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DGEC - GGN&S 2DUHRS and UXO Survey

UXO Factual Report - Accepted

Project Document Code	6168_1-RR-02-A

Revision	Date	Description of Revision	Author	Checked	Approved
2.0	10/07/2025	Accepted	LSM	EVA	BMCV

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REVISION HISTORY

The table on this page should be used to explain the reason for the report revision and what has changed since the previous revision. It is the holder's responsibility to check that they hold the latest validated version.

Rev.	Date	Reason for amendments	Section changes from previous version
1.0	12/06/2025	For Client review	NA
2.0	10/07/2025	Client's comments, Accepted	

Author		Role and Function in the company
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

DEFINITIONS AND ABBREVIATIONS

Throughout this document the following terminology is used:

DGEC *Direction Générale de l'Energie et du Climat (DGEC) (Client)*
GEOxyz *GEOxyz (Contractor)*

The abbreviations and units listed in the table below are used within this report. Where abbreviations used in this document are not included in this table, it may be assumed that they are either equipment brand names or company names.

Acronym	Description	Acronym	Description
ASCII	American Standard Code for Information Interchange	MRU	Motion Reference Unit
cm	Centimetre	N	Northing
CRS	Coordinate Reference System	P	Pitch
dB	Decibel	PAM	Passive Acoustic Monitoring
DGPS	Differential Global Positioning System	PBMA	Plus Basses Mers Astronomiques
DPR	Daily Progress Report	PPP	Precise Point Positioning
DTM	Digital Terrain Model	QC	Quality Control
E	Easting	QHSE	Quality Health Safety Environment
EPSG	European Petroleum Survey Group	QINSy	Quality Integrated Navigation System
ETRS89	European Terrestrial Reference System 1989	Rev	Revision
GIS	Geographic Information System	RPL	Route Position List
GGN&S	Golfe de Gascogne Nord et Sud	RTK	Real-time Kinematic
GNSS	Global Navigation Satellite System	SBP	Sub Bottom Profiler
GRS80	Geodetic Reference System 1980	SHOM	Service Hydrographique et Océanographique de la Marine
H	Heading	SIMOPS	Simultaneous Operations
HF	High frequency (Acoustic)	SSS	Side Scan Sonar
HiPAP	High Precision Acoustic Positioning	SV	Sound Velocity
HIRA	Hazard Identification Risk Assessment	SVP	Sound Velocity Profile
HSE	Health Safety Environment	TBC	To Be Confirmed
Hsig	Significant wave height	THU	Total Horizontal Uncertainty
IMCA	International Marine Contractors Association	TVG	Transverse Gradiometer
JNCC	Joint Natural Conservation Committee	TVU	Total Vertical Uncertainty
KP	Kilometre Point	USBL	Ultra Short Base Line
LAT	Lowest Astronomical Tide	UTC	Universal Time Coordinated
LF	Low frequency (Acoustic)	UTM	Universal Transverse Mercator
MBES	Multibeam Echosounder	UXO	Unexploded Ordnance
MCR	Mobilisation and Calibration Report	VRF	Vessel reference frame
MMO	Marine Mammal Observer	ZDA	NMEA-0183 Date Time Message String
MOC	Management of Change	ZH	Zéro Hydrographique

REFERENCE DOCUMENTATION

Client Documents

Key project documentation from the Client is listed below.

Ref.	Document Number	Title	Owner
1.	2023-DGEC-07 CCAP.pdf	Administrative clauses	DGEC
2.	2023-DGEC-07-RC.pdf	Tendering rules	DGEC
3.	2023-DGEC-07 AE annexe 2.docx	Commitment on deadlines	DGEC
4.	2023-DGEC-07 CCTP.pdf	Technical proposal	DGEC
5.	Scenarios_Rochebonne_V2	Offshore surveys (3 options)	DGEC
6.	DTS_BRGM	Desktop studies (geological)	BRGM
7.	DTS_SHOM	Desktop studies (bathymetry)	SHOM
8.	DTS_UXO	Desktop studies (UXO)	6 Alpha Associates Ltd

GEOxyz Project Documents

Key project documentation created by GEOxyz is listed below.

Ref.	Document Number	Title	Owner
9.	6168_1-PDR-01	Project Document Register	GEOxyz
10.	6168_1-HSE-01	HSE Plan	GEOxyz
11.	6168_1-DDL-01	Data Deliverables List	GEOxyz
12.	6168_1-ERB-01	Emergency Response & Bridging Document	GEOxyz
13.	6168_1-PEP-01	Project Execution Plan	GEOxyz
14.	6168_1-PQP-0	Project Quality Plan	GEOxyz
15.	6168_1-PRA-01	Project Risk Assessment	GEOxyz
16.	6168_1-CM-01	Communication Matrix	GEOxyz

Standard Operating Procedures

Standard GEOxyz operating procedures that are relative to the project are listed for reference.

Ref.	Document Number	Title	Owner
17.	GEO-OPP-6028	Positioning Systems Operation Procedure	GEOxyz
18.	GEO-OPP-6029	Heading Sensor Operation Procedure	GEOxyz
19.	GEO-OPP-6030	MRU Operation Procedure	GEOxyz
20.	GEO-OPP-6031	SVP Operation Procedure	GEOxyz
21.	GEO-OPP-6032	USBL Operation Procedure	GEOxyz
22.	GEO-OPP-6033	MBES Operation Procedure	GEOxyz
23.	GEO-OPP-6038	SSS Operation Procedure	GEOxyz
24.	GEO-OPP-3039	SBP Operation Procedure	GEOxyz

Ref.	Document Number	Title	Owner
25.	GEO-OPP-6052	MBES Data Processing Procedure	GEOxyz
26.	GEO-OPP-6054	SSS Data Processing Procedure	GEOxyz
27.	GEO-OPP-6055	SBP Data Processing Procedure	GEOxyz
28.	GEO-OPP-6109	UHRS Operation	GEOxyz

Vessel Specific Procedures

Vessel Specific procedures that are relative to the project are listed for reference.

Ref.	Document Number	Title	Owner
29.	GEO-GO08-OPP-6011	L&R Procedure USBL Pole	GEOxyz
30.	GEO-GO08-OPP-6003	L&R Procedure - SSS	GEOxyz
31.	GEO-GO08-OPP-6001	L&R Procedure SVP	GEOxyz
32.	GEO-GO08-OPP-6004-	L&R Procedure - Dual TVG	GEOxyz
33.	GEO-G009-OPP-6001	L&R Procedure SVP	GEOxyz
34.	GEO-GO09-OPP-6018	L&R Procedure - 2DHR and UHR	GEOxyz

1 INTRODUCTION

1.1 PROJECT OVERVIEW

As part of the development of offshore wind energy in France, the DGEC is responsible for the technical studies prior to the award of tenders for offshore wind farms. For each area identified as suitable for the development of wind farms, "de-risk studies" were carried out in order to analyse the seabed on the surface and sub-surface.

1.1.1 Areas of study

Four maritime façades have been identified to cover the areas where the development of offshore wind power is envisaged (Figure 1-1). The purpose of the contract is to carry out geophysical and UXO de-risking studies for approximately seven to eight sites spread throughout the metropolitan territory. This territory has been divided into four maritime façades:

- Eastern Channel North Sea (MEMN)
- North Atlantic Western Channel (NAMO)
- South Atlantic (SA)
- Mediterranean (MED)

These sites are located in the continental shelf area, generally between 12 and 50 nautical miles from the coast.

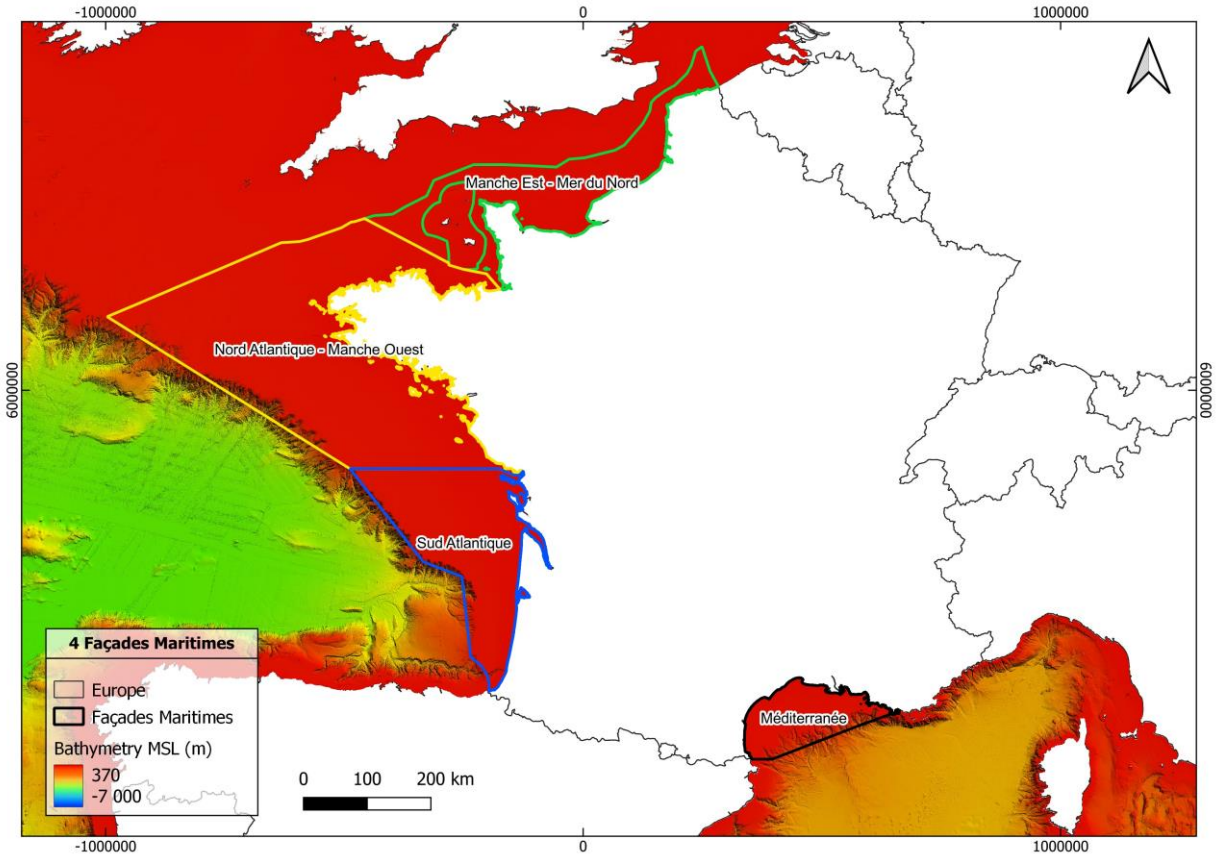


Figure 1-1: Project location overview - location of the four maritime facades

1.1.2 Objectives

The main objectives of the de-risk studies were to:

- Provide UHR seismic, MBES bathymetry, and Sub Bottom Profiler data to better understand the seabed conditions
- Provide MBES/SSS data that will be used to issue ALARP certificates prior to the commencement of geotechnical testing

1.2 SCOPE OF WORK

The overall scope of work consists of geophysical survey components in the Golfe de Gascogne Nord et Sud (GGN&S) zone as shown Figure 1-2.

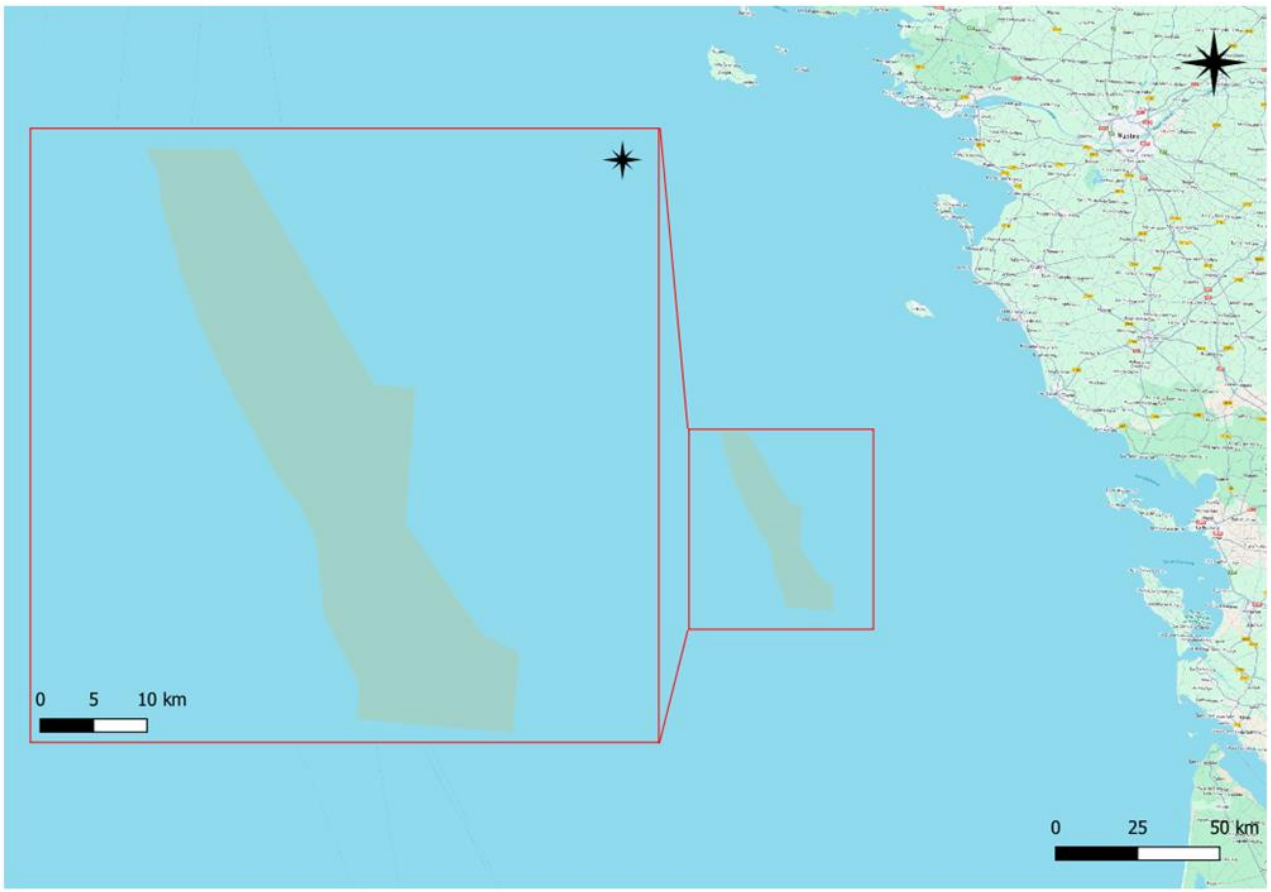


Figure 1-2: Scope of work area

The UXO survey comprised of the acquisition of multibeam bathymetry (MBES) and side scan sonar (SSS) sensor data from the GEOxyz vessel Geo Ocean VIII. As far as possible, data from all sensors was acquired simultaneously, with line planning as per the Client specifications.

As part of the UXO scope, ALARP certificates for the 30 m x 30 m boxes were to be issued via the UXO subcontractor GeoMines. The ALARP certificates contain as a minimum:

- A summary of the work carried out;
- A list of results with their classification, images and coordinates;
- Maps of the study area with all UXO-like observations and the avoidance radius
- Where necessary, the radius around the observations must be provided;

- The signature of the Licensee's UXO specialist.

The process of issuing ALARP certificates goes as follows: After geophysical data analysis, the white zones, with risks as low as reasonably (ALARP) possible are sought. This is done by geospatial processing in GIS software. First, the areas that could not be considered as white areas are mapped, grouping the pUXO targets (sonar and MBES contacts) and potential saturated areas. Afterwards, the "avoidance areas" are mapped with an avoidance zone of safety buffer radius away from all the potential UXO (pUXO) anomalies or any saturated or excluded areas. This avoidance area is also applied from the edge of the dataset inwards the centre of the survey area. The free space between these avoidance zones and the detection surface or survey boundary defines the outline of the ALARP certificate and the possible working area. Some boxes have been moved from the original location to issue the ALARP certificates. The original and the updated locations, as well as the distance between them are shown in Table 1-1.

Table 1-1: Original and updated ALARP box's locations

Name	Status	X centroid	Y centroid	Distance Original-Updated (m)
GGNS_GI#01	Relocated	499971.38	5120077.81	45.89
GGNS_GI#02	Original	497232.00	5123603.99	-
GGNS_GI#03	Original	510224.42	5107105.51	-
GGNS_GI#04	Original	514863.81	5101212.52	-
GGNS_GI#05	Original	518574.89	5096498.07	-
GGNS_GI#06	Original	525996.45	5087068.26	-
GGNS_GI#07	Original	511326.35	5098427.72	-
GGNS_GI#08	Original	503902.53	5107855.76	-
GGNS_GI#09	Original	514535.05	5089499.42	-
GGNS_GI#10	Original	521030.06	5081249.25	-
GGNS_GI#11	Relocated	501967.86	5127337.11	31.11
GGNS_GI#12	Original	510297.14	5116708.23	-
GGNS_GI#13	Relocated	517707.39	5107236.96	43.68
GGNS_GI#14	Original	505835.64	5115104.77	-
GGNS_GI#15	Original	501118.32	5111391.06	-
GGNS_GI#16	Original	504830.56	5106677.3	-
GGNS_GI#17	Original	507614.57	5103141.84	-
GGNS_GI#18	Relocated	518558.17	5079493.72	32.31
GGNS_GI#19	Relocated	517189.88	5093503.12	60.21
GGNS_GI#20	Original	529957.43	5084459.49	-
GGNS_GI#21	Original	520604.61	5086641.49	-
GGNS_GI#22	Relocated	525223.06	5080706.95	45.62
GGNS_GI#23	Original	526673.2	5083782.86	-
GGNS_GI#24	Relocated	512948.04	5093978.08	23.43
GGNS_GI#25	Original	518497.49	5086891.69	-
GGNS_GI#26	Original	523213.48	5090604.54	-
GGNS_GI#27	Original	521358.1	5092961.99	-
GGNS_GI#28	Relocated	518019.52	5082722.48	49.94

Name	Status	X centroid	Y centroid	Distance Original-Updated (m)
GGNS_GI#29	Original	514361.43	5096999.01	-
GGNS_GI#30	Original	518825.67	5098604.61	-

1.3 SCOPE OF DOCUMENT

Table 1-2 lists all the reports delivered as part of this survey, with this report highlighted in **bold**.

Table 1-2: Project reports

Document Number	Title
6168_1-OR-01	Operations Report - GOVIII
6168_1-MCR-01	Mobilisation & Calibration Report - GOVIII
6168_1-RR-01	UHRS Factual Report
6168_1-RR-02	**UXO Factual Report (This Report)**

2 GEODETIC PARAMETERS AND TRANSFORMATIONS

2.1 HORIZONTAL DATUM

The geodetic datum and mapping coordinate system used for this project is WGS84 UTM Zone 30N. All coordinates used are referenced to the geodetic datum and grid parameters listed in Table 2-1 and Table 2-2 below.

