

INNOVATUM

INTERNATIONAL Ltd.

SMARTSEARCH



A NEW SYSTEM FOR LOCATING FERROUS OBJECTS IN THE SEABED



SMARTSEARCH may be used for:

- Magnetic debris searches.
- Pipeline & Cable positioning.
- Route clearances.
- Explosive ordnance location
- Wreck location
- Archaeological survey

INNOVATUM *International Ltd.*

Units 11 & 12, Woodside Business Park, Ingham, **BURY St. EDMUNDS** Suffolk **IP31 1NR ENGLAND UK**
T: +44 (0)1284 729 123 **F:** +44 (0)1284 729 133 **E:** innovatum@aol.com **W:** www.innovatum.co.uk

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SMARTSEARCH

SMARTSEARCH is a underwater survey system providing highly detailed magnetic mapping both in marine and land environments. **SMARTSEARCH** consists of an array of magnetic sensors mounted on a frame, which may be mounted on an ROV, or towed over the seabed or on land. The tracking swath may be adjusted from a single sensor to a maximum of twelve sensors, with spacing varied to suit the search criteria. A wide array allows an ROV to search along a linear target such as a pipe or cable. High speed data acquisition gives high productivity.

SMARTSEARCH uses an array of very sensitive magnetic gradiometers which measure magnetic field gradient in the vertical (Z) plane. The normal ROV array is 3 sensors, with expansion available up to 12 sensors, which with a 60 cm sensor spacing can give a survey swath of 6.6 metres. Data is collected by an electronic system on the ROV. The system is lightweight and requires very little power.

SMARTSEARCH requires a positional data input. This is normally provided by a combination of surface (above water) and subsurface underwater positioning devices.

With a survey speed of up to 4 knots, and a data point acquired on each sensor around 6 to 10 times per second, **SMARTSEARCH** can map a survey area faster than any other current system. The real time data acquired is monitored by a "waterfall" display, which allows an immediate assessment of features of interest and simple tracking of linear features such as pipeline and cables. Array configuration, update rate and sensitivity may be selected on line. Positional data may be accepted from almost any survey positioning system. Data is continuously logged for post processing and report generation.

The **SMARTSEARCH** post processing software combines the measured fields from each sensor to form a field gradient map. This allows the generation of charts and a variety of graphical outputs, giving excellent visualisation of the mapped fields. Items of interest may be selected from the on screen map, and shown in a 3D graphical format. This will often allow an assessment of the size and orientation of the object to be made.

The **SMARTSEARCH** may be carried by almost any ROV except the very smallest observation vehicles, or towed by almost any slow speed land vehicle, or small vessel in a marine environment. Smartsearch has been proved operationally on various object location tasks, with excellent results, and has located targets unseen by other systems.

SMARTSEARCH is supplied as a complete system, ready to mount on the ROV. All components except the mounting frame are packed into a single transit case weighing only 32 Kg, allowing rapid deployment by almost any transport. The **SMARTSEARCH** unit may be upgraded to **SMARTRAK** in order to perform Depth of Burial surveys on submarine pipelines and cables.

SMARTSEARCH is one of the new suite of marine survey tools from **INNOVATUM International Ltd.**

Contact Terry Slater & Rob Nunn at **INNOVATUM International Ltd.** for further information

