



Presented at the FIG Working Week 2017,
May 29 - June 2, 2017 in Helsinki, Finland

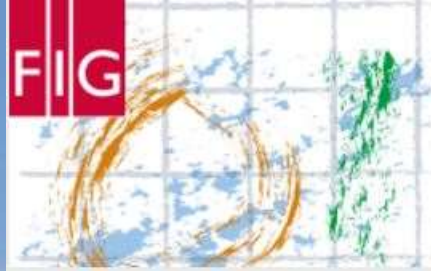


FIG WORKING WEEK 2017

Surveying the world of tomorrow -
From digitalisation to augmented reality

May 29 - June 2 **Helsinki Finland**



Semi-buried seabed object detection: Sonar vs. Geophysical methods

Dino DRAGUN



Lieselot NOPPE, Pierre SERPE



Emeline CARON, Astrid ROBERT



Thursday, June 1st, 2017
TS08D: Technology and Sensors
Commission 4 - Hydrography



WWW.GEOXYZ.EU



1999
Start GEOxyz

ONSHORE



HARBOURS

NEARSHORE

2006
New Office Zwevegem



2010
Acquisition STEMA Systems



2008
GEOxyz
France

OFFSHORE
WINDFARMS



2011
GEOxyz
UK

2012
Extension Main Office Zwevegem



2013 HUB Oostende



2014
GEOxyz NL
GEOxyz LUX