Table 2-1: Datum parameters

Parameter	Details
Geodetic Datum	World Geodetic System 1984 (WGS84)
EPSG Coordinate Reference System	4258
Spheroid	GRS80
EPSG Ellipsoid Code	7019
Semi-Major Axis	6378137.000
Semi-Minor Axis	6356752.31424
Flattening	1/298.257223563
Eccentricity Squared	0.00669428002290

Table 2-2: Projection parameters

Parameter	Details
EPSG Coordinate Reference Code	32630
Projection	UTM
Zone	30N
Central Meridian	3° West
Latitude of Origin	0°
False Easting	500000.00 m
False Northing	0.00 m
Scale Factor at Central Meridian	0.9996
Units	Metres

2.2 VERTICAL REFERENCE

The vertical reference used is the Zéro Hydrographique (ZH) defined by the surface Lowest Astronomical Tide (LAT). Reduction was made via the SHOM Bathyelli (PBMA Plus Basses Mers Astronomiques in French) v2.1 model.

2.3 TIME AND LOG KEEPING

UTC (Universal Time Coordinated) has been used for record keeping during the project (including the Daily Progress Reports unless stated otherwise). The vessel also maintained local time for operations.

Data time-tagging and synchronization used UTC. All data recorded in the online navigation software was time stamped where appropriate using the time string and the pulse-per-second (PPS) from the GNSS.

2.4 SURVEY UNITS

The following survey units were used during the project and throughout this report;

- Linear units are expressed in metres (m)
- Angular units are expressed in degrees (°)

3 RESOURCES

3.1 VESSELS

The specifications of the GOVIII are summarised in Table 3-1.

Table 3-1: Survey vessel specifications

Geo Ocean VIII	Specifications	
	Length	51.3 m
	Width	12.0 m
	Draught	5.2 m
	Maximum speed	13 knots
	Main propulsion	2 x ABC Diesel 6MDZC 1800 bhp
	Endurance	24h day operations (28 days)
	Accommodation	28
	Positioning	Station Keeping/Autopilot
	A-Frame	5 tonnes
	Crane	6 tonnes @ 12 m

3.2 EQUIPMENT

The equipment used for the geophysical survey is summarised in Table 3-2.

Table 3-2: Survey equipment specifications

Equipment	Manufacturer	Model
GPS	Trimble Septentrio	BD982/BX992 AsteRX-U3 Marine receiver with 2x Zephyr III
INS (motion, heading)	2xSBG IXBlue	Apogee-I-B Surface IMU, NAVSIGHET-E-RA Hydrins G4
Sound Velocity Profiler	Valeport	2 x Swift
USBL	Kongsberg	HiPAP , hsc 1-i5 HA
Multibeam	Kongsberg	EM2040
Side Scan Sonar	Edgetech	4205
Winches	Degra Emce	DEW-STX-1500 Survey Winch

3.3 SOFTWARE

The software that was used for data acquisition and processing is outlined in Table 3-3 below.

Table 3-3: Project software list

Equipment / Data Type	Acquisition	Processing
Navigation, MBES, GNSS	QPS QINSy	n/a
MBES	QPS QINSy	Qimera / FMGT QPS BeamworX AutoClean
Side Scan Sonar	Discovery	SonarWiz V7.10.02 , QGIS

4 OPERATIONAL SUMMARY

The survey vessel Geo Ocean VIII (GOVIII) was utilised to complete the MBES/SSS acquisition during the UXO survey. A summary of the survey operations is outlined in Table 4-1.

Table 4-1: Overview of survey operations

Vessel	Dates	Activity
Geo Ocean VIII	04/05/2025 – 08/05/2025	MBES/SSS UXO survey, transit etc.

5 DATA PROCESSING

5.1 MULTIBEAM ECHOSOUNDER

5.1.1 Data acquisition and settings

The primary settings used for the project are outlined in Table 5-1.

Table 5-1: MBES acquisition parameters

Item	Setting
Survey speed	~4 knots
Steered node	No
Beam Spacing	Equi-distant
Soundings-per-ping	1024 per head
System Frequency	400 kHz
Coverage	Full coverage bathymetry with 30 % data overlap for UXO geophysical survey. For UHRS survey the best data quality will be acquired
Back Scatter Data Required	RAW data recorded only
Water Column Data to be Recorded	No
Line Spacing	See line plan

The MBES project specifications are listed in Table 5-2.

Table 5-2: MBES specifications

Item	Specification
Minimum data density	30 HC/m² until 50m water depth 15 HC/m² between 50-150 m water depth 9 HC/m² between 150-200 m water depth
Bin size	0.2 m for <25 m water depth 0.5 m for 25-50 m water depth 1 m for 50-200 m water depth
Grid	0.5 m cell size
Gridded standard deviation	≤0.20 m per 1 m² bin
Coverage	100 % with 30 % overlap between adjacent survey lines
TVU	0.8 m (for 100 m water depth) / 1.5 m (for 200 m water depth)
THU	2 m
Backscatter	Recorded not processed

5.1.2 Overview of the methodology

Bathymetric data was recorded in QINSy as raw QPD files. The data was initially checked offline into the QPS processing software Qimera for quality, coverage, and density requirements. Data processing was carried out using Qimera and AutoClean. First, a rough cleaning was applied in Qimera to remove major spikes and noise. In addition, any SVP/refraction and GNSS drop out issues were fixed. Afterwards, FAU files were exported to

continue processing with AutoClean. Bathymetric data was cleaned on a line-by-line basis and/or by using area-based cleaning tools in the processing software. A combination of basic filters applied to the entire data set and then individual QPDs manually cleaned by deleting any further outliers visible within the data.

Figure 5-1 outlines the general MBES processing workflow.

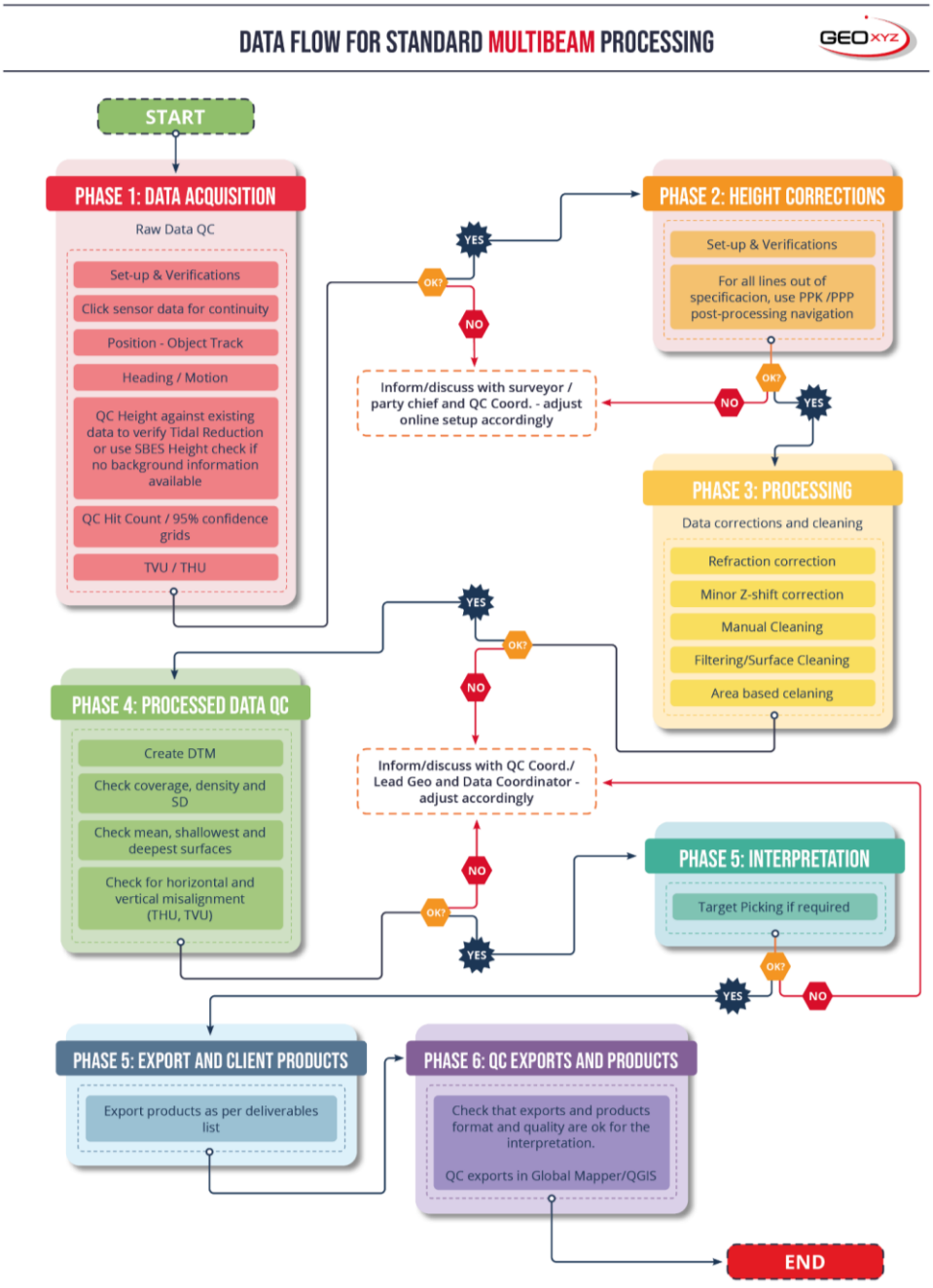


Figure 5-1: MBES processing workflow

5.1.3 Data quality assessment

For MBES data 143 lines have been acquired with run-in/run out length of 150 metres. Data was of high quality and within project requirements. Full coverage was achieved (Figure 5-2). An example of the number of hits per metre over one the survey boxes is illustrated in Figure 5-3.

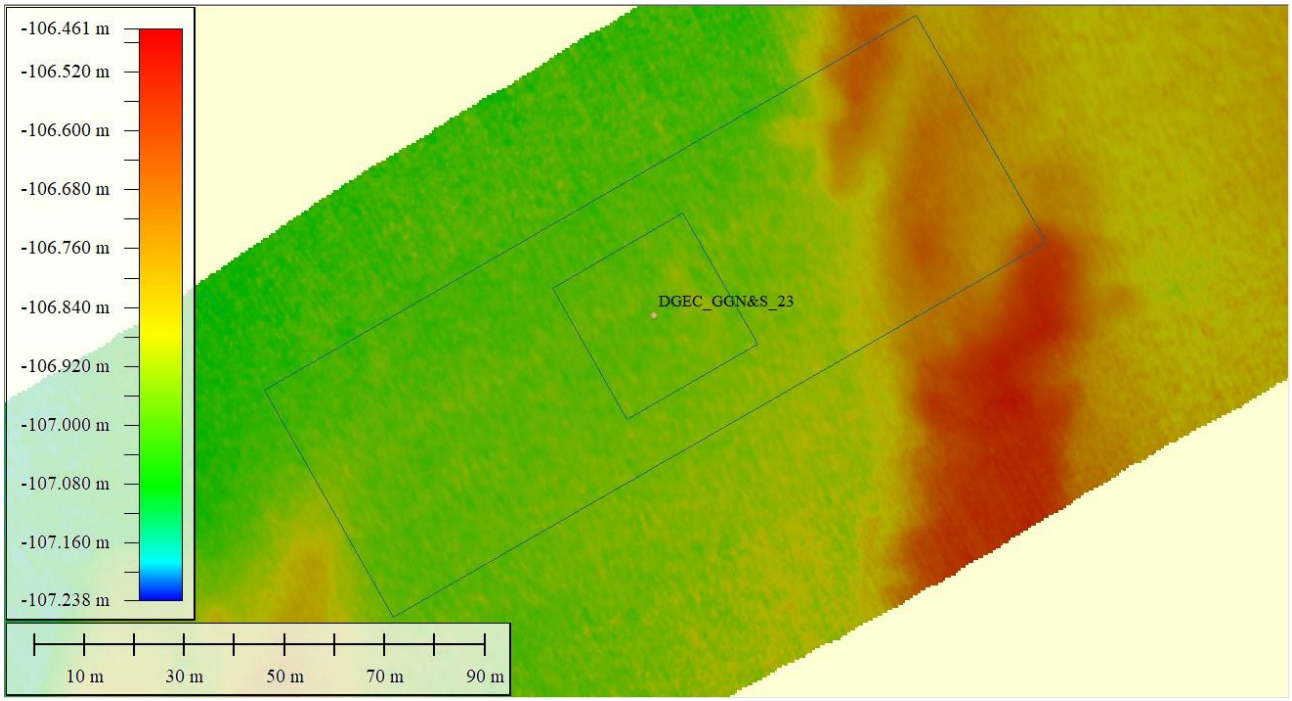


Figure 5-2: DGEC GGN&S bathymetric data over survey box Box_GI23

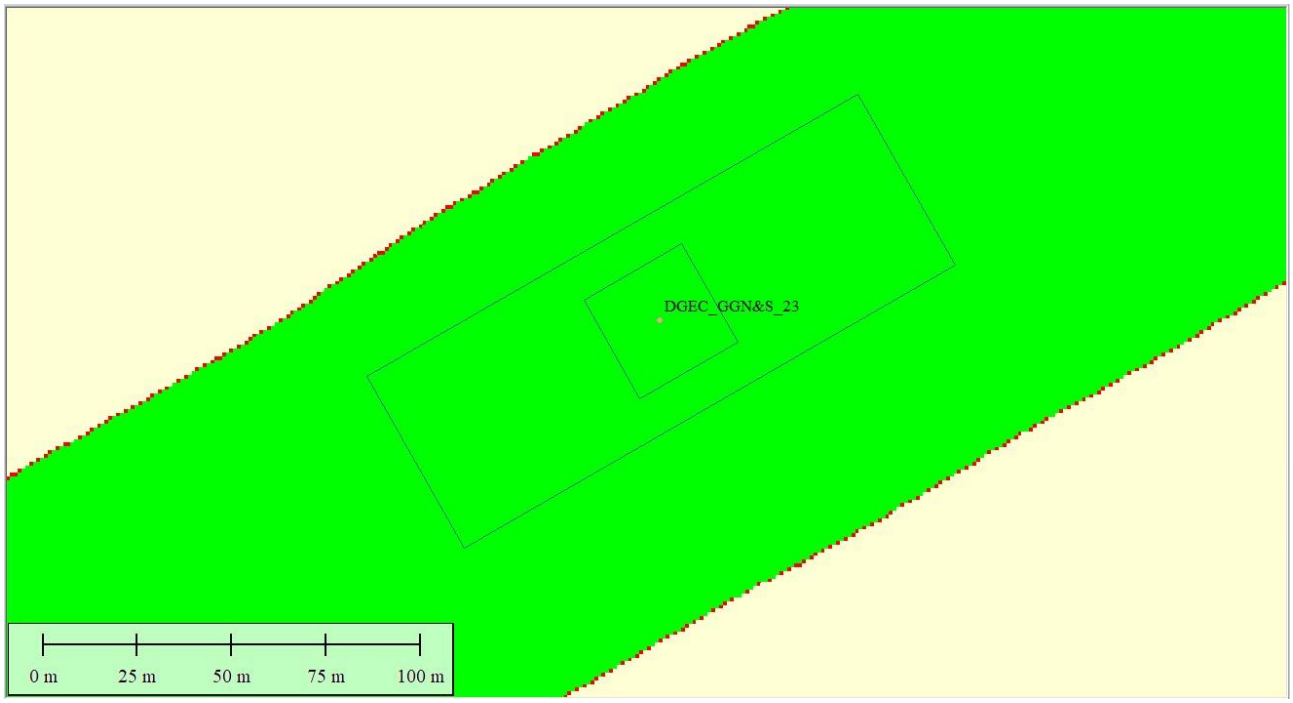


Figure 5-3: Survey box BOX_GI23 MBES data hit count 1 m per square (green means >30 hits per bin)

The THU (Total Horizontal Uncertainty) and TVU (Total Vertical Uncertainty) values calculated for each box are presented in Table 5-3. These values have been calculated according to the IHO S44 Special Order threshold. TVU has been calculated according to this formula:

$$TVU_{max}(d) = \sqrt{a^2 + (b \times d)^2}$$

Where **a**, represents that portion of the uncertainty that does not vary with the depth (0.25 m for Special Order); **b**, is a coefficient which represents that portion of the uncertainty that varies with the depth (0.0075 for Special Order) and **d**, is the depth. THU is, according to the IHO Special order, a fix value of 2 metres.

Table 5-3: THU and TVU values

GGNS UXO	Depth Mean	**IHO** TVU calculated	**IHO** THU calculated	TVU in block	THU in block
Box GI01	115.61	1.00	2	0.22-0.28	1.23-1.67
Box GI02	115.57	1.00	2	0.22-0.28	1.23-1.67
Box GI03	112.425	0.98	2	0.1-0.35	1.19-2
Box GI04	113.565	0.99	2	0.1-0.19	1.23-1.62
Box GI05	110.89	0.97	2	0.22-0.28	1.2-1.6
Box GI06	104.09	0.93	2	0.22-0.27	1.12-1.48
Box GI07	114.395	0.99	2	0.1-0.28	1.22-1.65
Box GI08	115.855	1.00	2	0.1-0.19	1.21-1.65
Box GI09	111.49	0.97	2	0.22-0.28	1.21-1.78
Box GI10	109.27	0.96	2	0.1-0.19	1.18-1.74
Box GI11	114.575	0.99	2	0.1-0.19	1.24-1.61
Box GI12	107.5	0.95	2	0.22-0.27	1.55-1.18
Box GI13	108.19	0.95	2	0.1-0.18	1.17-1.55
Box GI14	109.075	0.96	2	0.22-0.28	1.18-1.59
Box GI15	111.92	0.98	2	0.1-0.19	1.18-1.59
Box GI16	115.875	1.00	2	0.1-0.19	1.24-1.63
Box GI17	112.575	0.98	2	0.1-0.19	1.18-1.62
Box GI18	114.36	0.99	2	0.1-0.2	1.2-1.87
Box GI19	112.215	0.98	2	0.22-0.28	1.21-1.64
Box GI20	103.66	0.92	2	0.22-0.28	1.1-1.69
Box GI21	109.465	0.96	2	0.1-0.18	1.16-1.55
Box GI22	106.81	0.94	2	0.1-0.27	1.14-1.62
Box GI23	106.085	0.94	2	0.22-0.27	1.14-1.69
Box GI24	116.77	1.01	2	0.22-0.29	1.26-1.94
Box GI25	112.775	0.98	2	0.1-0.19	1.17-1.79
Box GI26	106.405	0.94	2	0.1-0.18	1.13-1.5
Box GI27	110.435	0.97	2	0.1-0.22	1.17-1.68
Box GI28	114.805	1.00	2	0.1-0.23	1.23-1.79
Box GI29	113.155	0.99	2	0.22-0.3	1.21-1.71
Box GI30	111.11	0.97	2	0.22-0.28	1.2-1.61

5.1.4 MBES deliverables

The MBES deliverables created as a result of the project are outlined in Table 5-4.

Table 5-4: Overview of the MBES deliverables

Deliverable	Format
RAW bathymetric data	QPD or bwxraw
Despiked, motion and tidal corrected point cloud	ASCII
Bathymetric average values gridded surface	ASCII, RGB TIF, Encoded TIF
Bathymetric density (Hit Count) values gridded surface	ASCII, RGB TIF, Encoded TIF
Bathymetric slope values gridded surface	RGB TIF, ENCODED TIF OR FLT
Bathymetric Contour Lines	SHP
MB Targetlist	ASCII, SHP

5.2 SIDE SCAN SONAR

5.2.1 Data acquisition and settings

For side scan sonar data acquisition, the acquisition parameters are listed in Table 5-5.

