrometers with EZ-ID software can provide detailed data by measuring reflectance from outcrops, chips, or drill core. Using an oreXpress, EZ-ID and a laptop or tablet, they can detect alteration minerals and chemical/crystalline variations that are not immediately apparent to even the most experienced and well trained human eye.

With the oreXpress geologists can identify:

- ◆ Micas—muscovite-paragonite, biotite, phlogopite
- ◆ Chlorites—variations in iron-magnesium chlorite, epidote
- ◆ Amphiboles—tremolite, hornblende, actinolite
- ◆ Sulfates—jarosite, gypsum
- ◆ Clays—illite, illite-smectite, kaolinite, dickite
- ◆ Carbonates—calcite, dolomite, ankerite, siderite
- ◆ Tourmaline—Fe-tourmaline, tourmaline

Using EZ-ID with the USGS, SpecMIN and GeoSPEC libraries, a geologist can quickly identify an alteration mineral that may not be readily identifiable by sight, matching an unknown sample against a known spectral library. With EZ-ID the geologist can select specific spectral regions to fine-tune the matching process for a more precise ID. If the geologist wants to look at a particular absorption feature, the geologist can highlight that or other features and EZ-ID provides new matches.

The USGS library contains 466 spectra for 226 minerals; SpecMIN has 1528 spectra for 500 minerals; GeoSPEC has 688 spectra for 239 minerals. By ordering EZ-ID with all three libraries, a geologist has access to a wide range of match possibilities for exploration projects in iron, gold, copper, silver, nickel, uranium, and rare earths.

EZ-ID works right from the DARWin SP Data Acquisition software included with all SPECTRAL EVOLUTION spectrometers and spectroradiometers. All spectra collected with an oreXpress are saved as ASCII files for easy import into other 3rd party analysis software for mine planning, mineral mapping and 3D imaging.

SPECTRAL EVOLUTION spectrometers (oreXpress, oreXplorer and oreXpert) are designed for single-user operation in the field. They are rugged and reliable with fixed optics to avoid breakdowns. They capture high resolution spectra very quickly so that a geologist can scan more and collect more data for planning a drilling strategy that will maximize return on investment.

In the core shack, the speed of the instruments is ideal for core logging. In some cases, a single geologist has been able to log as much 400 meters of core in a day. The data can be used to show mineralogy versus alteration type versus mineral assay.

oreXpress, oreXplorer, oreXpert and EZ-ID software are trademarks of Spectral Evolution, Inc. SpecMIN is a trademark of Spectral International, Inc.



*oreXpress, oreXplorer and oreXpert spectrometers are used to better understand and map mineral alteration zones in the field.*



*EZ-ID software identifies minerals in real-time by matching your target spectra against a known spectral library such as the USGS library, the SpecMIN library or the GeoSPEC library.*

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