OFG Ocean Floor Geophysics

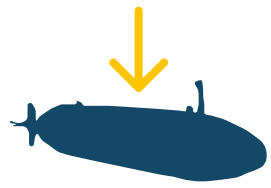
Self-Compensating Magnetometer

Ocean Floor Geophysics (OFG) offers the only Self-Compensating Magnetometer (SCM) system that can operate with the sensor mounted inside an AUV, ROV, HAUV, USV, or towfish to acquire high resolution magnetic data that is automatically compensated and corrected to remove the effects of the vehicle in the magnetic field.

Our internally mounted magnetometer and propriety software help you avoid the operational challenges that result from towed or pole-mounted magnetometers.

Real-time magnetic compensation

3-component compensated vector data



Mounted directly on or in vehicle

No knowledge of IGRF required

Low power <1 Watt

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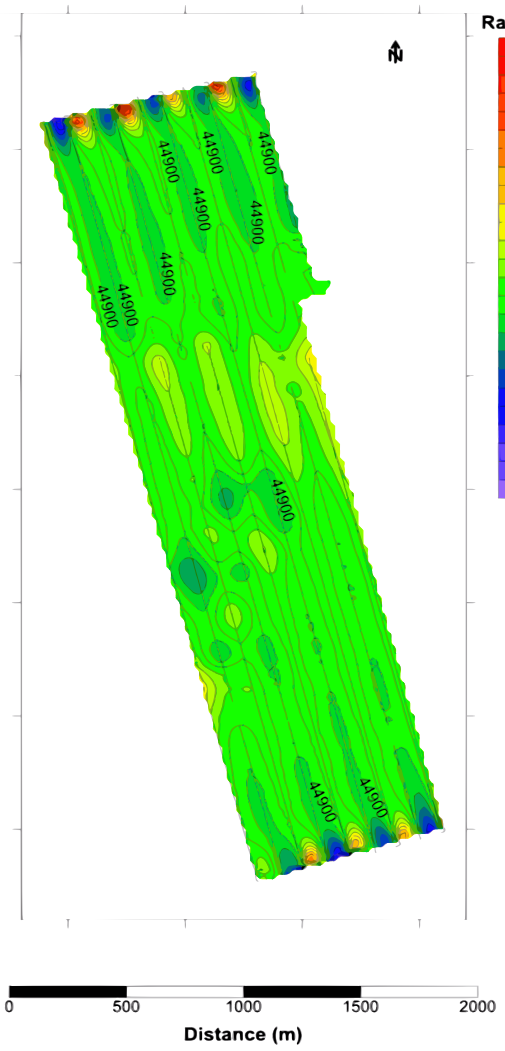
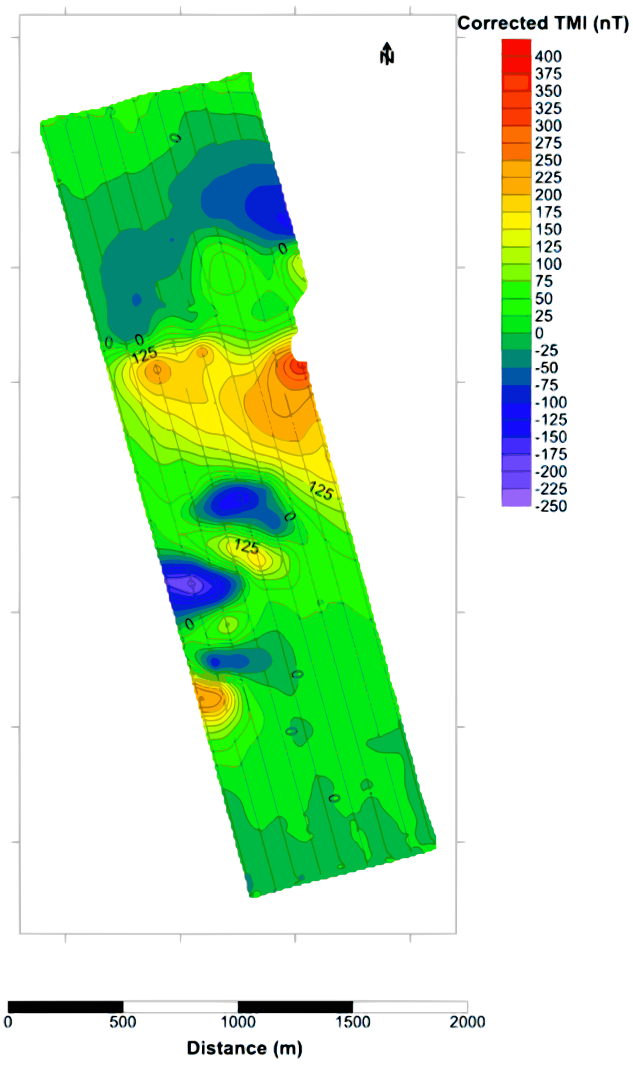
Real-time compensation

RAW



COMPENSATED



OFG-collected magnetic data from a deep sea AUV survey

This figure compares the raw magnetic data (left) with the compensated data (right) produced by our patented technology. Our system transforms magnetic data in real-time so that you get meaningful and interpretable information from your magnetometer.

The SCM system is comprised of a 1000m or 6000m depth rated sensor, vehicle compensation procedure, and a proprietary software algorithm that computes a set of coefficients to deliver your compensated magnetic data in real-time.

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Applications

GEOLOGICAL

- Exploration
- Structural interpretation
- Environmental baseline surveys
- Geological domain and lithology definition
- 3D magnetic susceptibility inversion models

MILITARY

- Ship signature management
- Underwater munitions
- Mine countermeasures

RENEWABLES

- UXO detection
- Infrastructure mapping
- Buried pipeline and cable tracking

ARCHAEOLOGY AND SEARCH

- Shipwreck debris
- Chains, cables, anchors
- Aircraft

Simple system integration and operation

Simple and robust data exchange between SCM software and host vehicle using ASCII messages over user-configurable UDP ports

Single standard subsea connector for power and data

Low power consumption suitable for subsea vehicle integration (<1 W)

No expertise with magnetic data processing is required to calculate the magnetic signature and compensation coefficients in order to remove the varying field of the vehicle

No knowledge of local magnetic reference field (IGRF) is required by the sensor or the user to calculate and apply the compensation coefficients

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Specifications

- Titanium 6000m housing: 50mm diameter x 205mm length not including bulkhead connector
- Delrin 1000m housing: 50mm diameter x 205mm length not including bulkhead connector

- SCM software for Windows or Linux
- Sensor power: 6-36 VDC @ 50 mA
- Sensor communications: RS232

- 3-axis 0.5 nT magnetometer
  - Compensated magnetic intensity for three components and total field
  - Raw magnetic intensity for three components and total field

Let's start talking

Reach out to discuss applications and integration of the SCM system into your marine vehicle now.

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