Table 5-5: SSS acquisition parameters

Item	Setting
Survey speed:	~4 knots
Steered node:	Yes
Frequency:	Dual frequency with the high frequency of at least 600 kHz
Range:	50 m range for both LF and HF
Mode:	HDM
Flying Altitude:	5-10 % of range
Time Stamp:	ZDA from Qinsy
Navigation:	USBL position / fixed layback
Heading:	Internal compass / bearing to tow point / determined from positioning verification
Nadir Filler:	No
Data Format:	JSF / XTF
Line Spacing:	See line plan: SSS only required for UXO geophysical survey

5.2.2 Overview of the methodology

Side scan sonar data (.JSF files) was recorded using Edgetech Discover. An acquisition log was kept of all settings and other observations. Quality Control (QC) was performed offline where the dataset is checked for overall quality, coverage, artefacts, and positioning.

The HF and LF SSS data were processed using the Chesapeake SonarWiz software following the workflow outlined in Figure 5-4.

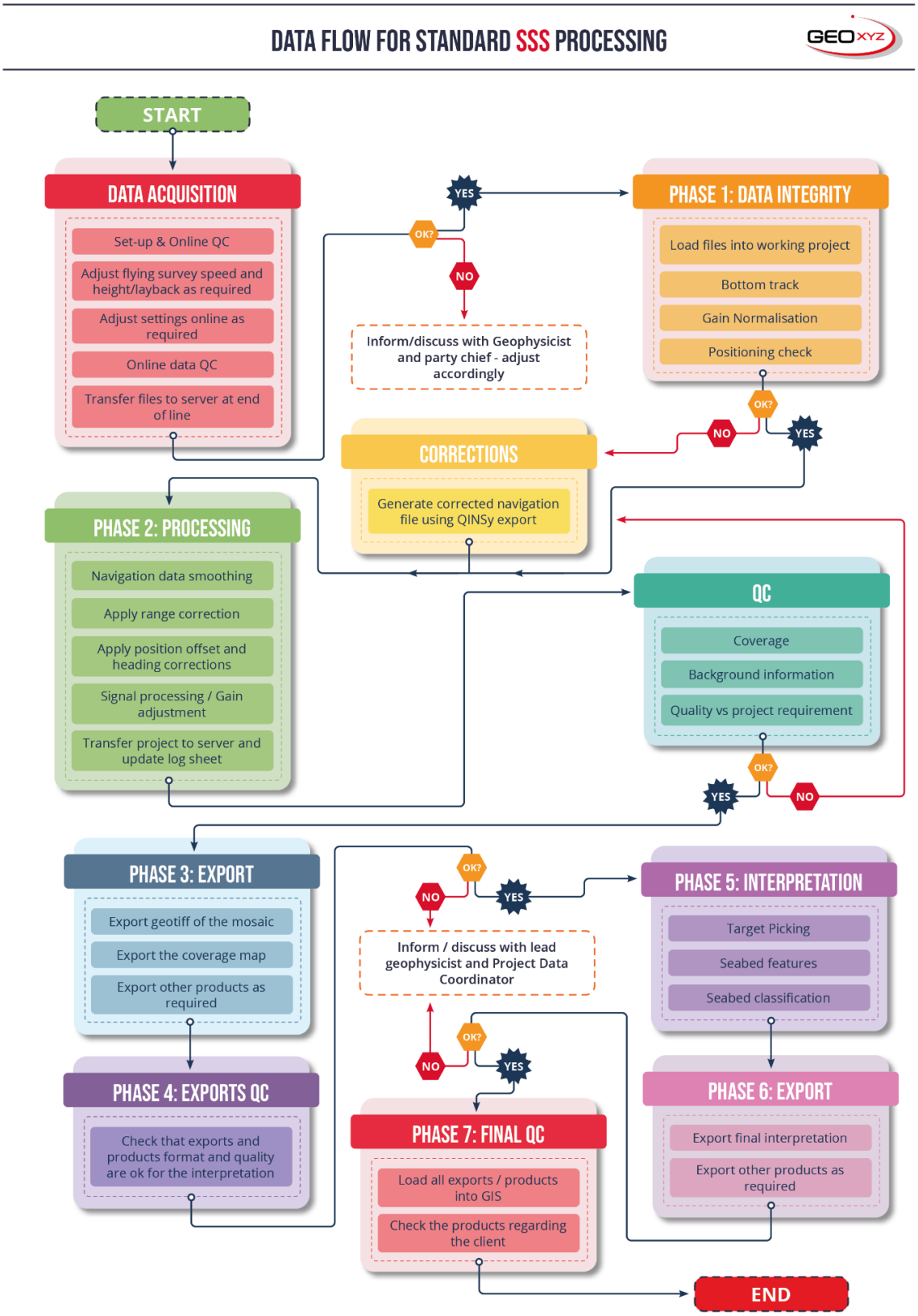


Figure 5-4: SSS processing workflow

Navigation data from the QINSy logfile was injected into the sonar files using Nav Injector Pro, the heading used was a calculated bearing-to-towpoint from QINSy and the X and Y co-ordinates were Kalman filtered to provide the most accurate positioning of the SSS fish. The SSS data were then loaded into SonarWiz, the seabed was bottom-tracked, minor heading corrections were applied to the navigation where needed and any spikes smoothed out using Zedit. The Empirical Gain Normalisation (EGN) was applied to normalise the signal return along the record, in order to clarify changes in the acoustic reflectivity of the seabed and the presence of any morphological features. A de-stripe filter was applied, whenever necessary, to create a well-balanced sonar image.

5.2.3 Data quality assessment

For SSS data 94 lines have been acquired with run-in/run out length of 150 metres. The side scan sonar data was of high quality with little weather effects. On average, the real-time position of the side scan sonar data was good, with deviations of less than 2 m, when verified with the collected MBES data on a line-by-line basis. Sonar coverage always met project specifications.

GI22 and GI28 geotechnical boxes were moved onboard from the original location. See Figure 5 and Figure 6 for the side scan mosaic displaying contacts in the 30 m x 30 m box. This was raised to the onboard Client representative who was in agreement of the relocation.

5.2.4 SSS deliverables

The SSS deliverables created as a result of the project are outlined in Table 5-6.

Table 5-6: Overview of the SSS deliverables

Deliverable	Format
Raw SSS data	JSF, HF XTF
Processed SSS data	HF XTF
SSS Individual mosaic per line	RGB TIF
SSS mosaic	RGB TIF
SSS Targetlist	ASCII, Excel
Seabed Features, Lines, Polygons	SHP
Seabed Sediments Primary	SHP

6 RESULTS

6.1 OVERVIEW

The results of the survey per ALARP geotechnical box have been presented in APPENDIX A. Each of the charts in the appendix contains a bathymetric overview with targets, seabed sediment classification, HF side scan mosaic with features and targets and the location of the shown ALARP geotechnical box.

There were no MBES and SSS targets detected inside each 30 x 30 m survey box.

ALARP certificates were issued for this survey and can be found attached to this report (APPENDIX B).

6.2 BATHYMETRY

The bathymetric data was acquired in a 50-centimetre resolution and has been shown in the top-left chartlet of the charts found in APPENDIX A.

Within each of the survey boxes, the bathymetry ranges vary within a few metres.

The deepest point of the surveyed boxes is located in the DGEC_GGN&S#24, lying at a depth of -118.11 m LAT. The shallowest point is located in the DGEC_GGN&S#20, lying at a depth of -103.43 m LAT.

6.3 SEABED SEDIMENTS AND MORPHOLOGY

In terms of sedimentation, gravel and sandy sediments were present. Gravel sediments were observed on one surveyed box, while the remaining 29 of them display sandy (sand and silty sand) sediments. Top-right chartlet in APPENDIX A shows the sedimentation classification of each surveyed box.

In total, 29 seabed features were noted: seven trawl marks, 16 ripples and six hummocky seafloors. Their number and distribution are shown in Table 6-1, while their exact location is shown in on the lower-left chartlet in APPENDIX A.

Table 6-1: Number and distribution of seabed features

GGN&S UXO box	Number of linear seabed features	Number of polygonal seabed features	
	Trawl scars	Ripples	Hummocky seafloor
DGEC_GGN&S#01	1	0	0
DGEC_GGN&S#02	0	0	0
DGEC_GGN&S#03	0	0	0
DGEC_GGN&S#04	0	0	0
DGEC_GGN&S#05	0	0	0
DGEC_GGN&S#06	0	0	1
DGEC_GGN&S#07	0	0	0
DGEC_GGN&S#08	0	0	1
DGEC_GGN&S#09	0	1	1
DGEC_GGN&S#10	1	0	0
DGEC_GGN&S#11	0	0	0
DGEC_GGN&S#12	2	2	0
DGEC_GGN&S#13	0	0	0

GGN&S UXO box	Number of linear seabed features	Number of polygonal seabed features	
	Trawl scars	Ripples	Hummocky seafloor
DGEC_GGN&S#14	0	1	0
DGEC_GGN&S#15	0	1	1
DGEC_GGN&S#16	0	0	0
DGEC_GGN&S#17	0	0	1
DGEC_GGN&S#18	0	0	0
DGEC_GGN&S#19	0	0	0
DGEC_GGN&S#20	0	1	0
DGEC_GGN&S#21	0	1	0
DGEC_GGN&S#22	0	0	0
DGEC_GGN&S#23	0	1	0
DGEC_GGN&S#24	0	0	1
DGEC_GGN&S#25	0	1	0
DGEC_GGN&S#26	0	1	0
DGEC_GGN&S#27	0	0	0
DGEC_GGN&S#28	0	0	0
DGEC_GGN&S#29	1	0	0
DGEC_GGN&S#30	2	0	0

6.4 CONTACTS AND DEBRIS

There were no targets detected on either MBES or SSS datasets inside each 30 x 30 m survey box.

7 CONCLUSION

A UXO survey was conducted for twenty-four 30 x 30-metre survey boxes within the GGN&S area. The survey comprised the acquisition of multibeam bathymetry (MBES) and side scan sonar (SSS) data. The survey vessel Geo Ocean VIII (GOVIII) was utilized for the acquisition. The survey was conducted between 03/05/2025 and 08/05/2024. ALARP certificates were issued on 16/05/2025.

The bathymetry within each of the survey boxes vary within a few metres. The deepest point of the surveyed boxes is located in the DGEC_GGN&S#24, lying at a depth of -118.11 m LAT. The shallowest point is located in the DGEC_GGN&S#20, lying at a depth of -103.43 m LAT.

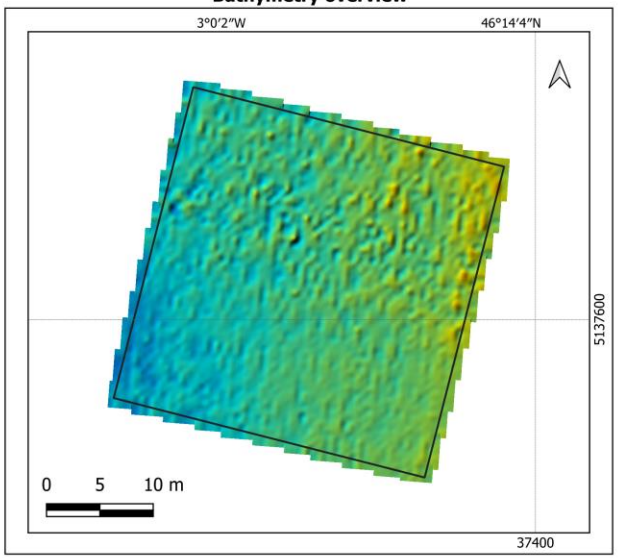
Gravel and sandy sediments were the only type of sedimentation present. Gravel sediments were observed on one surveyed boxes, while the remaining 29 of them have sandy sediments.

In total, 29 seabed features were noted: seven trawl marks, 16 ripples and six hummocky seafloors.

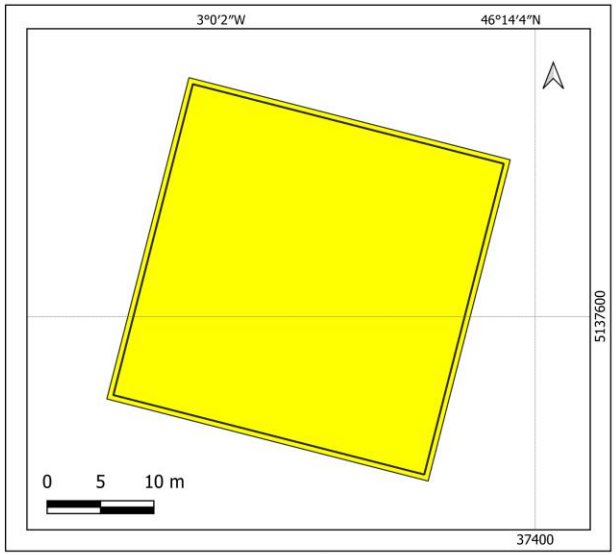
There were no targets within the surveyed boxes for either MBES nor SSS inside each 30 x 30 survey box.

APPENDIX A. GGN&S UXO BOX CHARTS

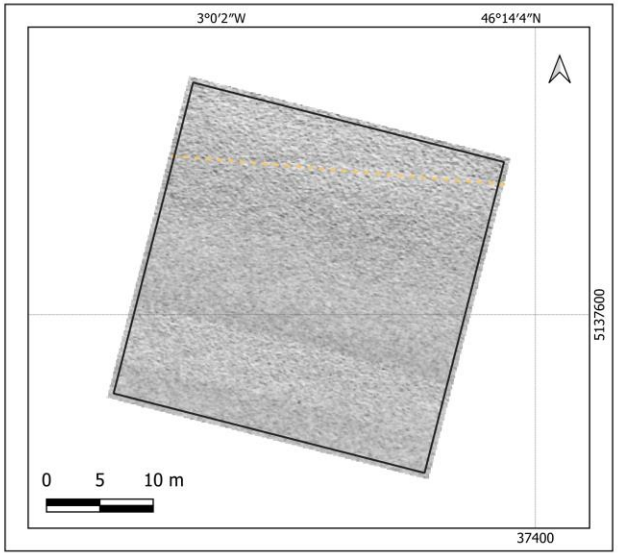
Bathymetry overview



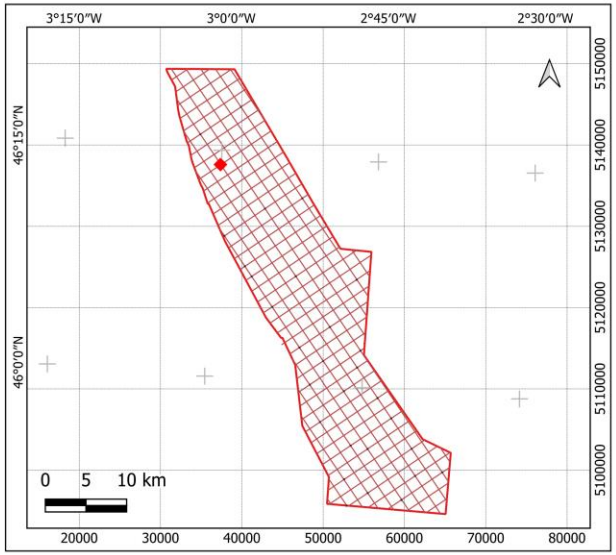
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-115.5 -115

Seabed features:

Ripples
Trawl scar
Hummocky seafloor

Sedimentation:

Gravel
Silty-Sand
Sand

Survey and box boundary and line plan:

GGNS zone boundary
Survey box boundary
Line plan

Location information

Location: DGEC_GGN&S_01

Geodesy: WGS84 UTM 31N

Easting: 499971.38 E

Northing: 5120077.81 N

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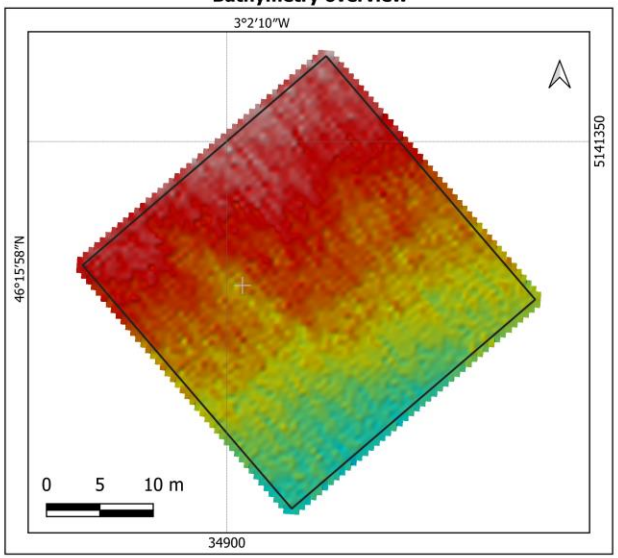
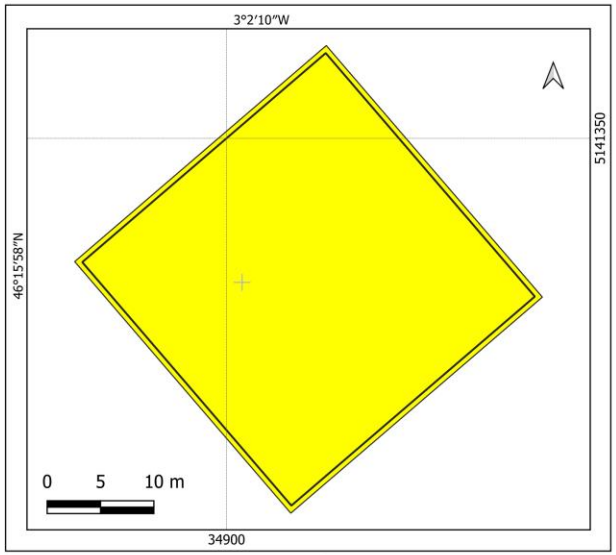
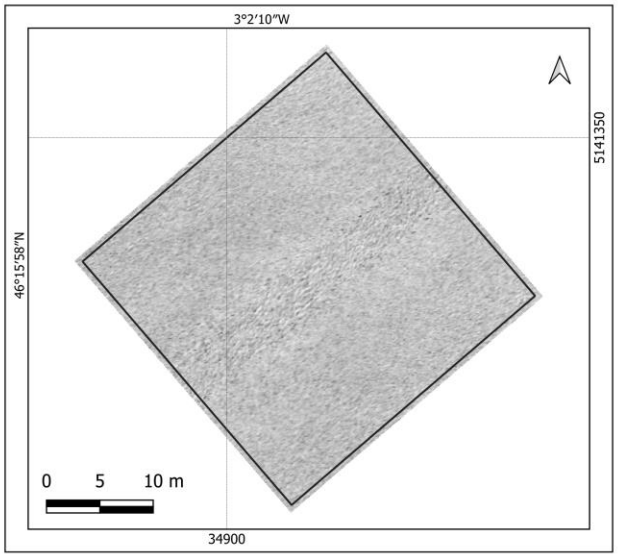
Bathymetry overview



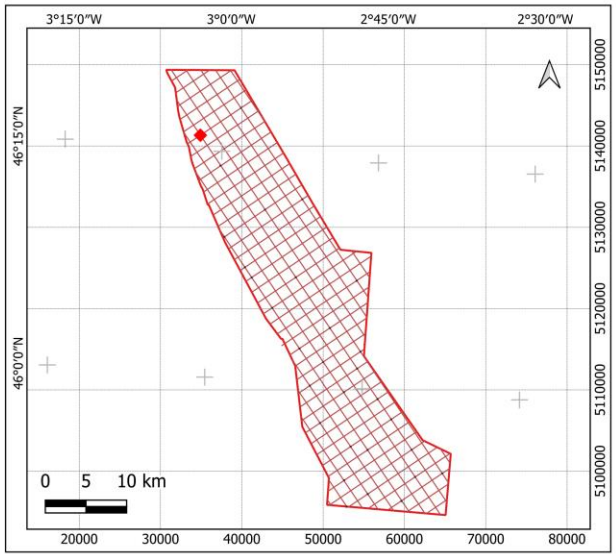
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-117.25 -117