2016
GEOxyz OFFSHORE

2017
Acquisition
EUROSENSE
marine

OFFSHORE
OIL & GAS

1999 2000 2001 2002 2003 2004 2005

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017



2000
Geo Amfibian



2005
Geobeam



2007
GeoSurveyor II



2010
Geosurveyor IV
Geosurveyor VI



2012
Geosurveyor VIII



2013
Geosurveyor XI



2014
Geo Ocean II



2011
Geo Ocean I



2013
Geosurveyor X

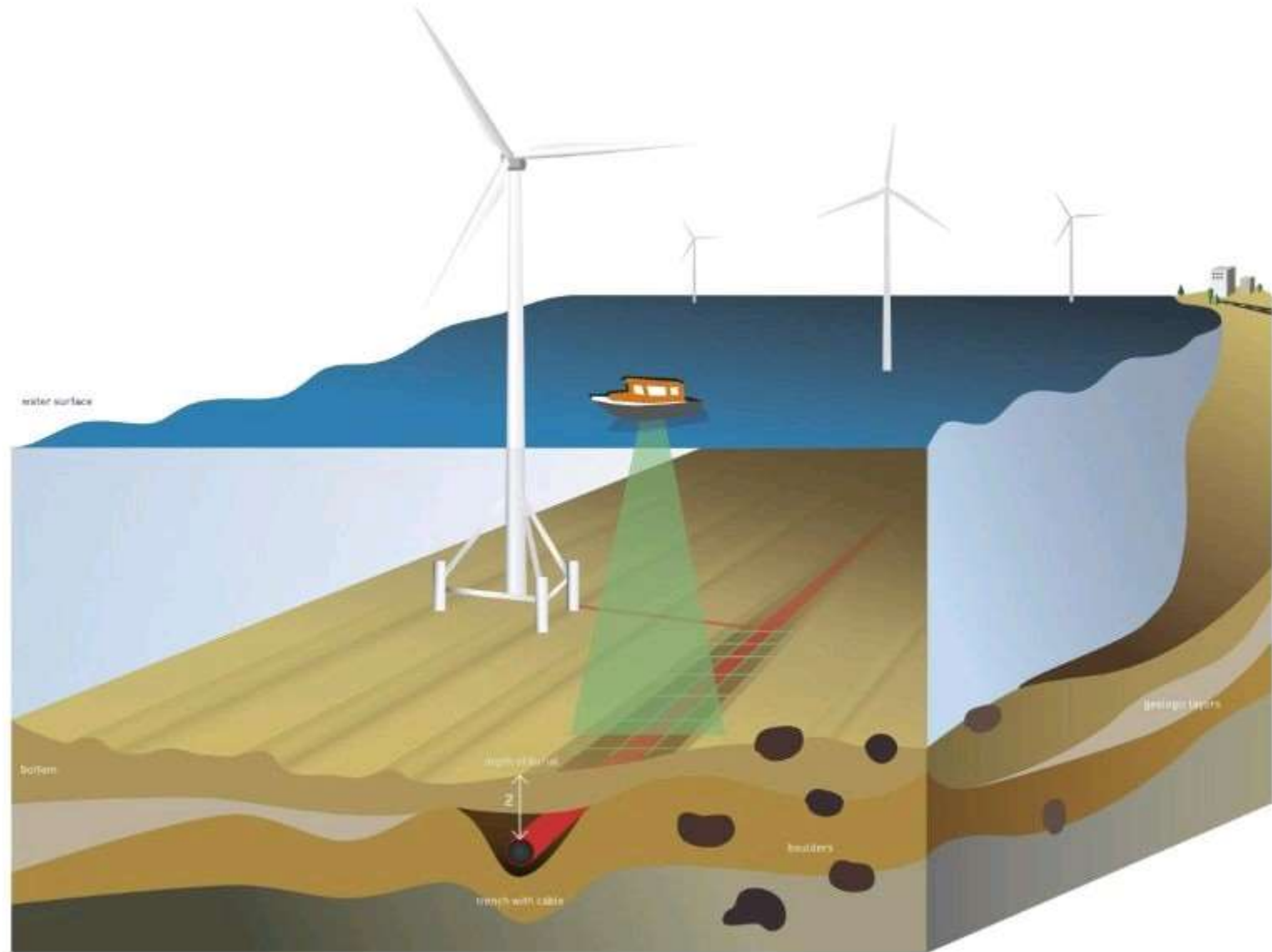


2016
Glomar Partnership



WWW.GEOXYZ.EU

- Multibeam Bathymetry
- Cable and Pipe Tracking
 - DOB surveys
 - Cable Touchdown Monitoring
- UXO surveys
 - Magnetometric Detection
 - Side Scan Sonar Surveys
- Metocean Monitoring
- Seismic
 - Pinger / Boomer / Sparker
 - 2DHR & UHR
- Geotechnical Sampling
 - Vibrocore / CPT / Grab
- Scour Monitoring