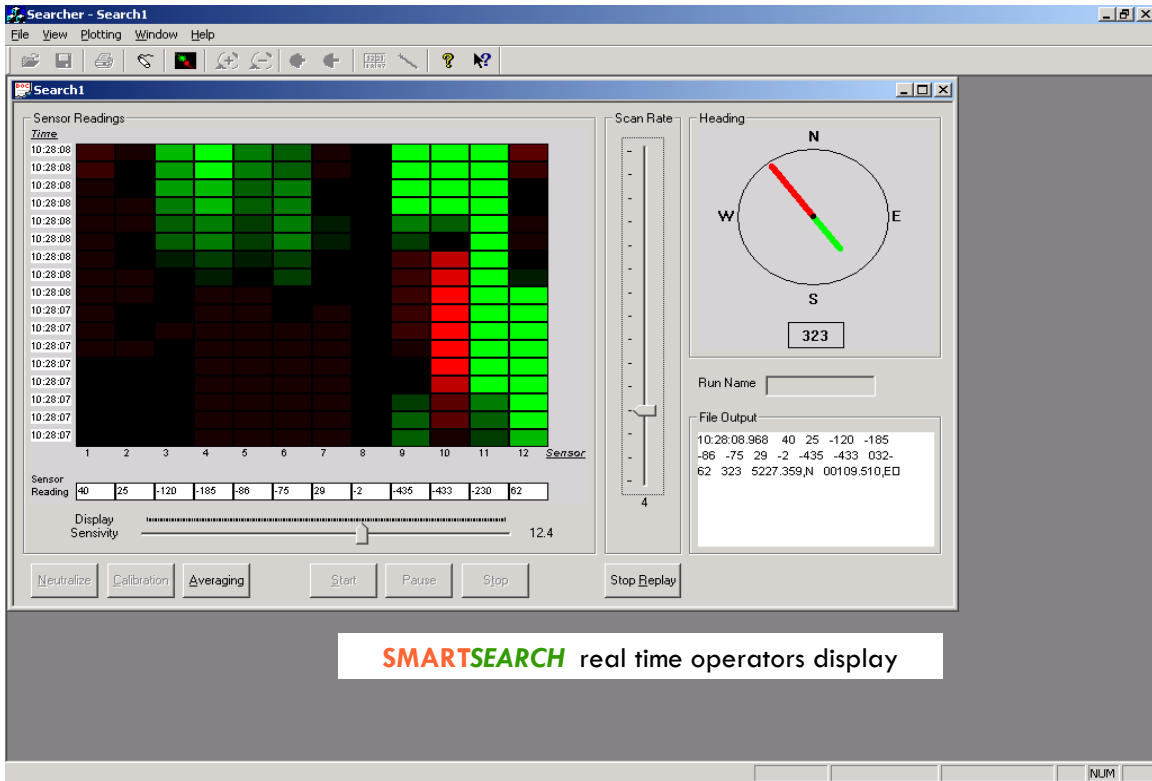
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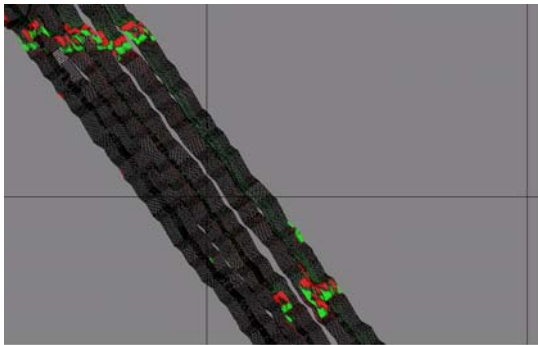
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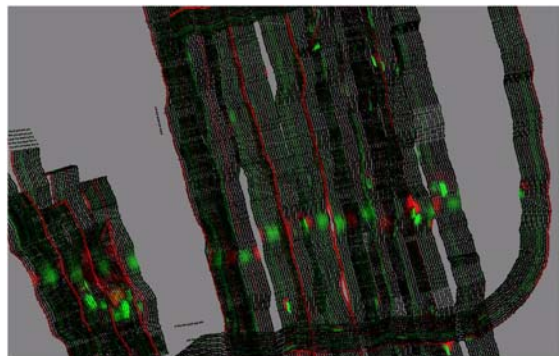
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SMARTSEARCH real time operators display



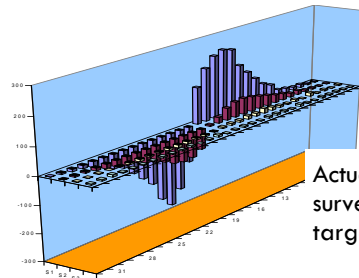
SMARTSEARCH plot showing linear targets



SMARTSEARCH plot showing underground pipeline



SMARTSEARCH fitted to ROV



Actual data from underwater survey using 4 sensors showing target under left sensors.
Courtesy of Subsea 7

SMARTSEARCH 3D plot of buried object