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_02

Geodesy: WGS84 UTM 31N

Easting: 497232 E

Northing: 5123603.99 N

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6168_1-RR-02

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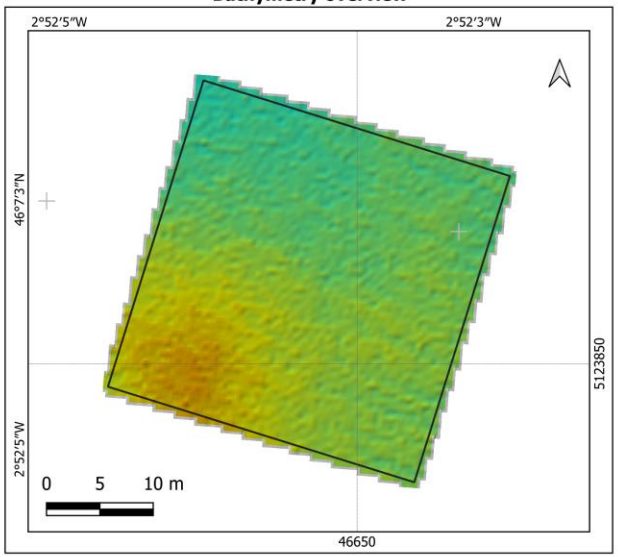
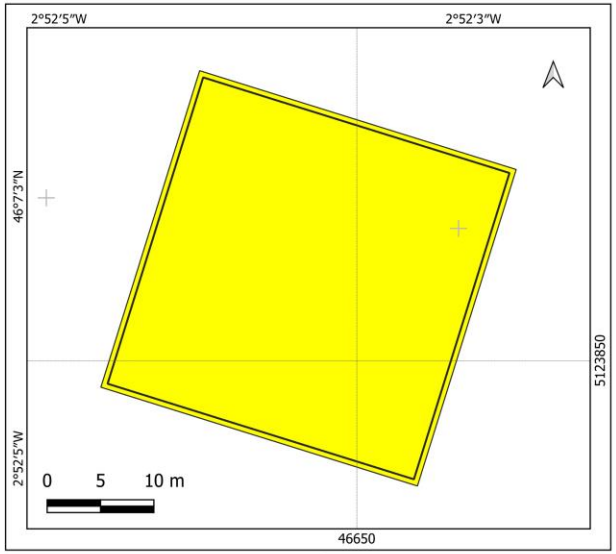
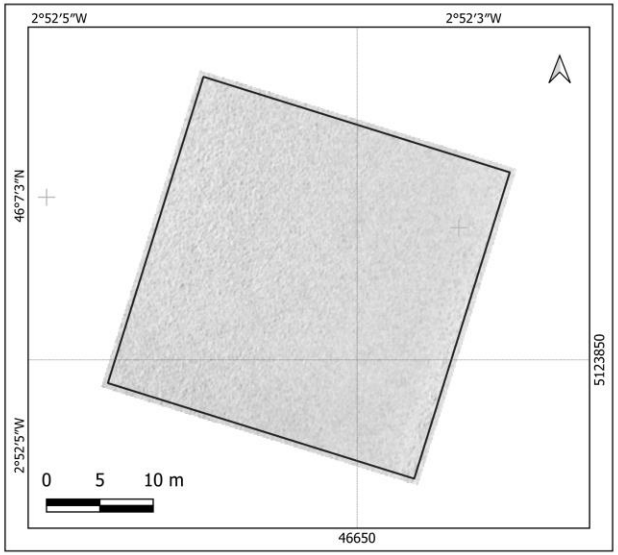
Bathymetry overview



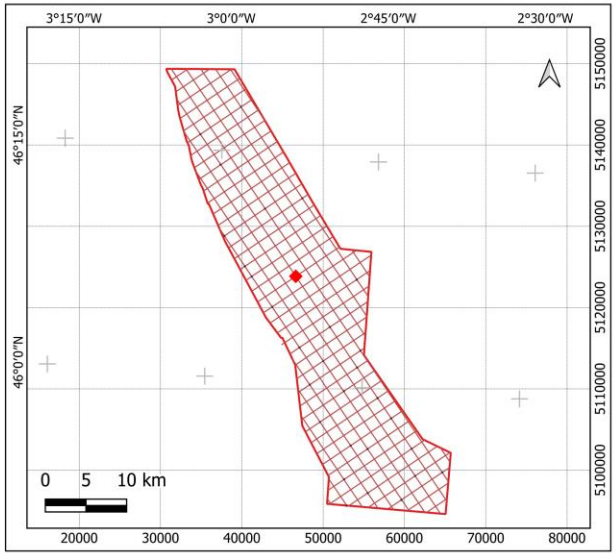
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-113.25 -112.75

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_03

Geodesy: WGS84 UTM 31N

Easting: 510224.42 E

Northing: 5107105.51 N

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6168_1-RR-02

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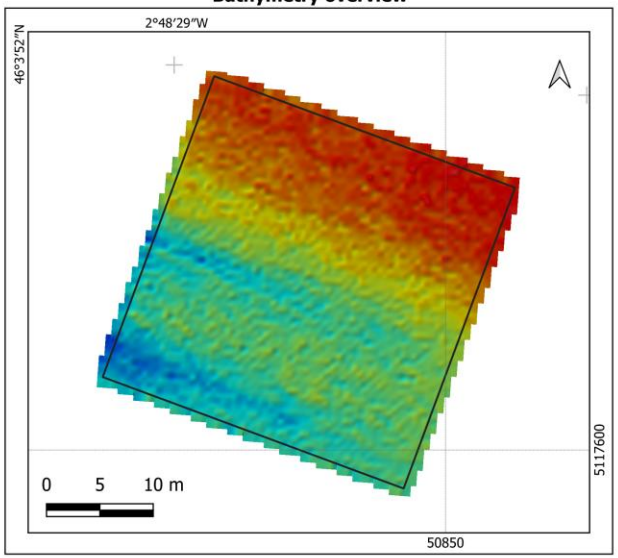
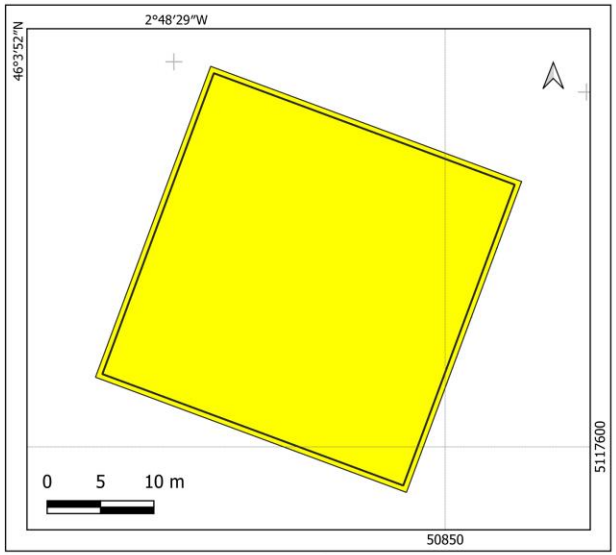
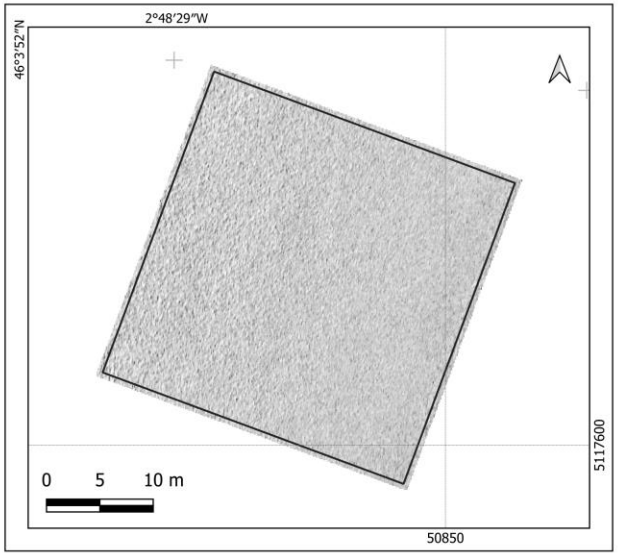
Bathymetry overview



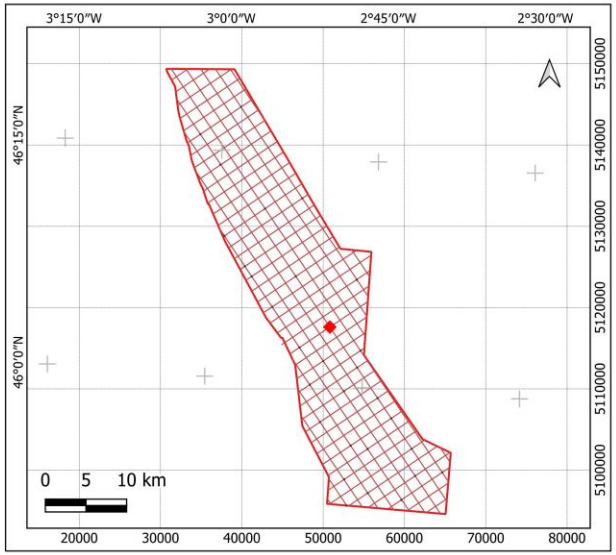
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-114 -113.75

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_04

Geodesy: WGS84 UTM 31N

Easting: 514863.81 E

Northing: 5101212.52 N

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6168_1-RR-02

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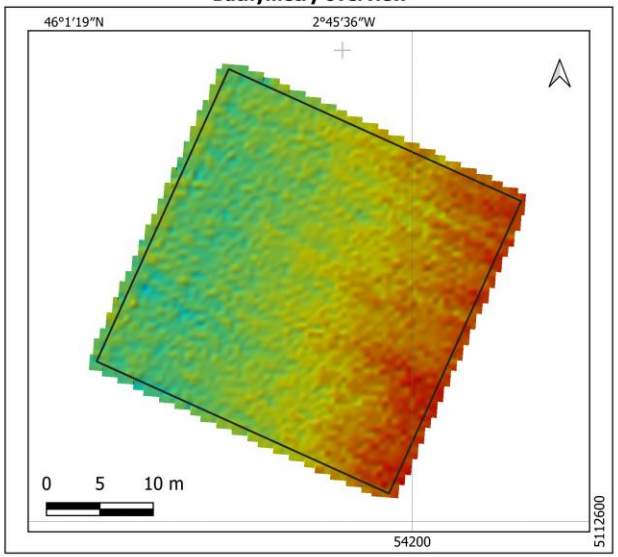
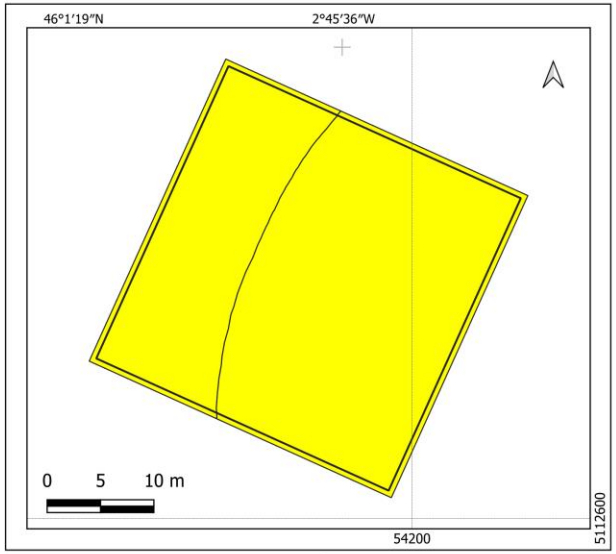
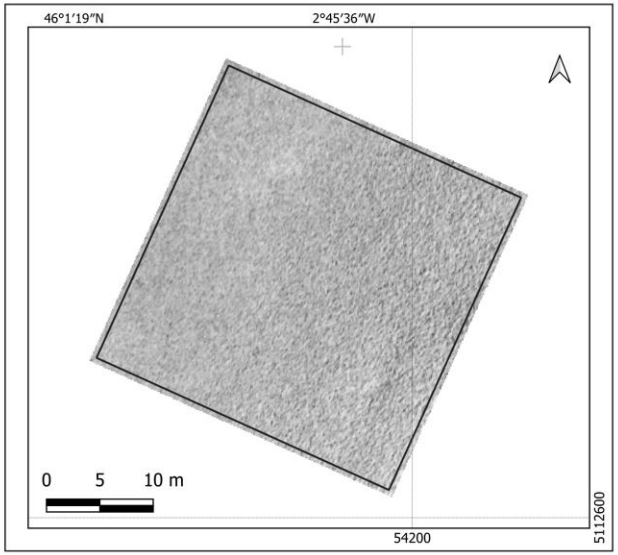
Bathymetry overview



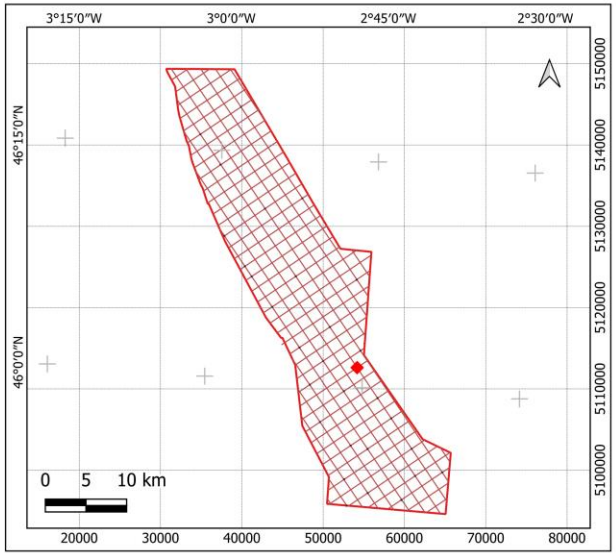
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-111.10 -110.85

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_05

Geodesy: WGS84 UTM 31N

Easting: 518574.89 E

Northing: 5096498.07 N

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6168_1-RR-02

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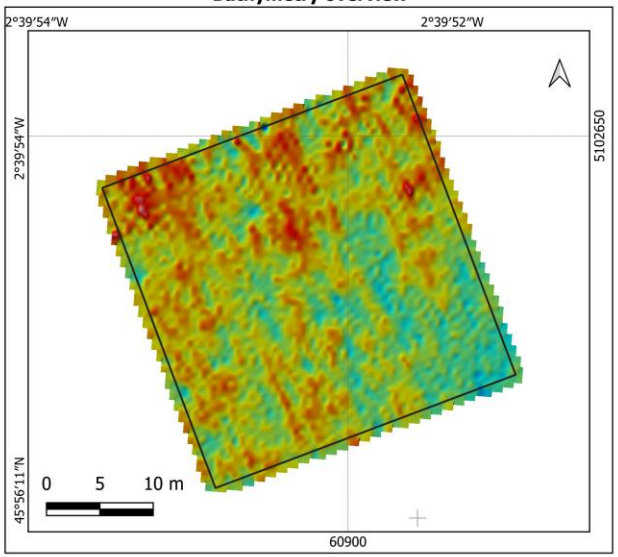
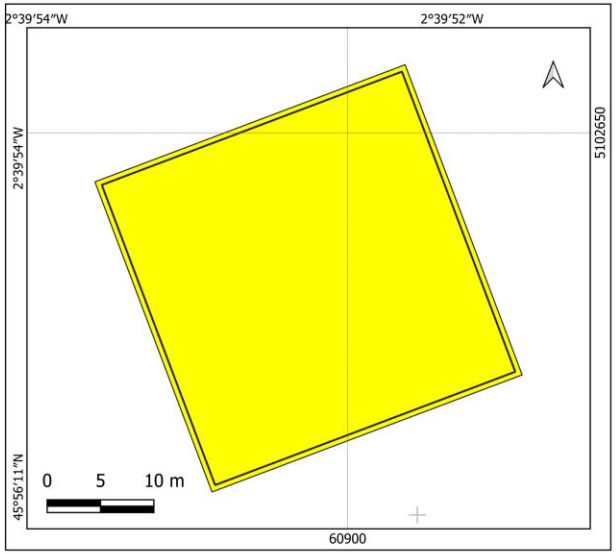
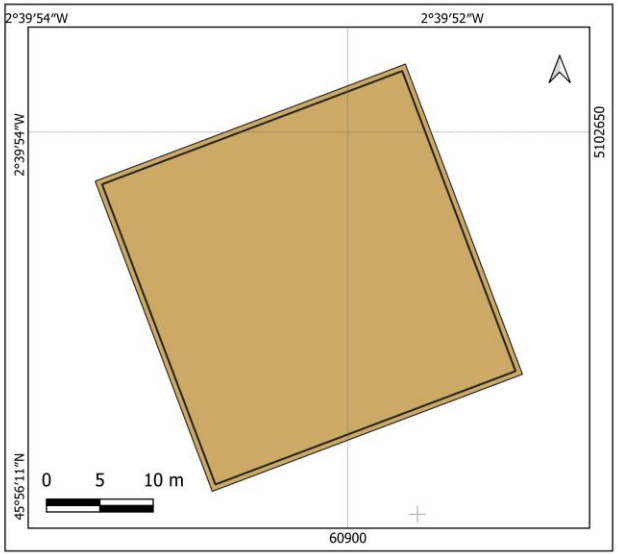
Bathymetry overview



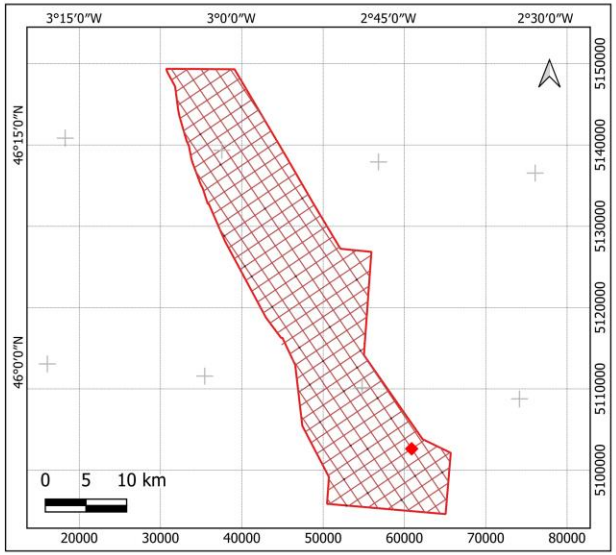
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-104.55 -104.38

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_06

Geodesy: WGS84 UTM 31N

Easting: 525996.45 E

Northing: 5087068.26 N

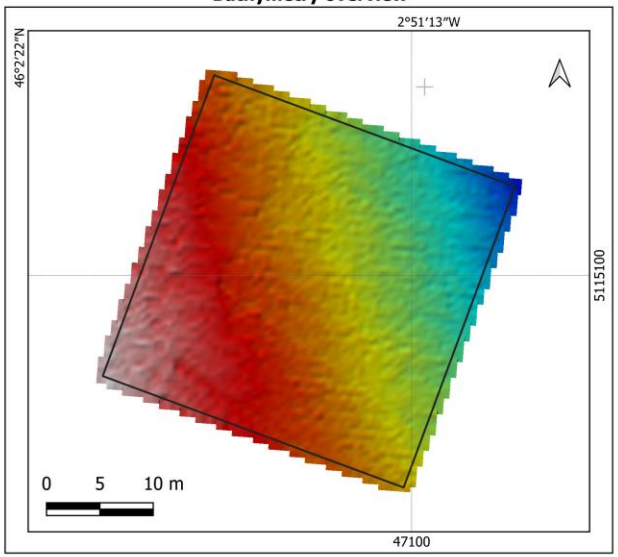
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