- ROV Visual Inspections & Surveys
- Drone Photogrammetry
- O&M Operations
- Windfarm Maintenance Support
- Crew & Maintenance Transfers
- Visual Inspections



GEOxyz respects QHSE requirements following these standards: ISO 9001 / ISO 14001 / VCA Safety / ISM / ISPS / OHSAS 18001

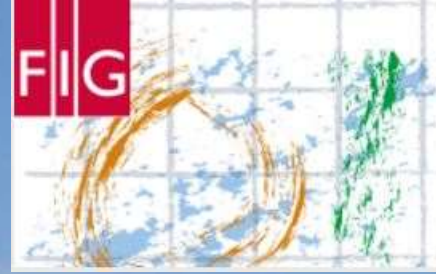


FIG WORKING WEEK 2017

Surveying the world of tomorrow -
From digitalisation to augmented reality

May 29 - June 2 **Helsinki Finland**



Semi-buried seabed object detection: Sonar vs. Geophysical methods

Dino DRAGUN



Lieselot NOPPE, Pierre SERPE



Emeline CARON, Astrid ROBERT



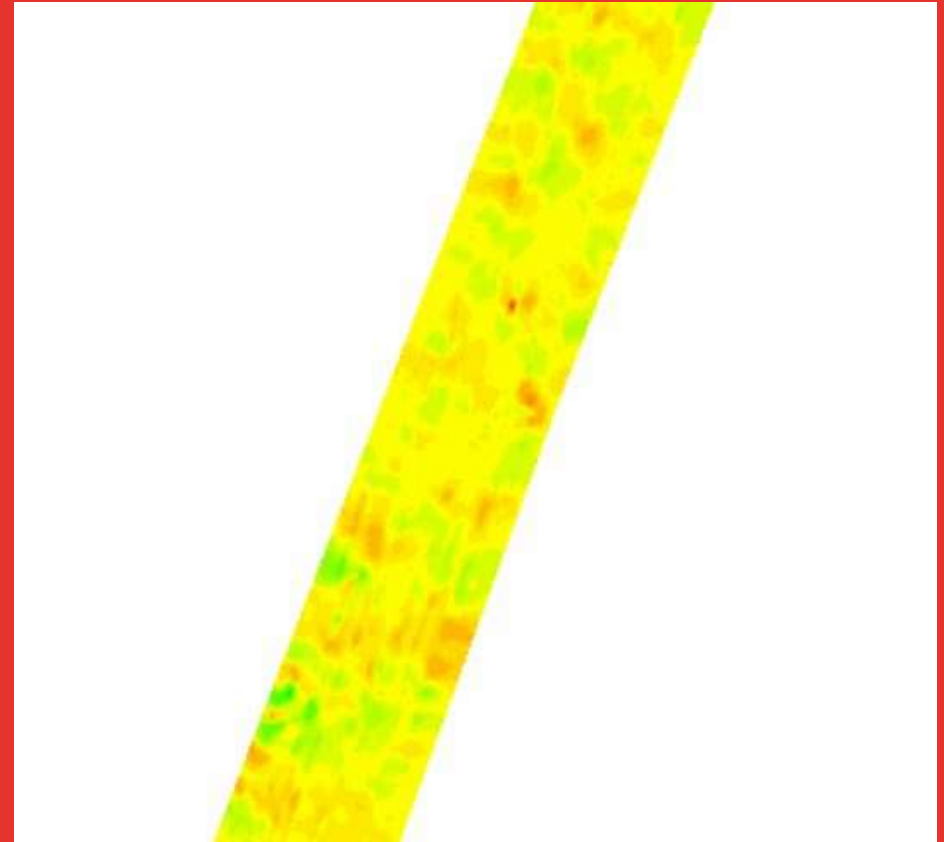
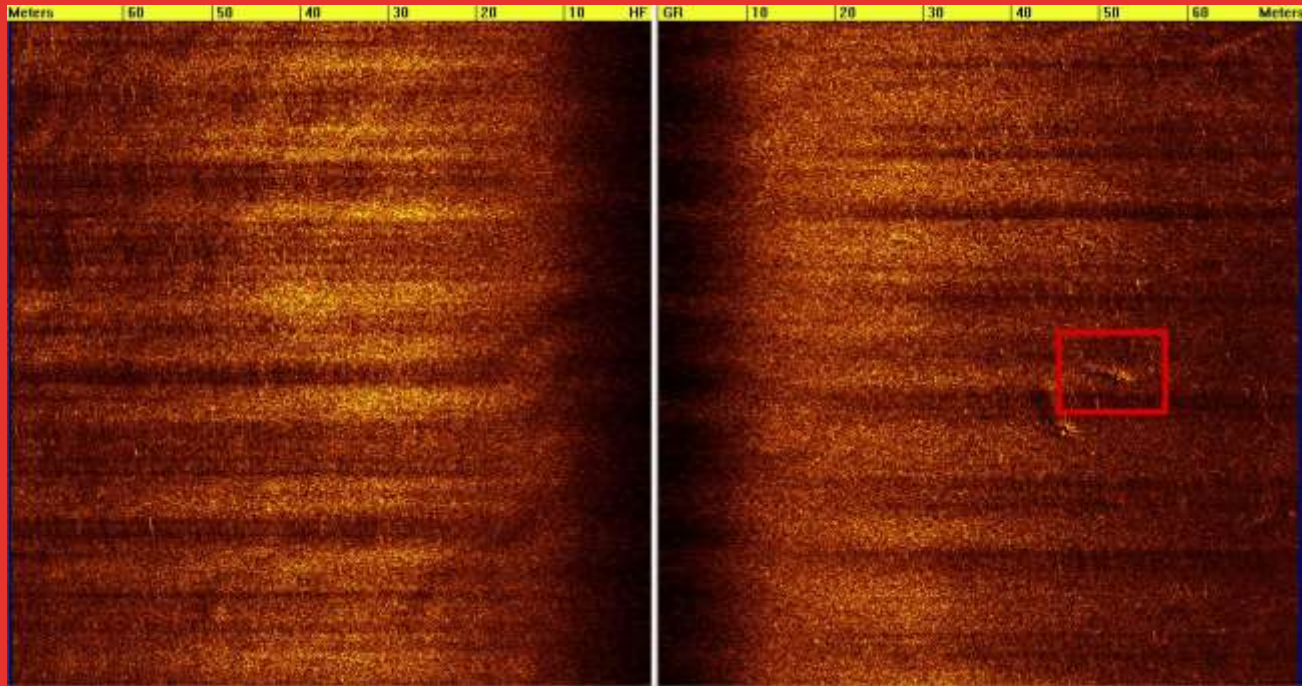
*Thursday, June 1st, 2017
TS08D: Technology and Sensors
Commission 4 - Hydrography*



