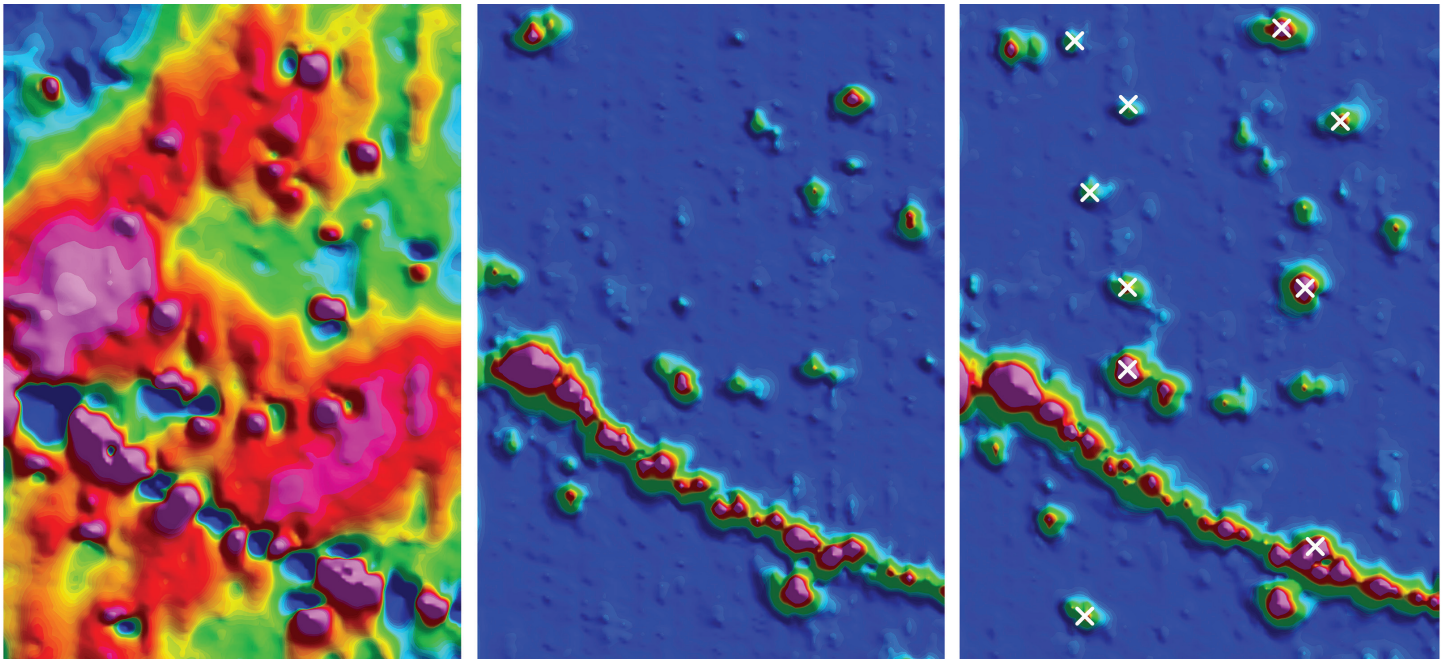
Explorer AUV

The smallest, lightest total-field mag ever developed. Using high sensitivity Overhauser technology for unmatched accuracy, low noise and power, it is ideal to integrate with AUVs.

UXO Trial San Diego Bay

Figure 1
Data Courtesy of Geneva International Centre for Humanitarian Demining



Total Field Map | *AS- unseeded* | *AS- seeded*

Explorer was integrated with the Iver2 AUV. The integration was tested at a blind UXO trial for the Geneva International Centre for Humanitarian Demining, Switzerland, in San Diego Bay.

Survey Parameters

Two 250m x 120m surveys were conducted over the same area. One before seeding with simulated UXO targets, and the second after seeding, on the following day. The targets ranged in size from 60 mm to 160 mm. The smallest target was 1 kg.

Results

The total-field map (figure 1) shows significant geological background obscuring small near-surface targets and a small pipeline in the lower half of the block. The unseeded and seeded area's gradient map clearly show 10 UXO targets. It was confirmed that all ten UXO were reliably detected after seeding.

Gradient Data From A Single Explorer Sensor

Overhauser sensors have high sensitivity, no dead zones or heading error, all of which make it an order of magnitude more accurate than any other magnetometer. These characteristics coupled with Iver's great control of position, depth and altitude yielded exceptional quality data.

Figure 1: Magnetic maps -total field, before UXO seeding, and after UXO seeding; each "X" indicates unexploded ordnance detection.

Marine Magnetics

System consists of:

Neutrally Buoyant Explorer AUV Mag

- Overhauser sensor
- Electronics module with Larmour counter
- Leak detector
- Depth rating 500m (712 psi)

Additional Components

- Buoyancy trimming kit
- BOB data acquisition and visualization software
- Integration tow cable
- A custom aluminium shipping case

Explorer AUV mag integrated with the Iver2 AUV

Specifications

Performance	
Operating Zones	NO RESTRICTIONS Explorer will perform exactly according to spec throughout the entire range
Absolute Accuracy	0.1 nT
Sensor Sensitivity	0.02 nT
Counter Sensitivity	0.001 nT
Resolution	0.001 nT
Dead Zone	NONE
Temperature Drift	NONE
Power Consumption	2 W
Range	18,000 nT to 120,000 nT
Gradient Tolerance	Over 10,000 nT/m
Sampling Range	4 Hz – 0.1 Hz
Communications	RS-232, 9600 bps
Power Supply	9-30 VDC or 100-240 VAC

Neutrally Buoyant Explorer Magnetometer	
Length	86 cm (33.75 in)
Diameter	6 cm (2.875 in)
Weight in Air	3.36 kg (7.4 lbs)
Weight in Water	3.9 g (0.14 oz)

Tow Cable	
Conductors	Four + Shield
Breaking Strength	998 kg (2,200 lbs)
Outer Diameter	0.7 cm (0.3 in)
Weight in Air	58 g/m (3.9 lb/100 ft)
Weight in Water	21 g/m (1.4 lb/100 ft)