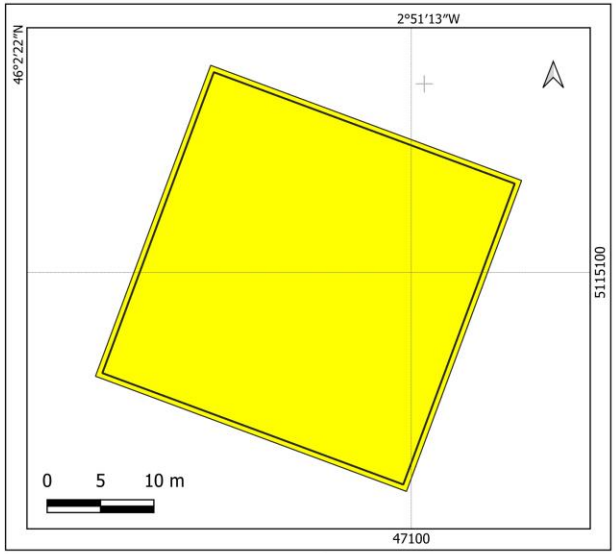
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

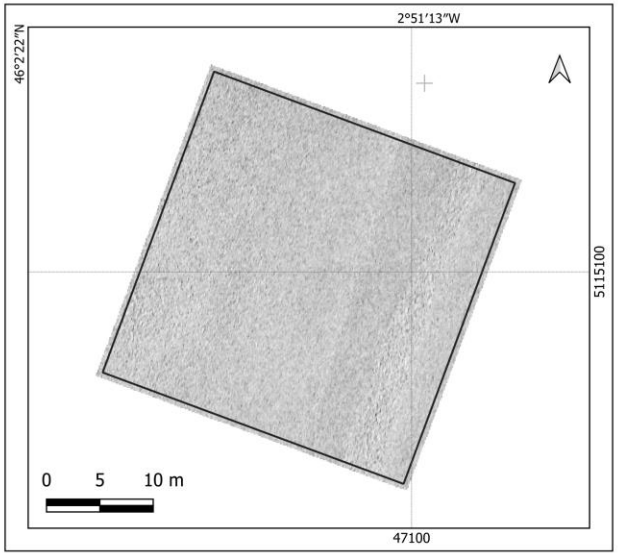
Bathymetry overview



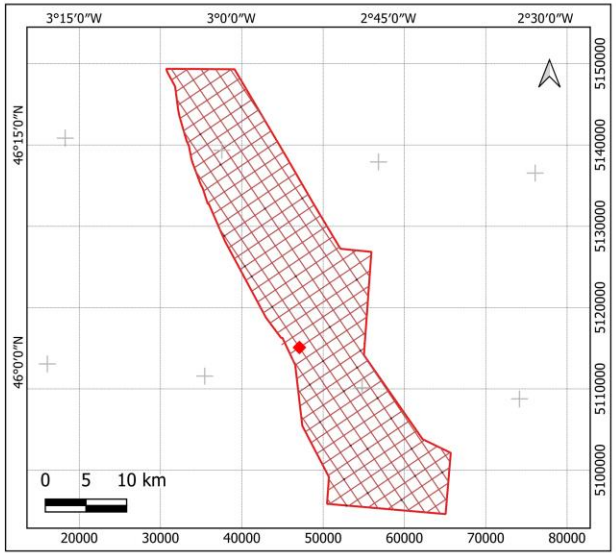
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-115.25 -114.5

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_07

Geodesy: WGS84 UTM 31N

Easting: 511326.35 E

Northing: 5098427.72 N

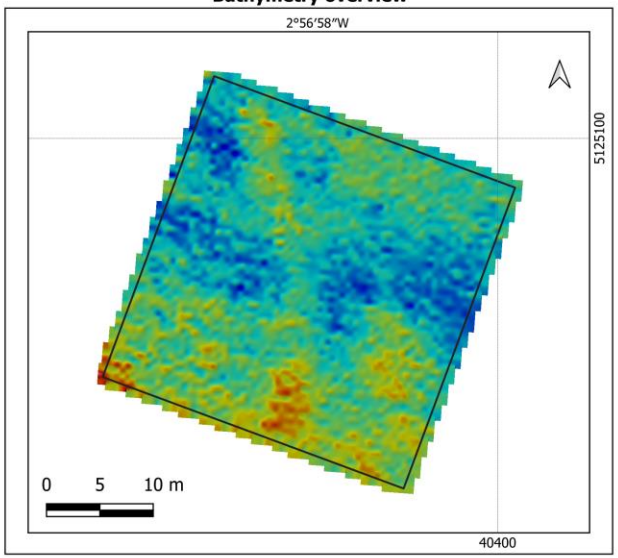
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

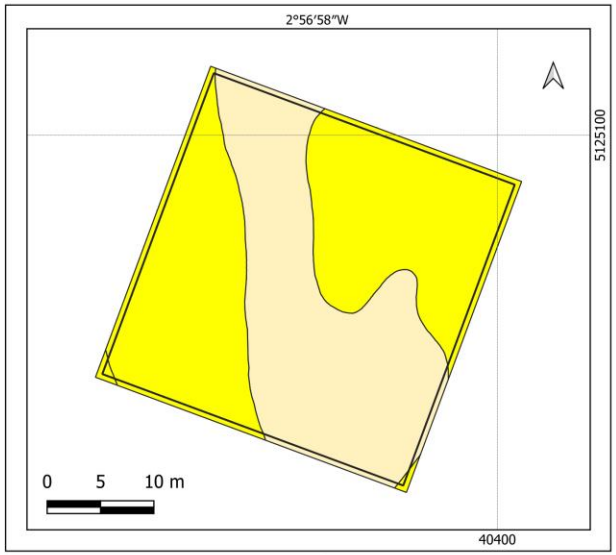
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

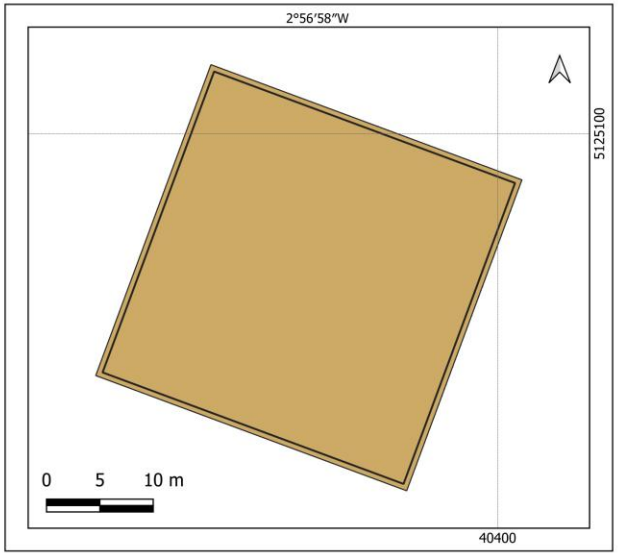
Bathymetry overview



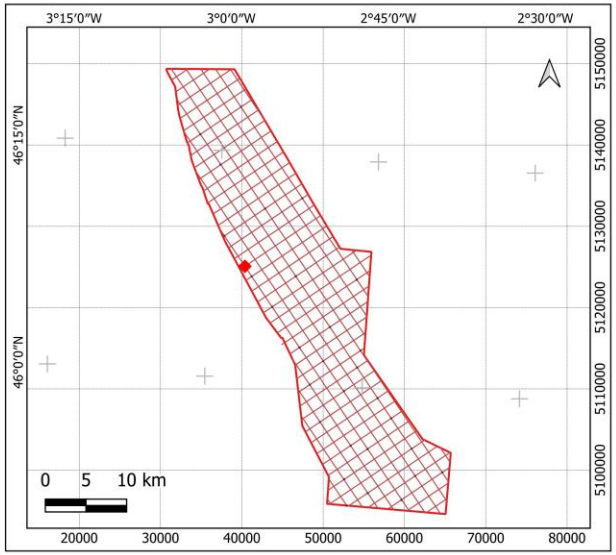
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-117.35 -117.25

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_08

Geodesy: WGS84 UTM 31N

Easting: 503902.53 E

Northing: 5107855.76 N

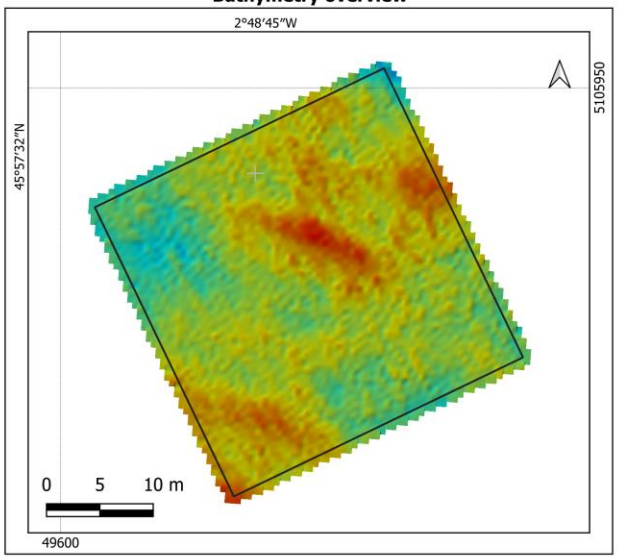
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

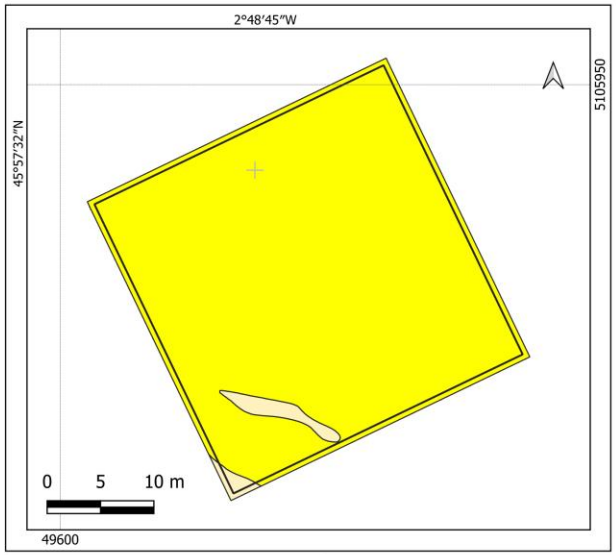
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

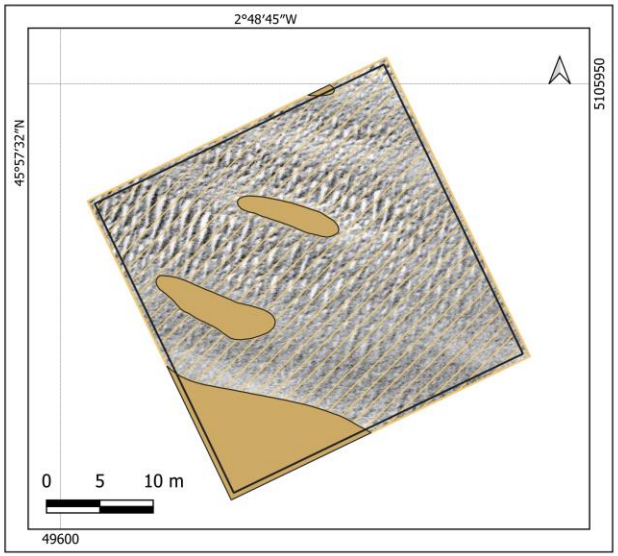
Bathymetry overview



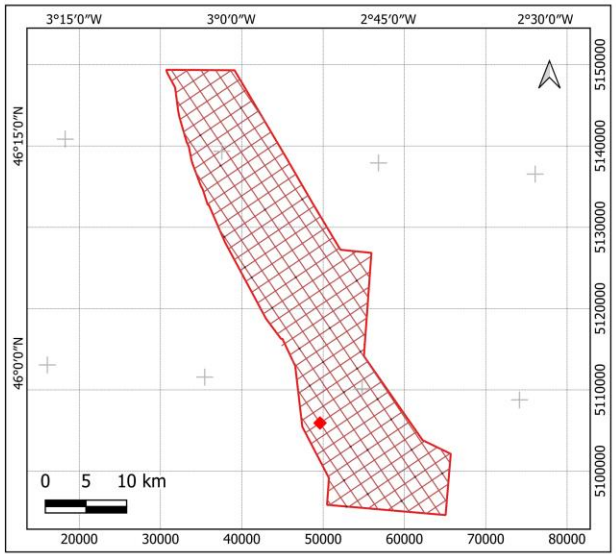
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-111.35 -111.1

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_09

Geodesy: WGS84 UTM 31N

Easting: 514535.05 E

Northing: 5089499.42 N

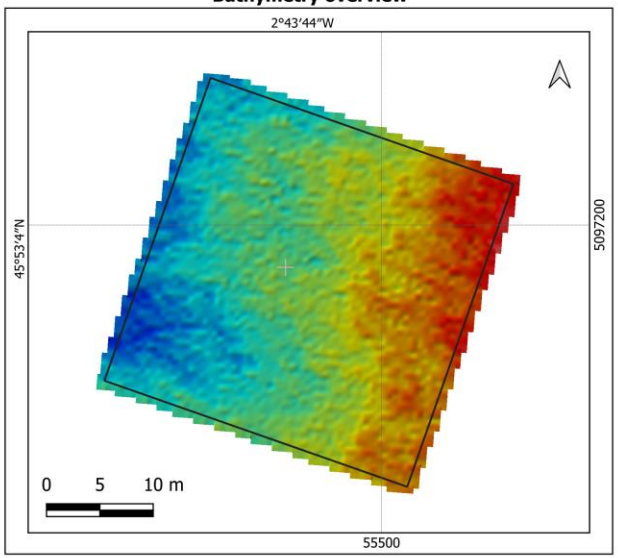
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

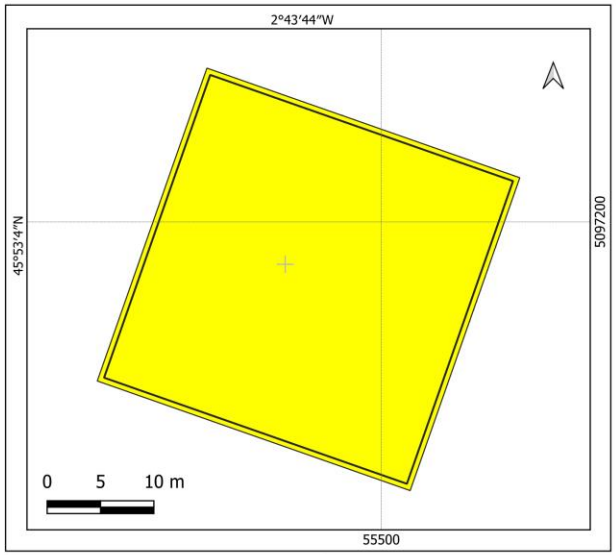
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

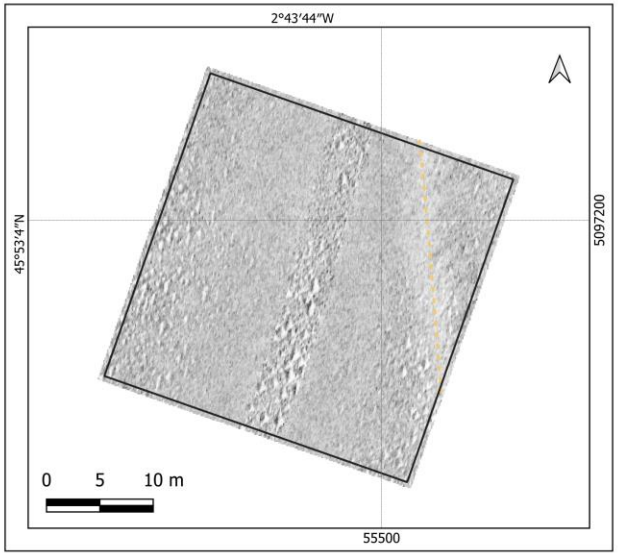
Bathymetry overview



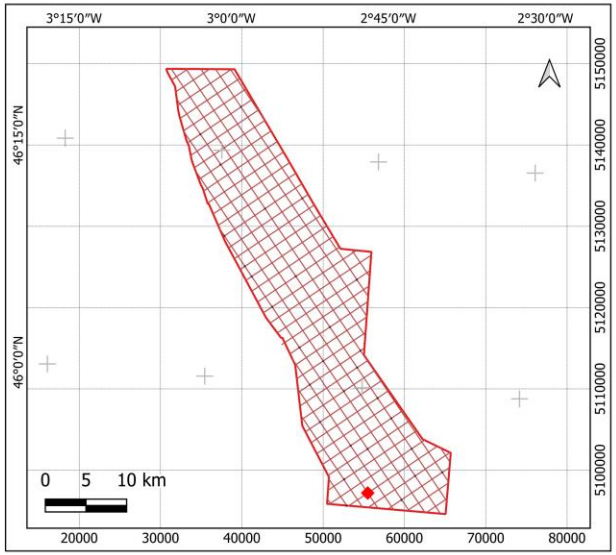
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-108.8 -108.5