- Semi-buried object detection
- Site investigation
- IHO standards



Sonar vs. Geophysical methods





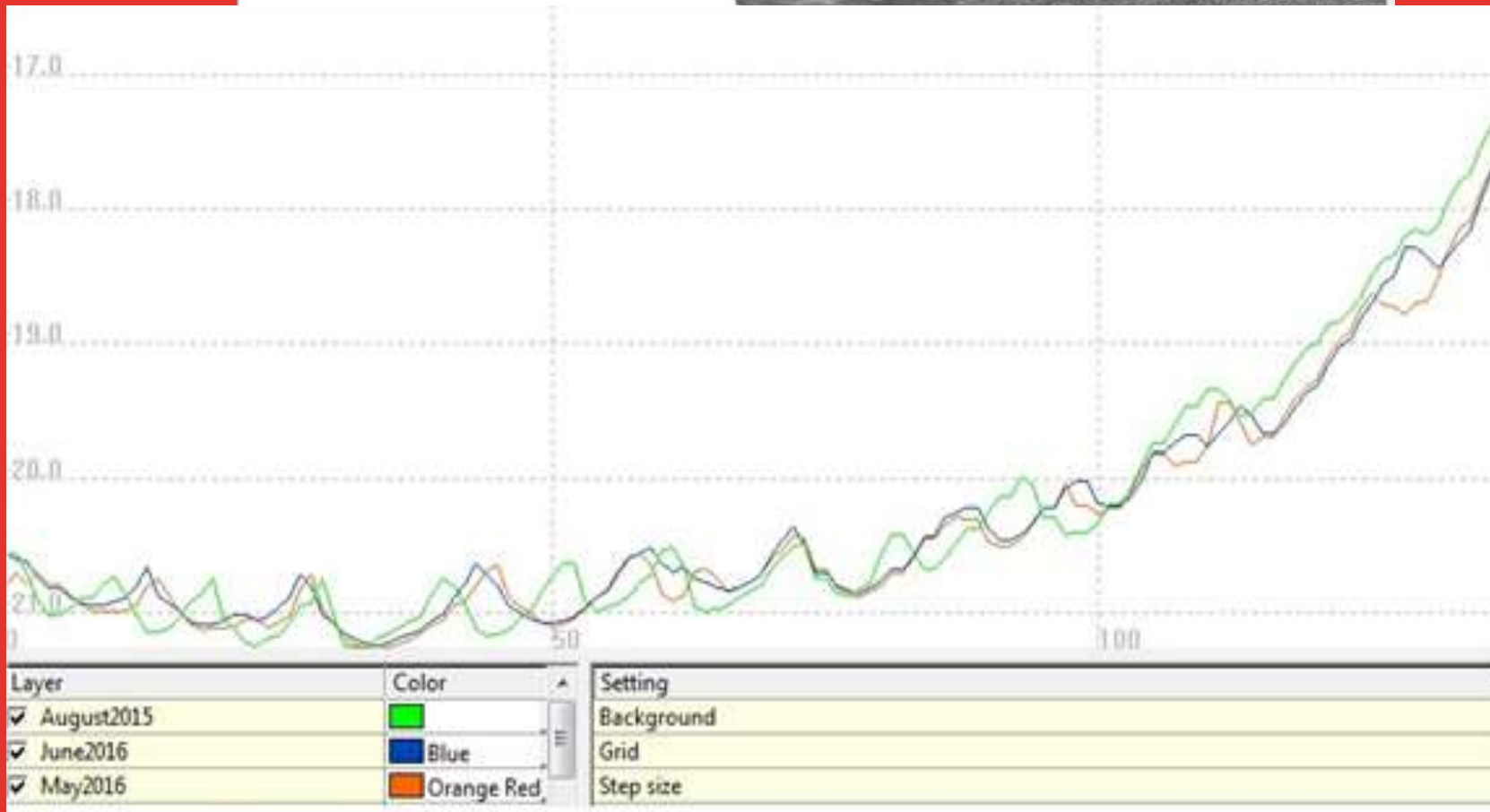
Survey and methodology

- Multibeam
- Side Scan Sonar
- Magnetometer