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_10

Geodesy: WGS84 UTM 31N

Easting: 521030.06 E

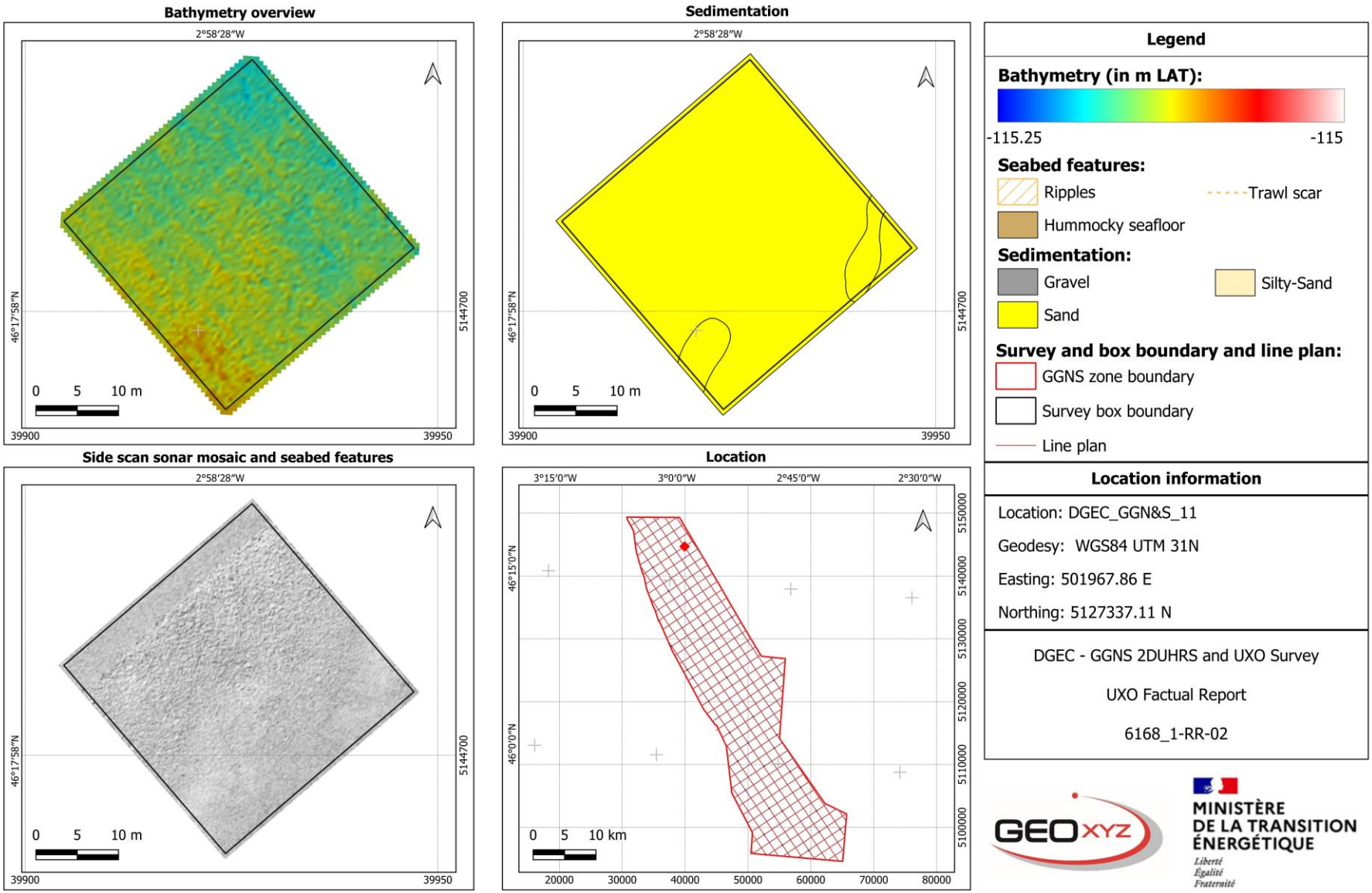
Northing: 5081249.25 N

DGEC - GGNS 2DUHRS and UXO Survey

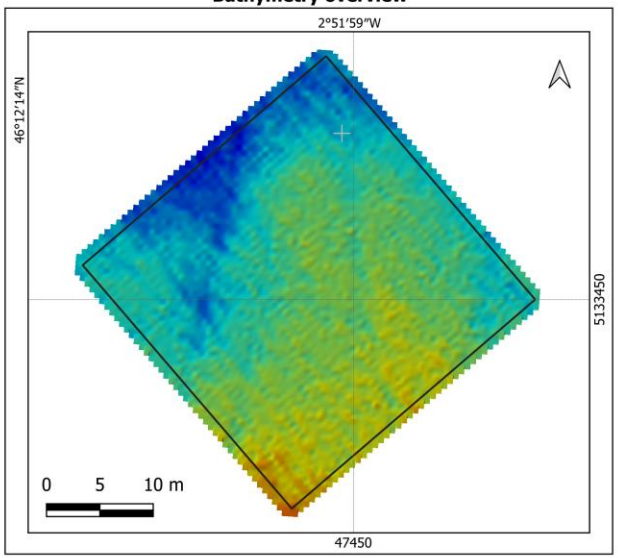
UXO Factual Report

6168_1-RR-02

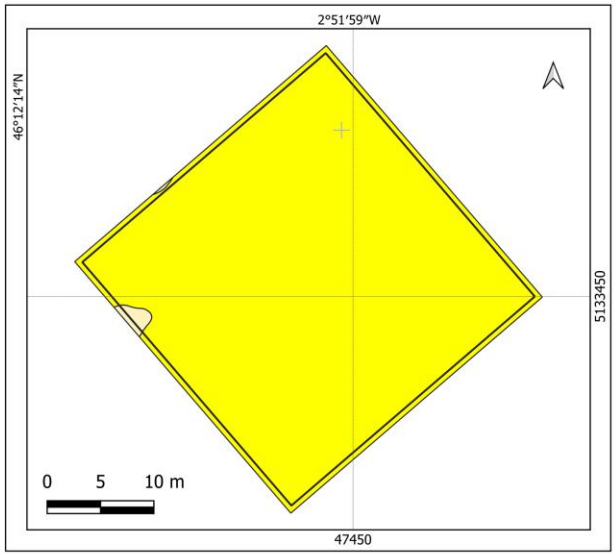
MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité


Bathymetry overview
Sedimentation
Side scan sonar mosaic and seabed features
Location
2°58'28"W
46°17'58"N
5144700
39900
39950
0 5 10 m
3°15'0"W
3°0'0"W
2°45'0"W
2°30'0"W
46°15'0"N
46°0'0"N
5150000
5140000
5130000
5120000
5110000
5100000
20000
30000
40000
50000
60000
70000
80000
0 5 10 km
Legend
Bathymetry (in m LAT):
-115.25
-115
Seabed features:
Ripples
Trawl scar
Hummocky seafloor
Sedimentation:
Gravel
Silty-Sand
Sand
Survey and box boundary and line plan:
GGNS zone boundary
Survey box boundary
Line plan
Location information
Location: DGEC_GGN&S_11
Geodesy: WGS84 UTM 31N
Easting: 501967.86 E
Northing: 5127337.11 N
DGEC - GGNS 2DUHRS and UXO Survey
UXO Factual Report
6168_1-RR-02
MINISTÈRE
DE LA TRANSITION
ÉNERGÉTIQUE
Liberté
Égalité
Fraternité

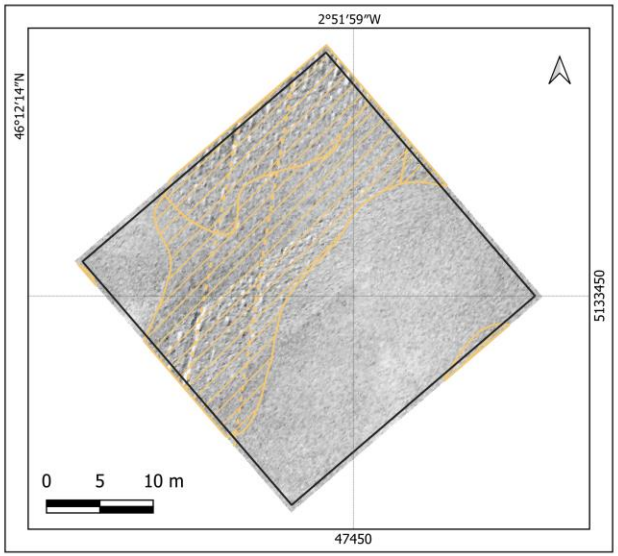
Bathymetry overview



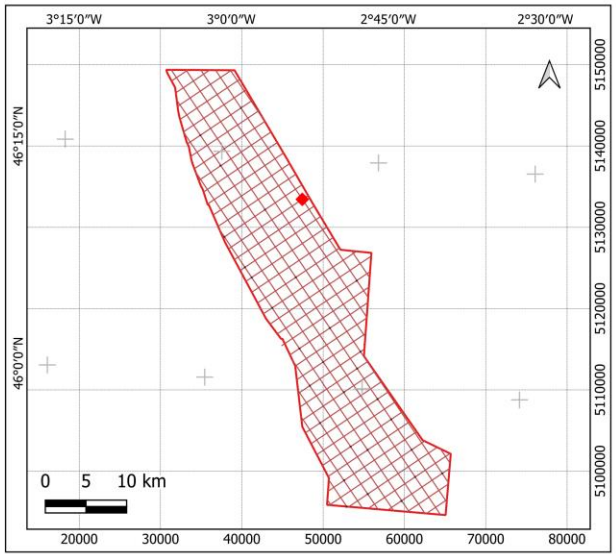
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-107.5 -107.25

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_12

Geodesy: WGS84 UTM 31N

Easting: 510297.14 E

Northing: 5116708.23 N

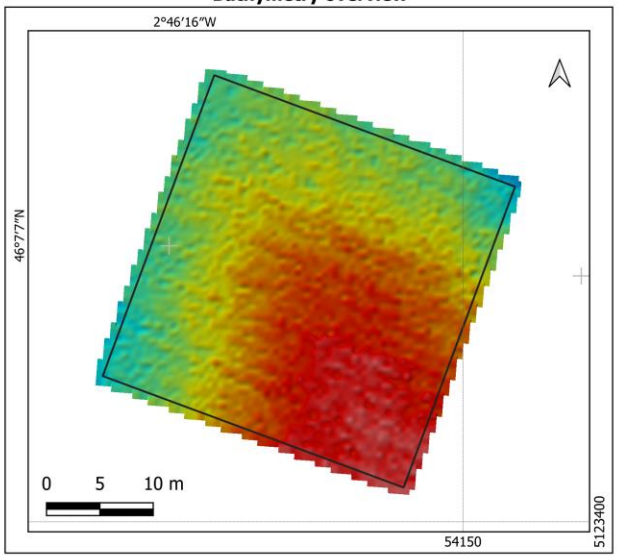
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

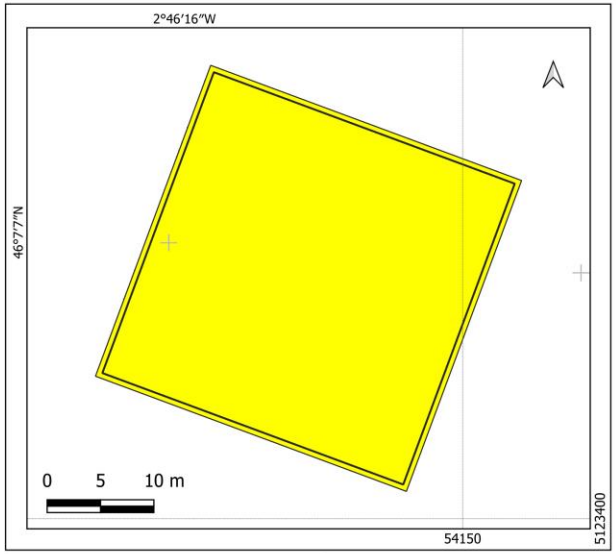
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

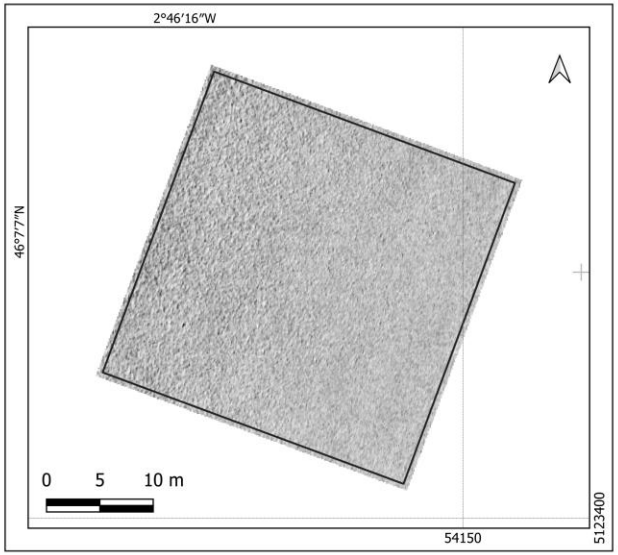
Bathymetry overview



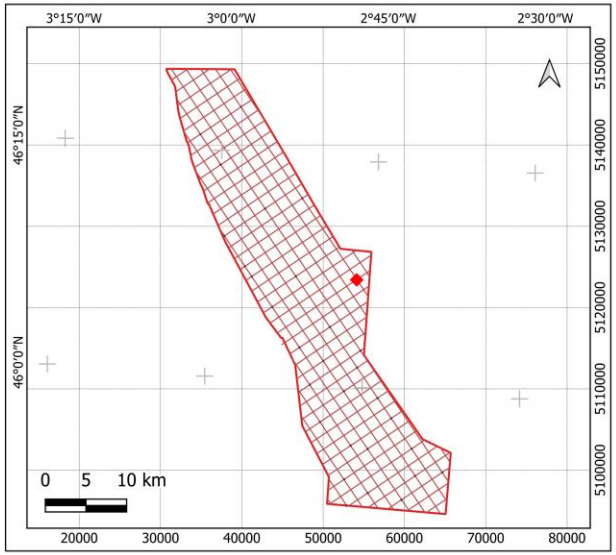
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-108.7 108.4

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_13

Geodesy: WGS84 UTM 31N

Easting: 517707.39 E

Northing: 5107236.96 N

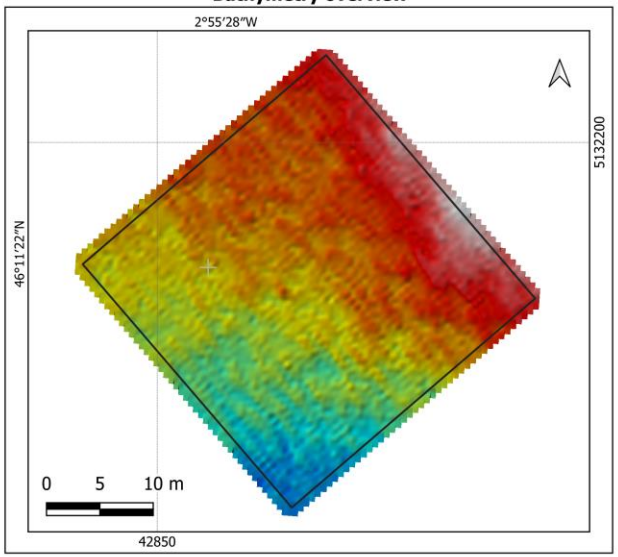
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

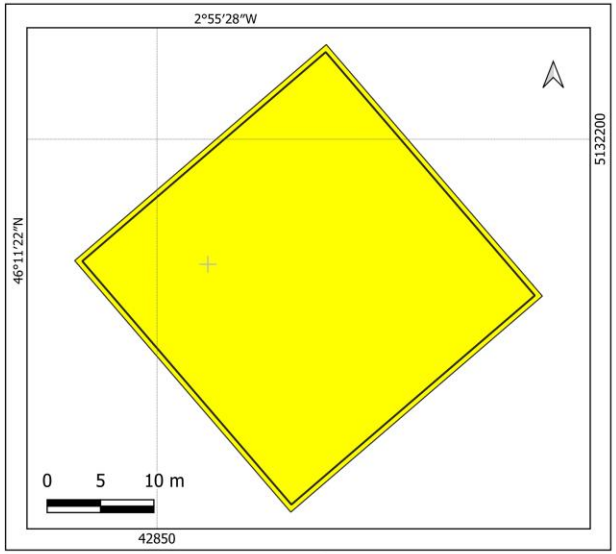
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

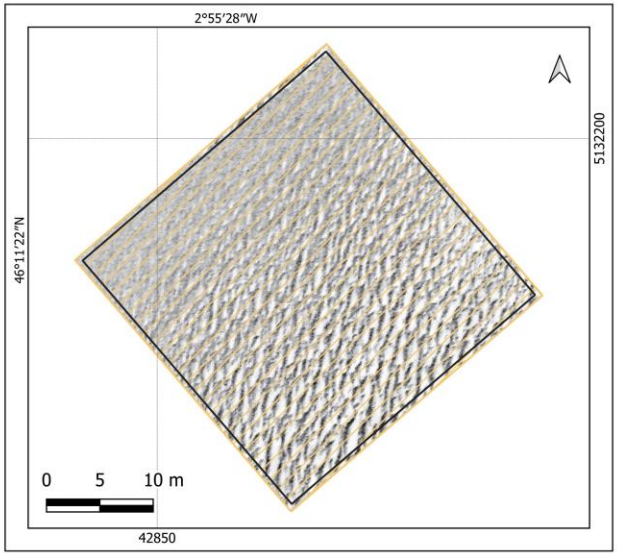
Bathymetry overview



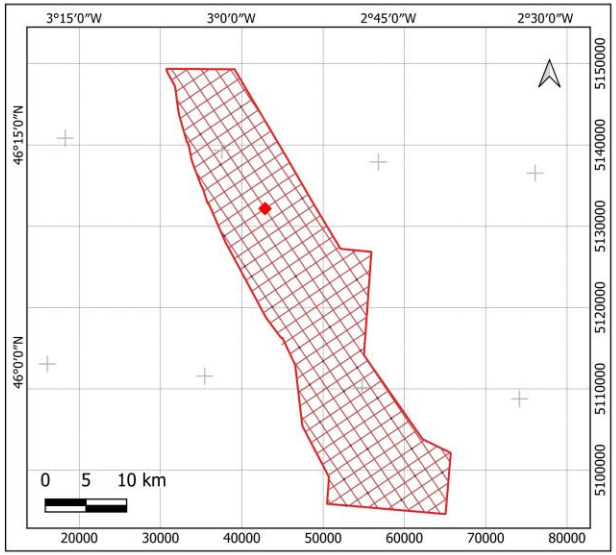
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-109.5 -109

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_14

Geodesy: WGS84 UTM 31N

Easting: 505835.64 E

Northing: 5115104.77 N

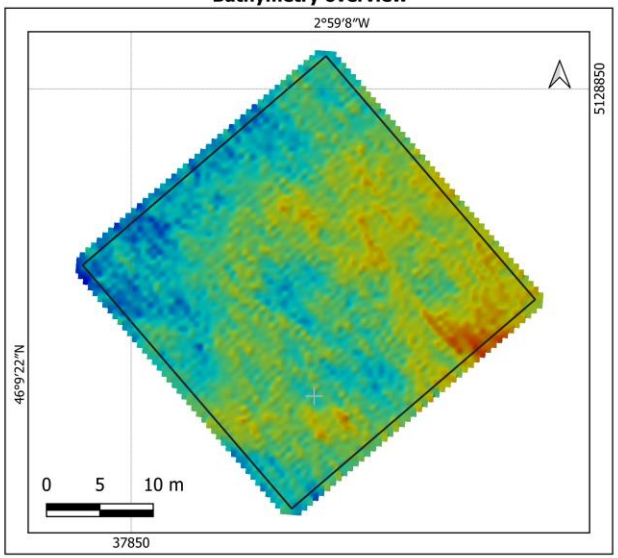
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

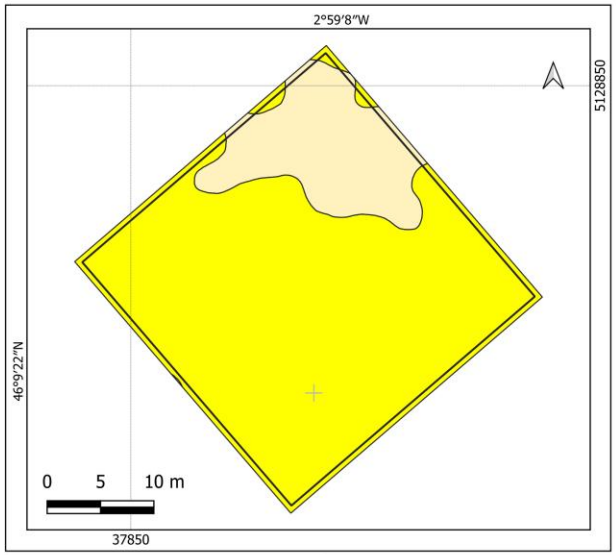
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

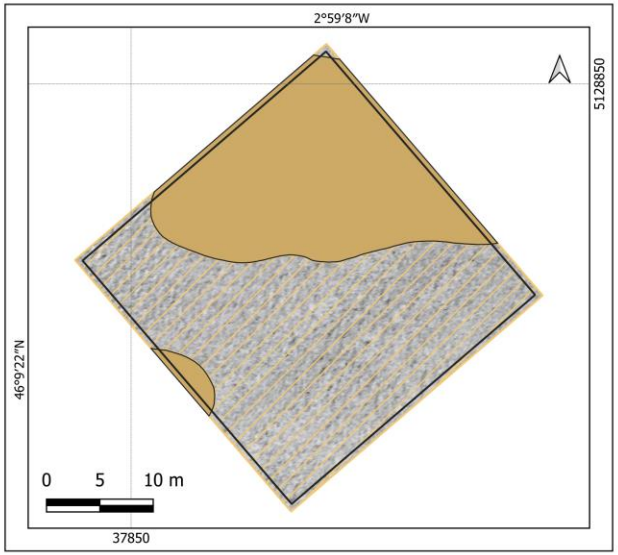
Bathymetry overview



Sedimentation



Side scan sonar mosaic and seabed features



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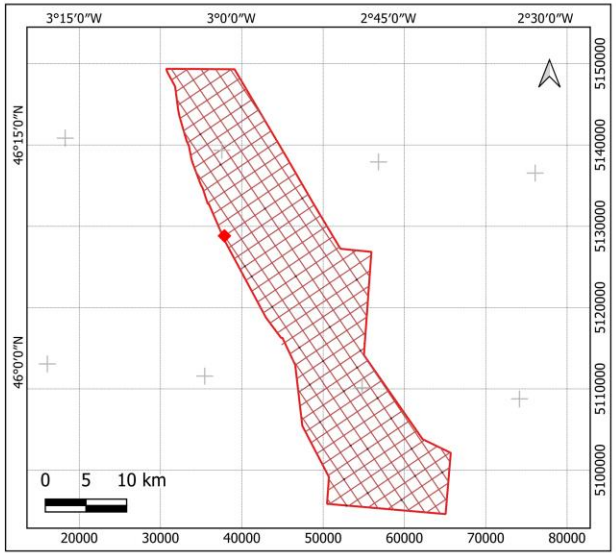


Legend

Bathymetry (in m LAT):

-110.15 -110

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_15

Geodesy: WGS84 UTM 31N

Easting: 501118.32 E

Northing: 5111391.06 N

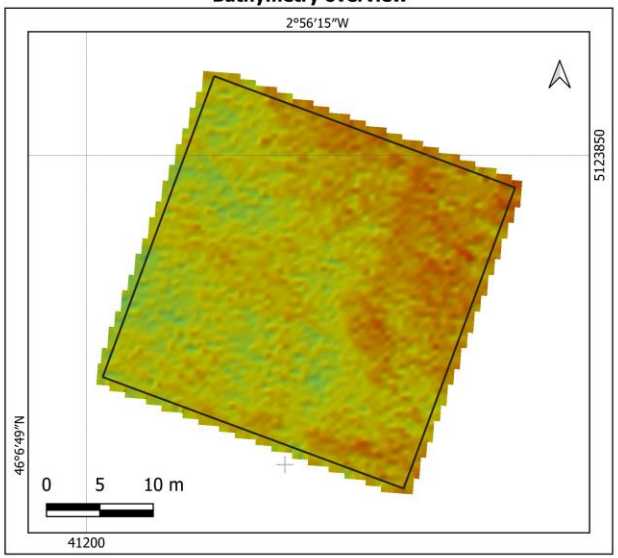
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

Bathymetry overview



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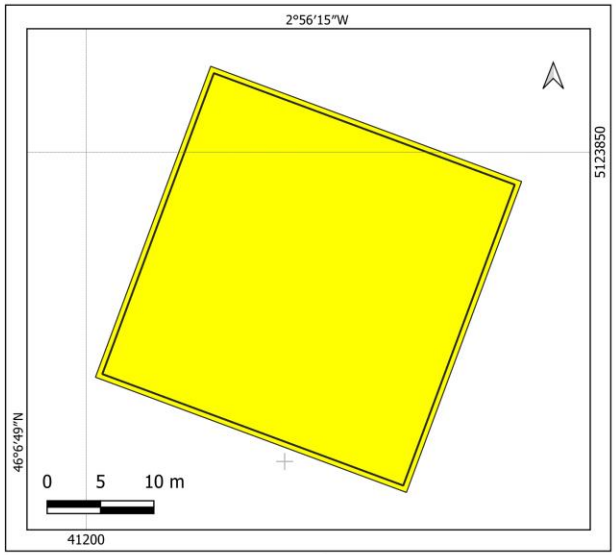
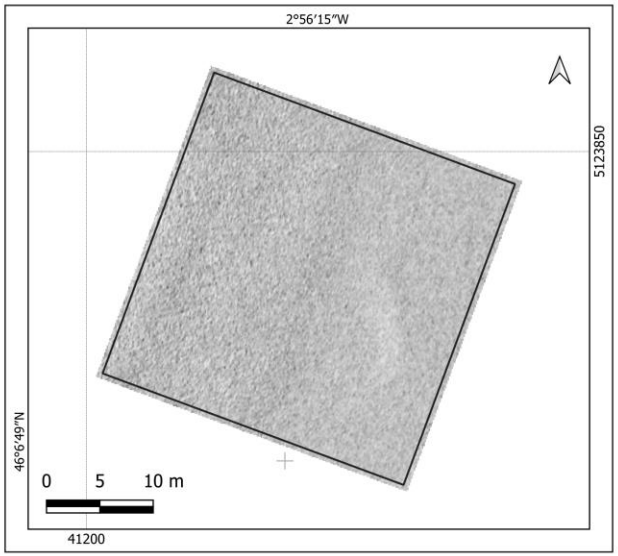


Side scan sonar mosaic and seabed features



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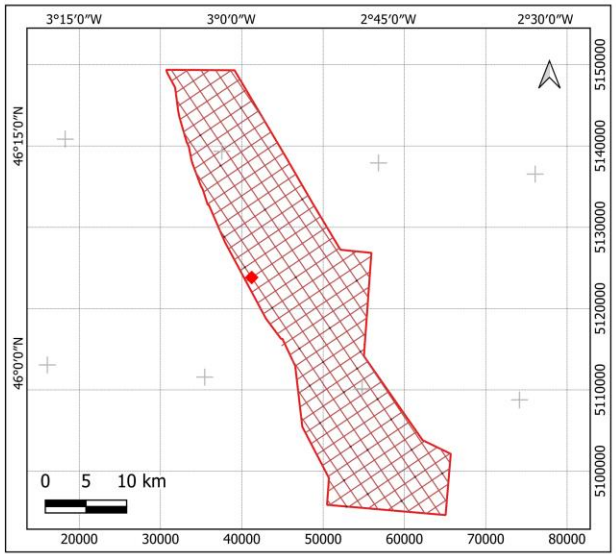


Legend

Bathymetry (in m LAT):

-116.5 -116.25

Seabed features:

Ripples
Trawl scar
Hummocky seafloor

Sedimentation:

Gravel
Silty-Sand
Sand

Survey and box boundary and line plan:

GGNS zone boundary
Survey box boundary
Line plan

Location information

Location: DGEC_GGN&S_16

Geodesy: WGS84 UTM 31N

Easting: 504830.56 E

Northing: 5106677.3 N

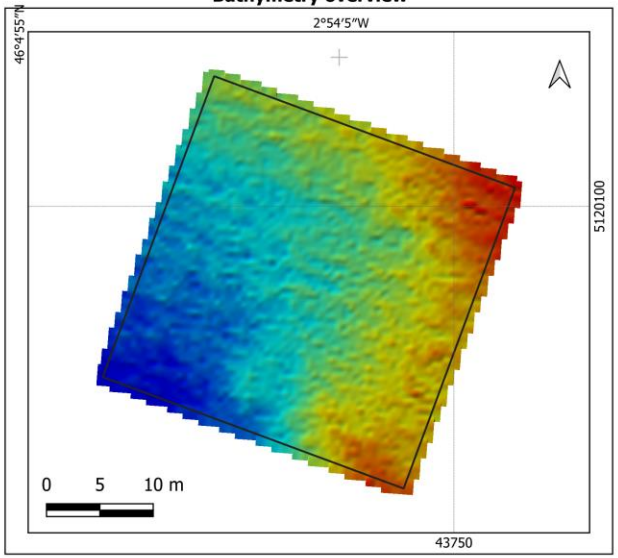
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

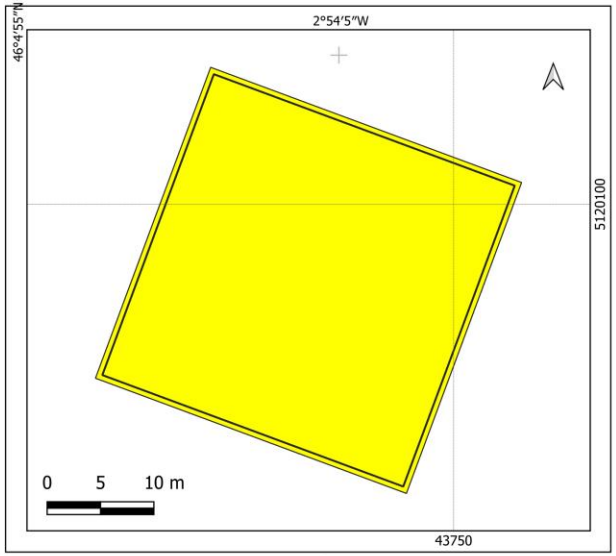
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

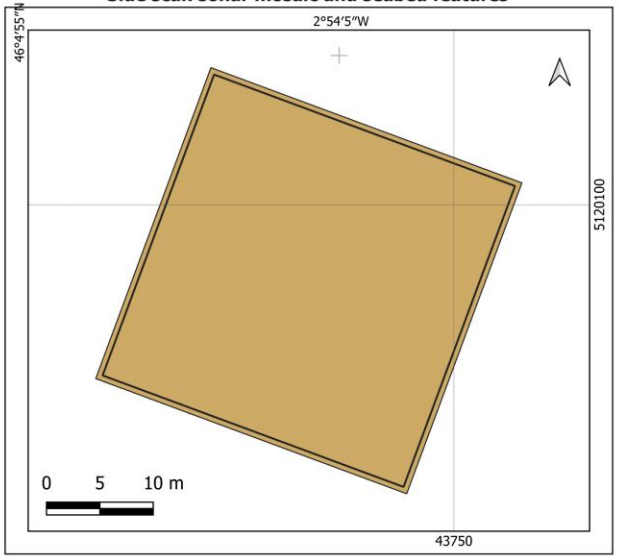
Bathymetry overview



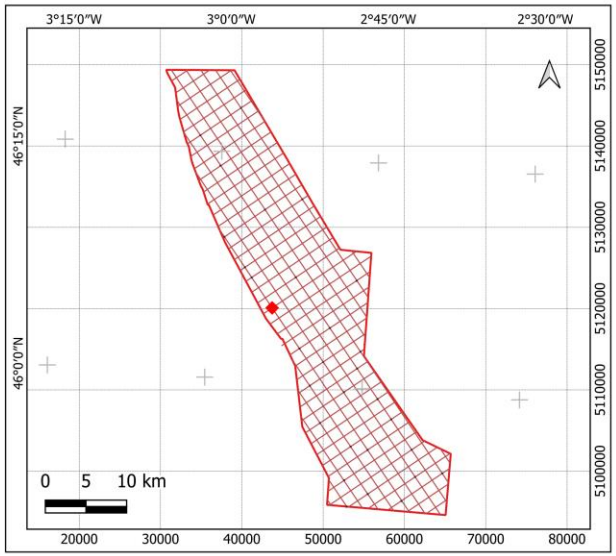
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-112 -111.6

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_17

Geodesy: WGS84 UTM 31N

Easting: 507614.57 E

Northing: 5103141.84 N

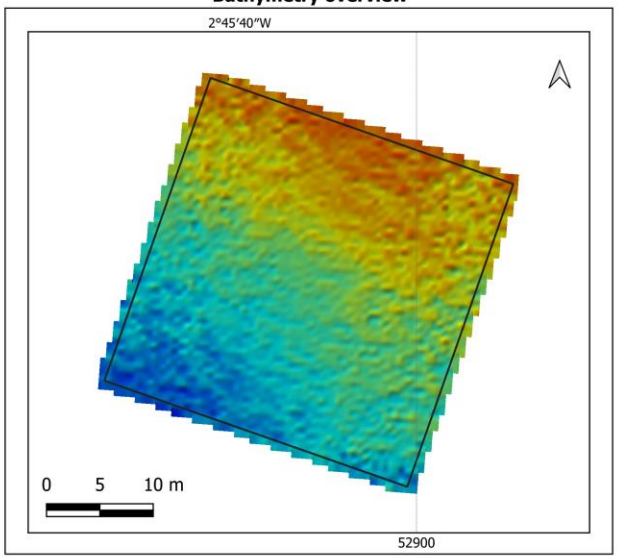
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

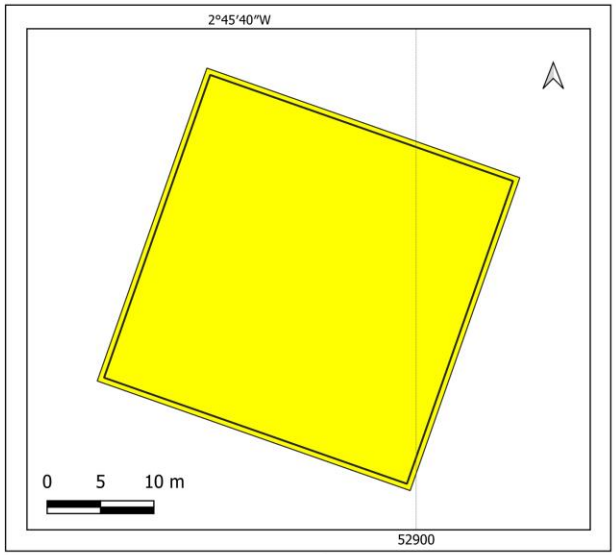
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

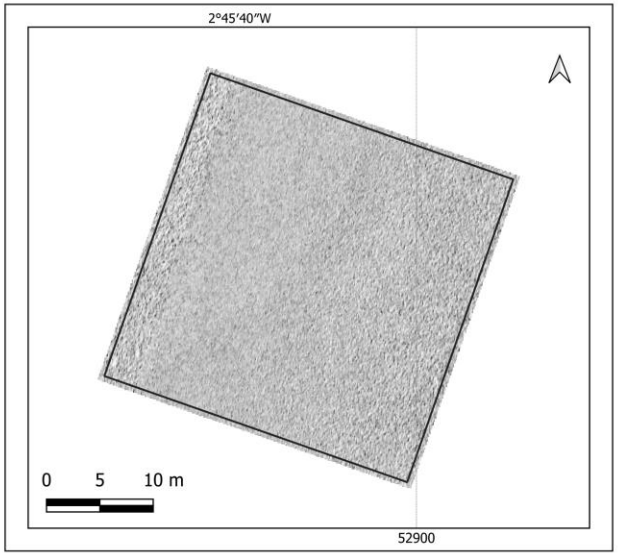
Bathymetry overview



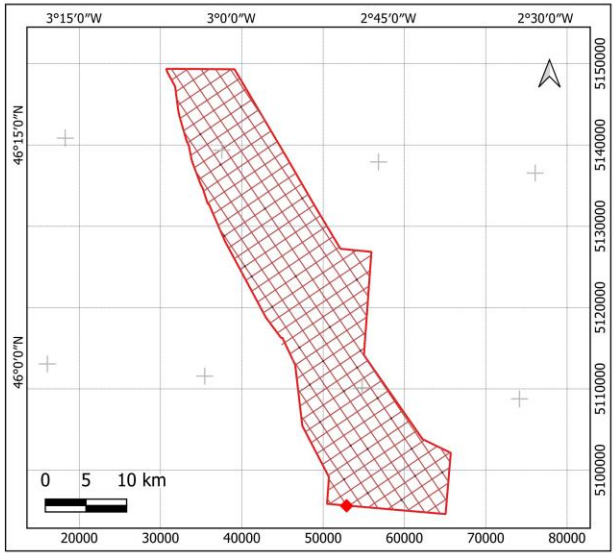
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-115.9 -115.6

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_18

Geodesy: WGS84 UTM 31N

Easting: 518558.17 E

Northing: 5079493.72 N

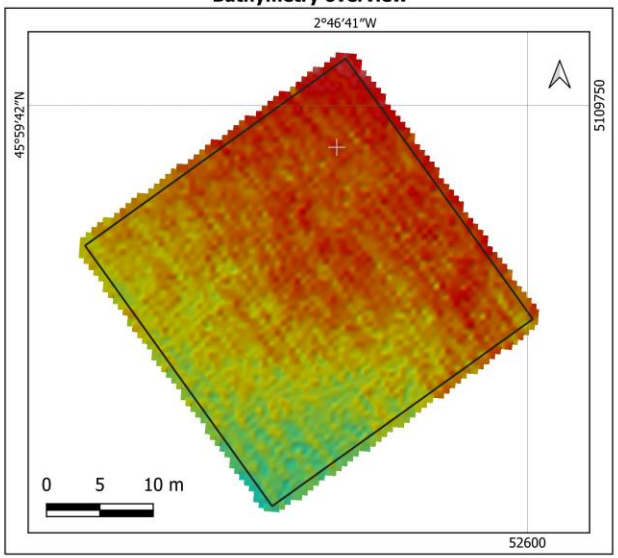
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

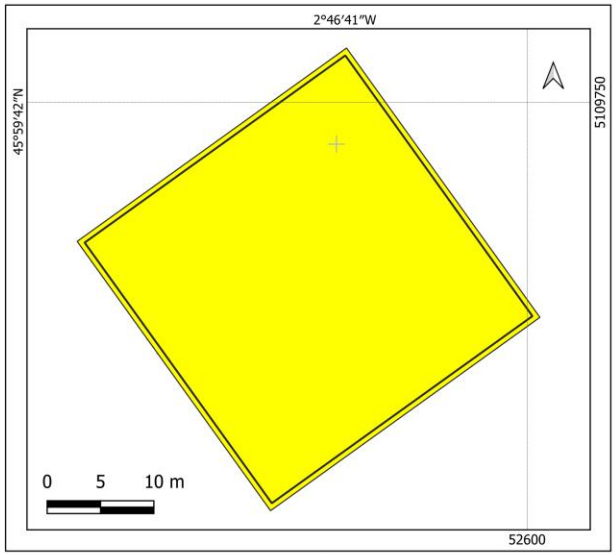
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