WWW.GEOXYZ.EU

Multibeam

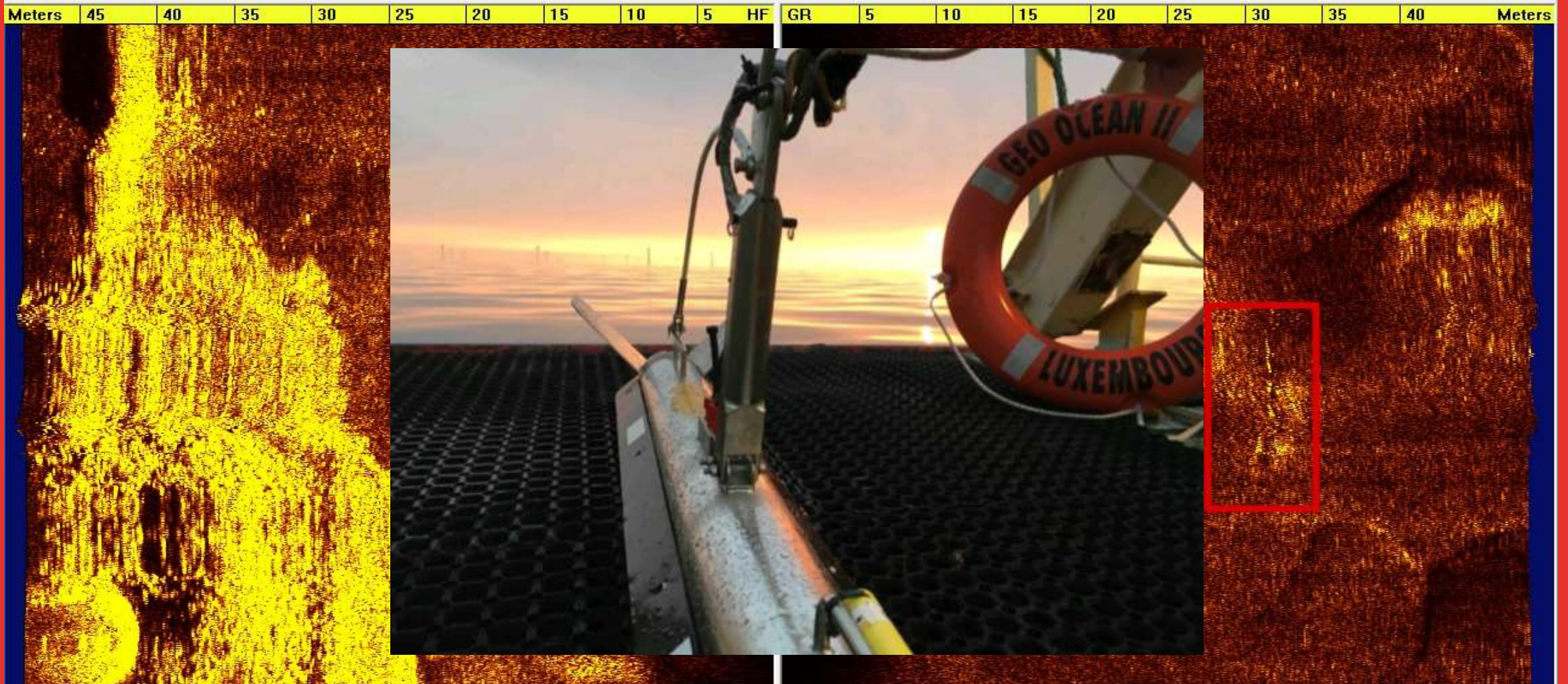


MB Backscatter data
Sand movement



WWW.GEOXYZ.EU

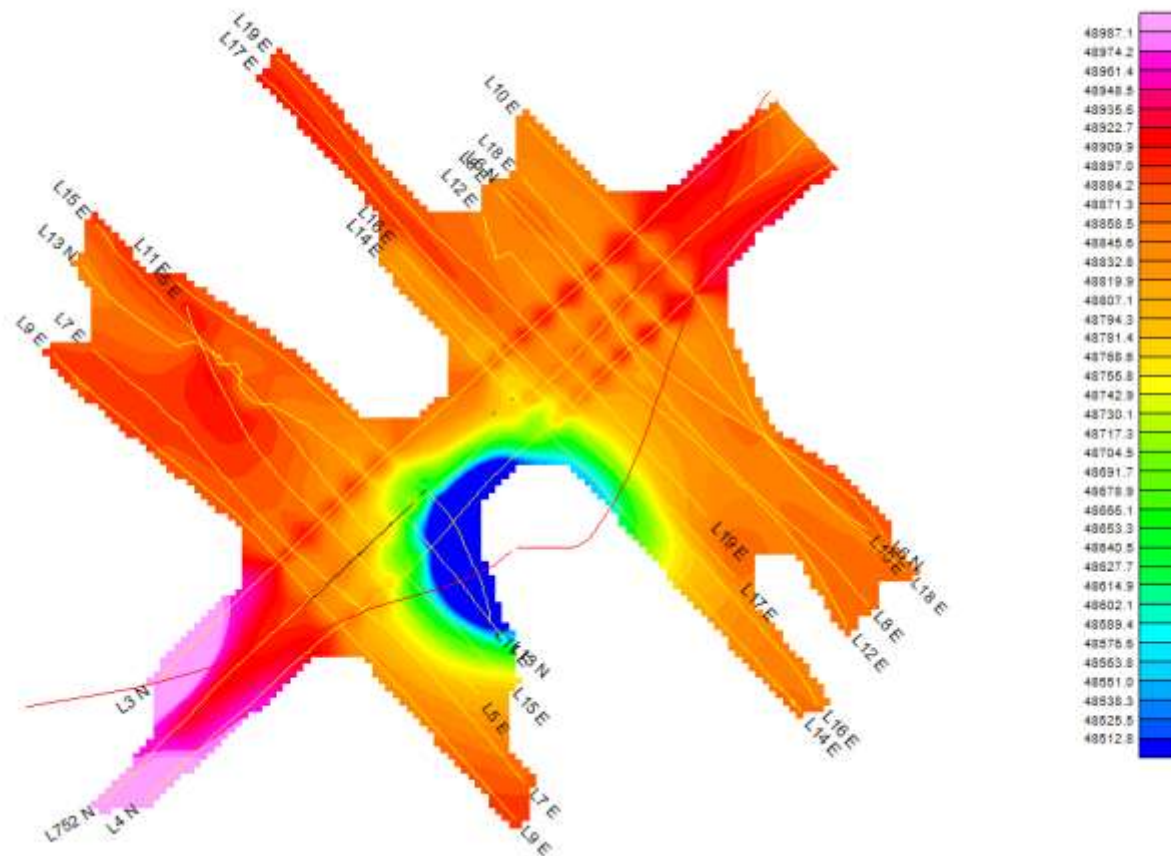
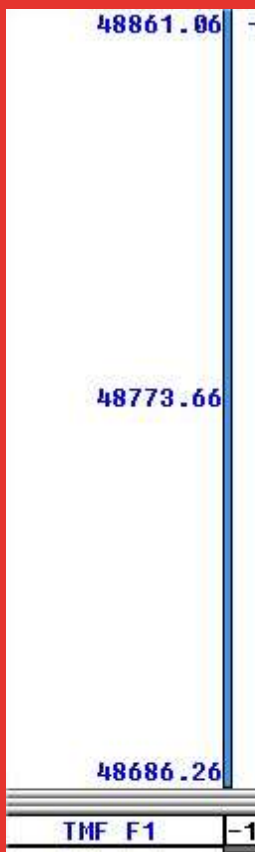
Side Scan Sonar





WWW.GEOXYZ.EU

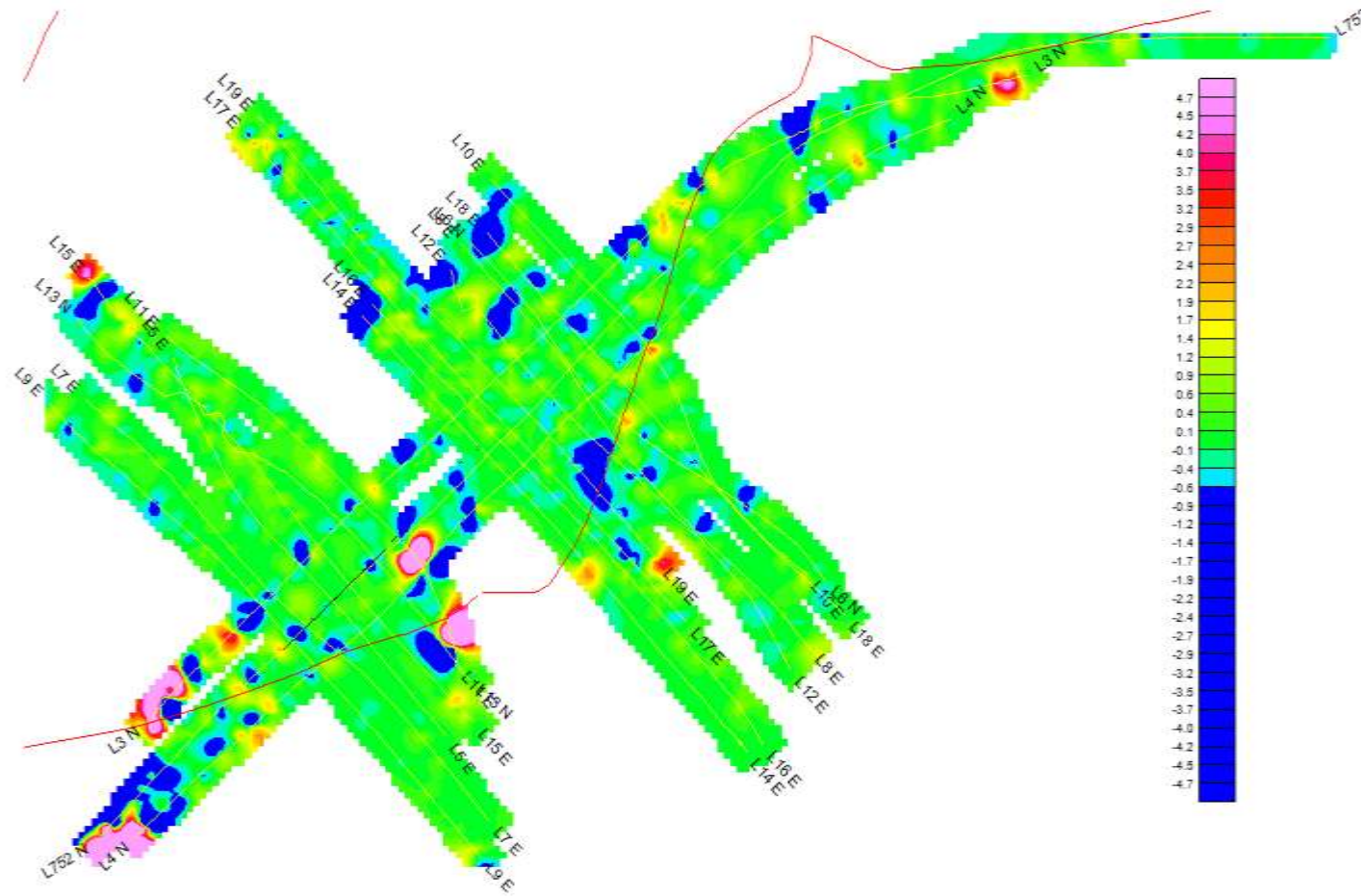
Magnetometer



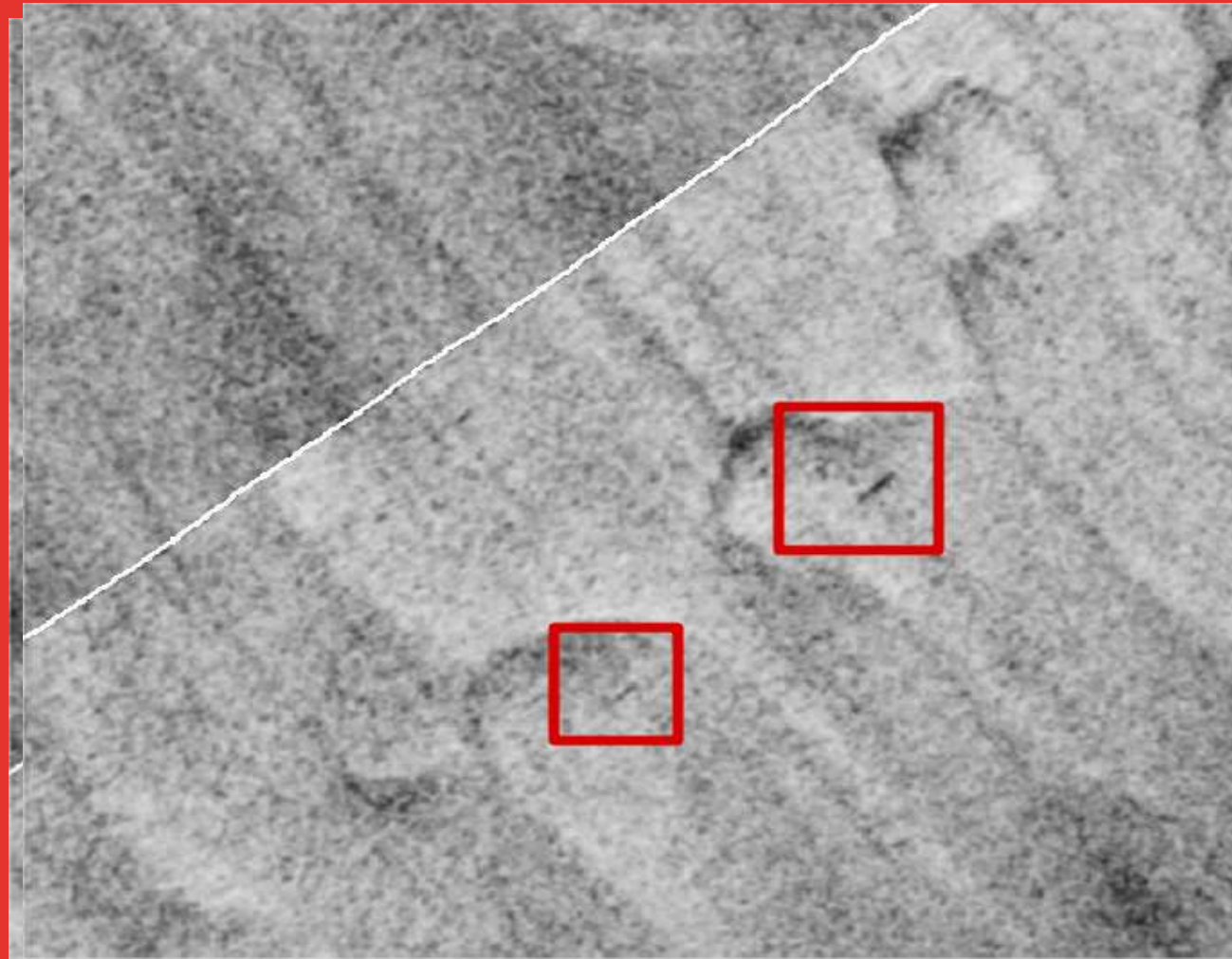
GEOXYZ

WWW.GEOXYZ.EU

Sonar vs. Geophysical method -RESULTS-



Side Scan Sonar Mosaic semi-buried object sections

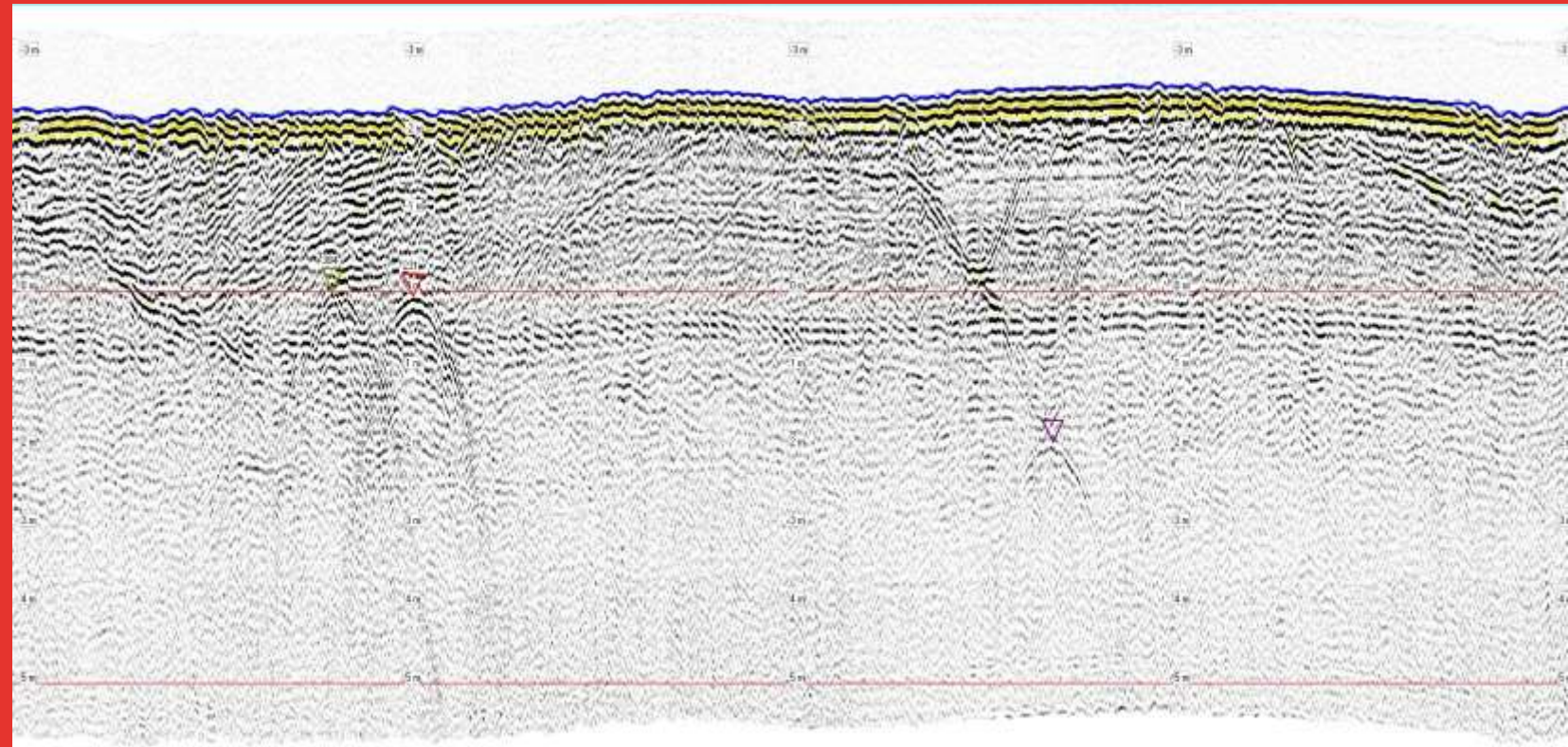


Conclusion

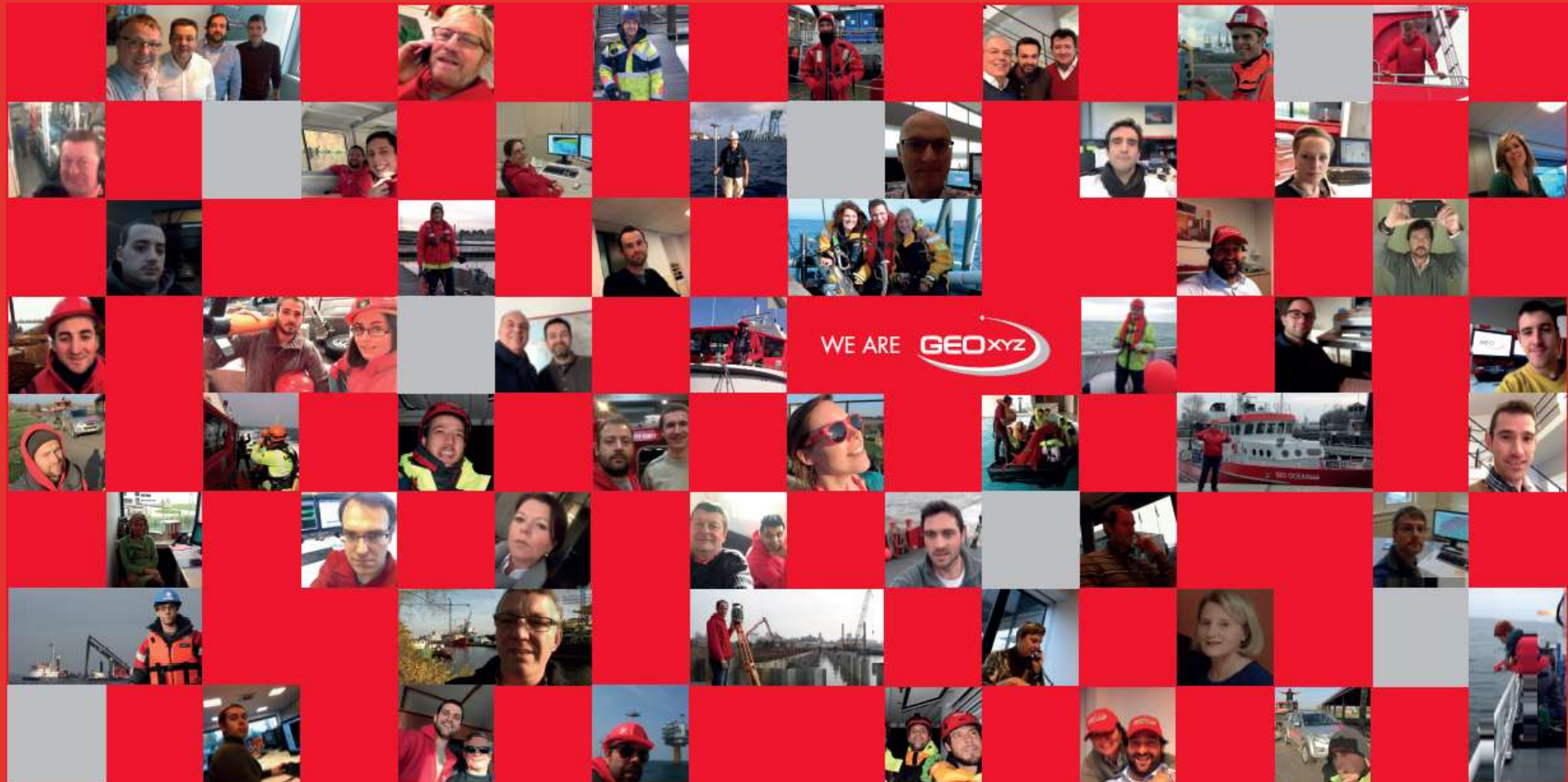
- SONAR survey results used for data interpretation of semi-buried object detection
- Geophysical survey method was suppose to give more reliable results
- Add another survey method in site investigation

Suggestion for next site investigation (semi-buried object detection)

- 2D/3D Sub-bottom imager
(data quality not influenced
by surrounding objects)



Thank you!





WWW.GEOXYZ.EU

Questions?