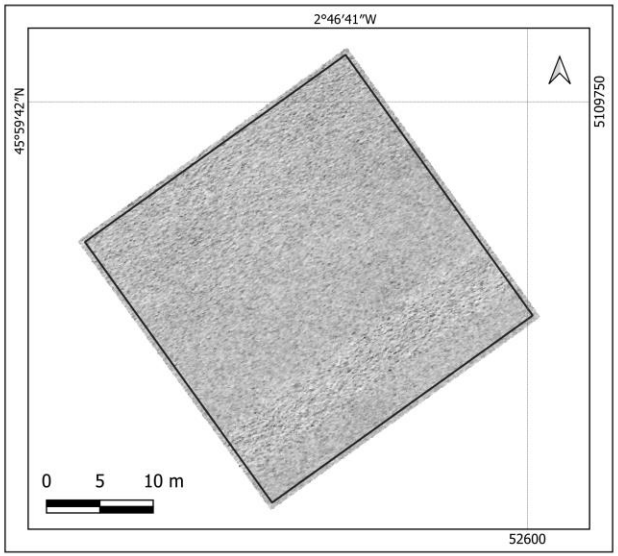
Bathymetry overview



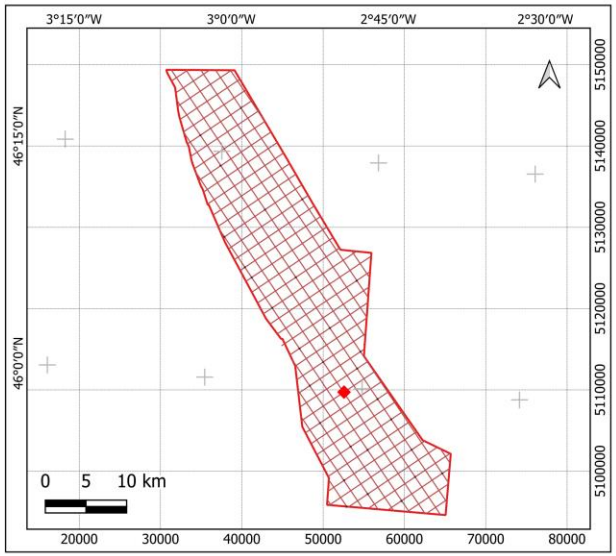
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-111.7 -111.5

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_19

Geodesy: WGS84 UTM 31N

Easting: 517189.88 E

Northing: 5093503.12 N

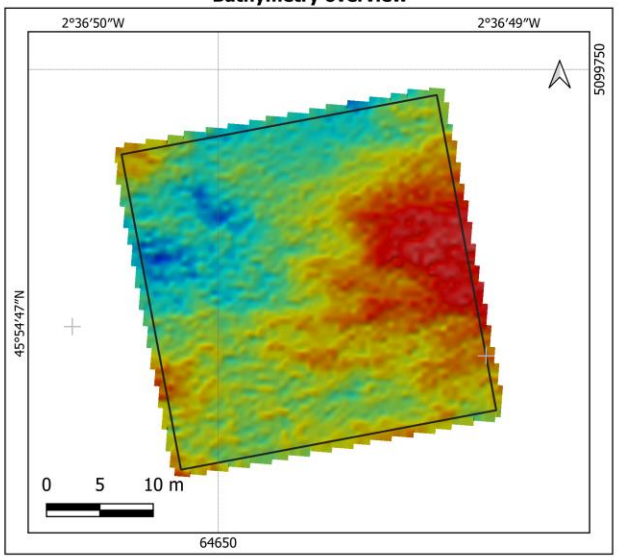
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

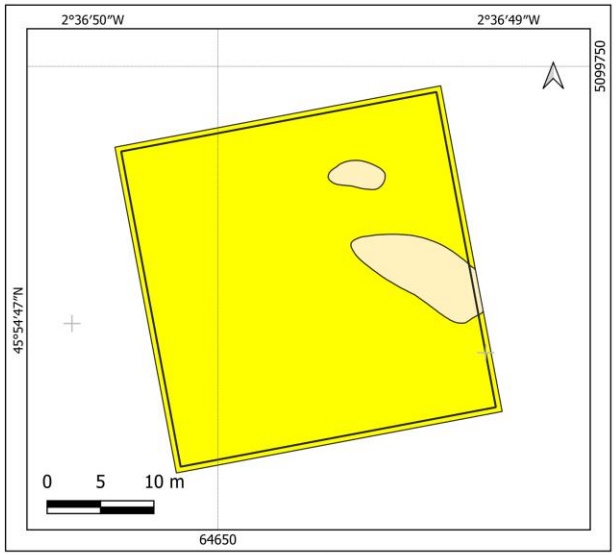
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

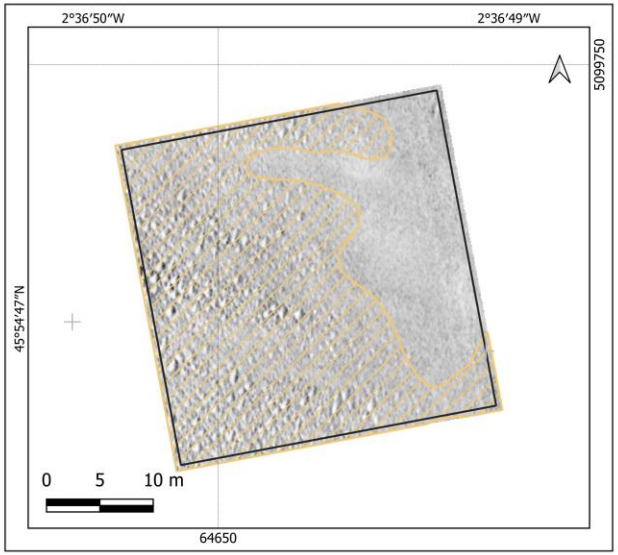
Bathymetry overview



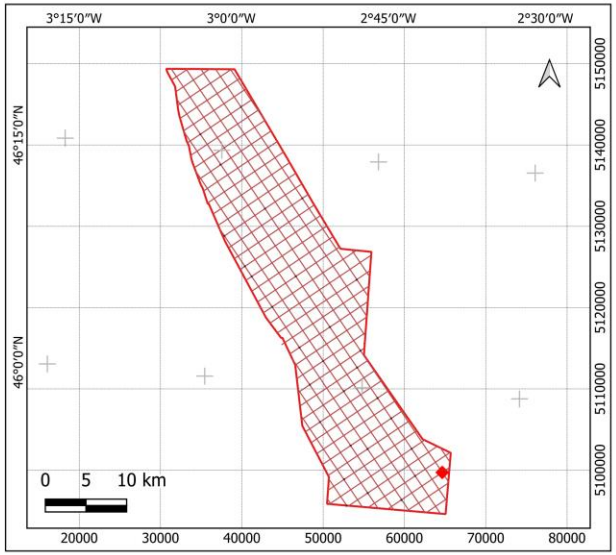
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-103.6 -103.4

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_20

Geodesy: WGS84 UTM 31N

Easting: 529957.43 E

Northing: 5084459.49 N

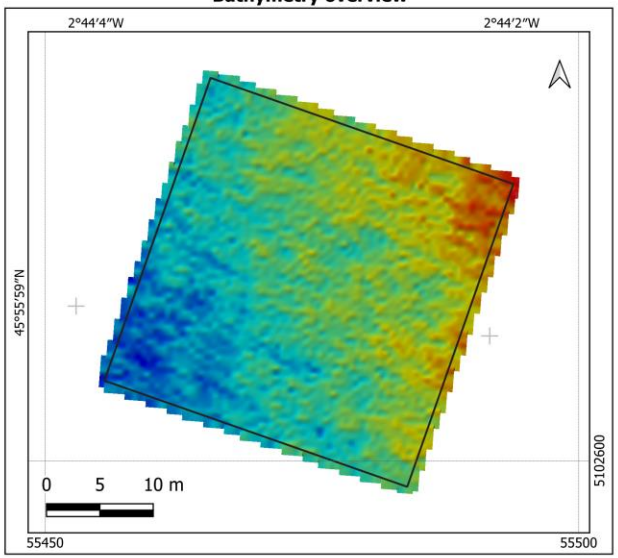
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

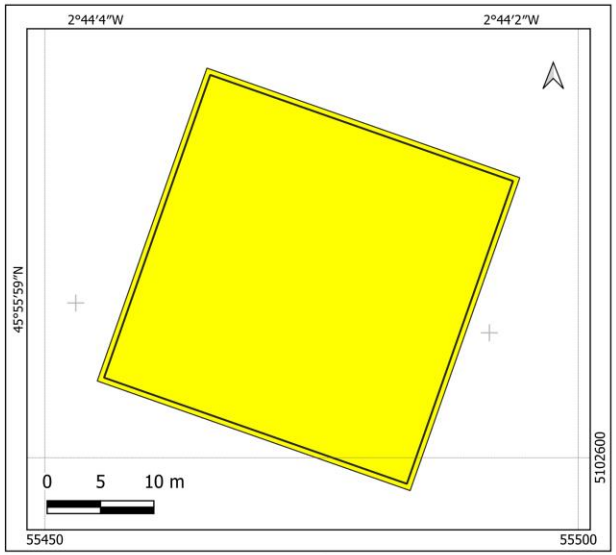
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

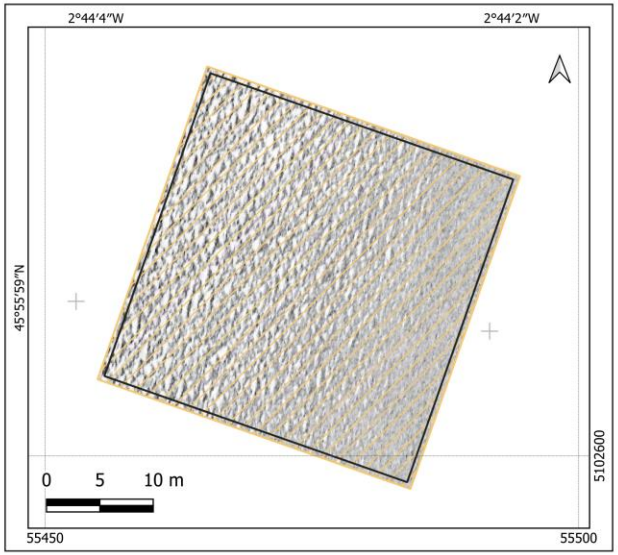
Bathymetry overview



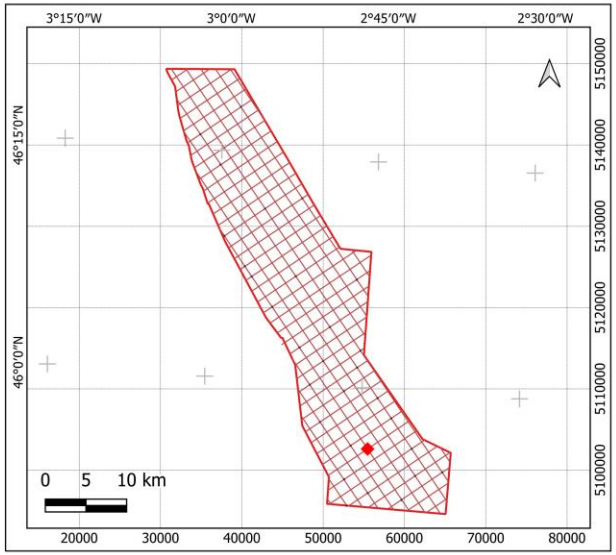
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-108.9 -108.7

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_21

Geodesy: WGS84 UTM 31N

Easting: 520604.61 E

Northing: 5086641.49 N

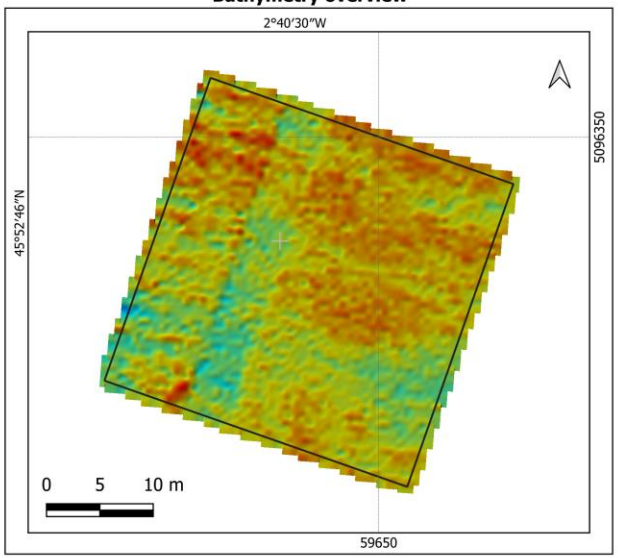
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

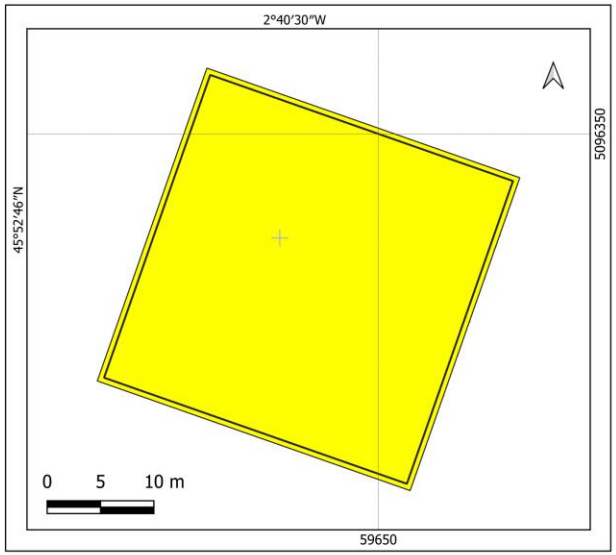
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

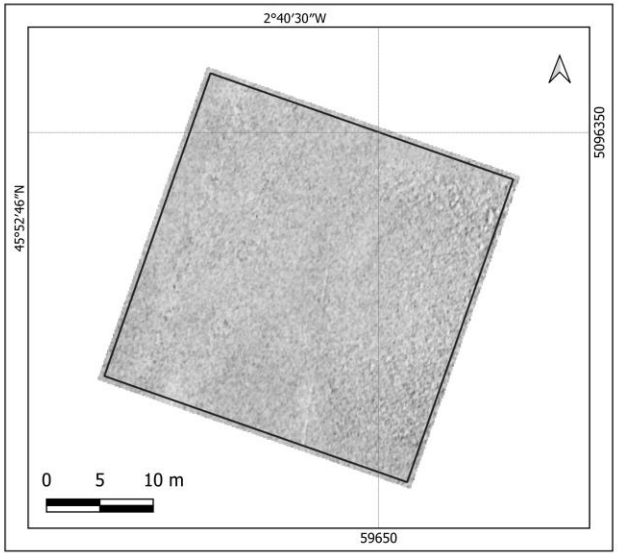
Bathymetry overview



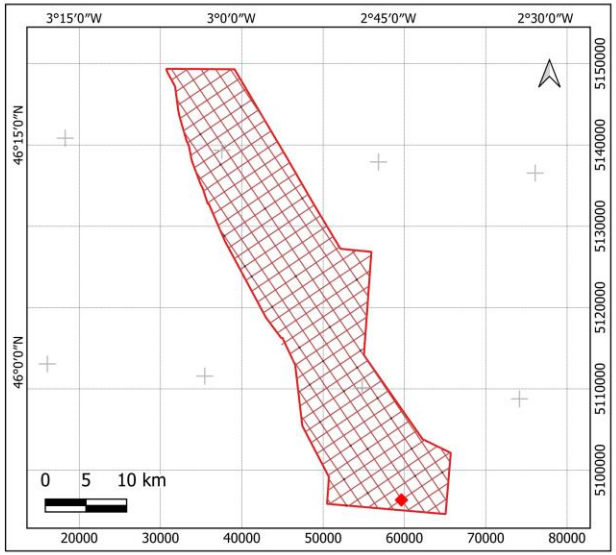
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-107.9 -107.7

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_22

Geodesy: WGS84 UTM 31N

Easting: 525223.06 E

Northing: 5080706.95 N

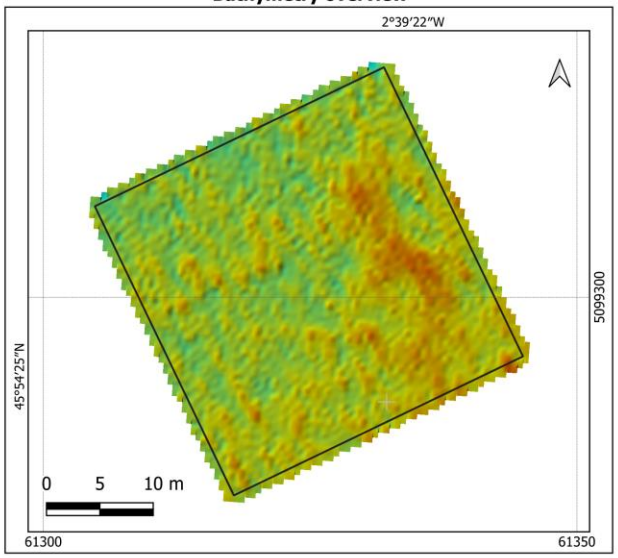
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

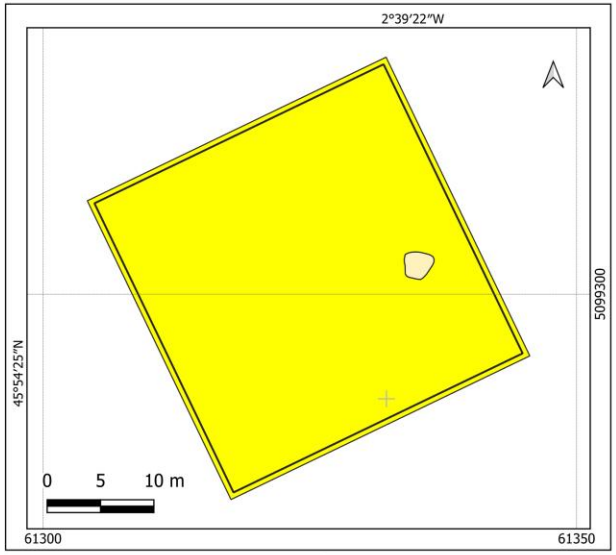
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

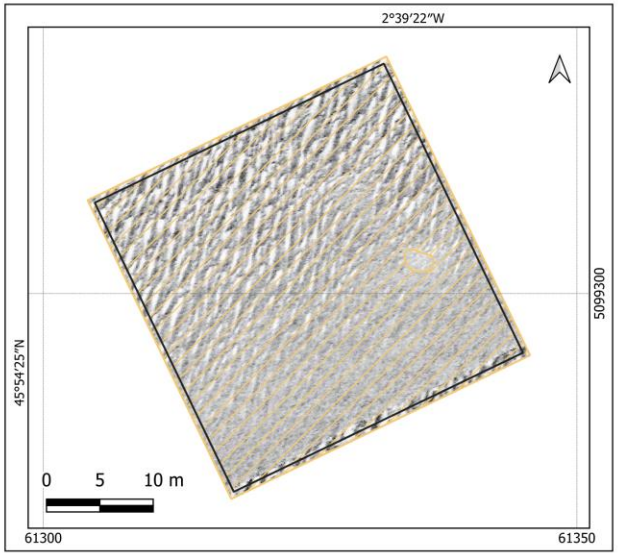
Bathymetry overview



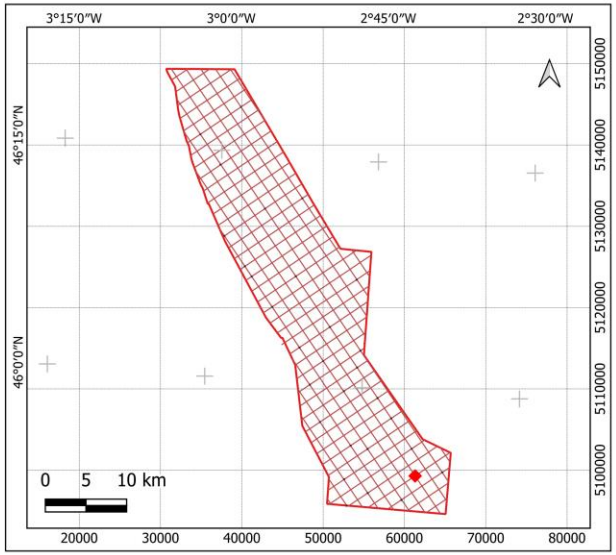
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-107.15 -106.75

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_23

Geodesy: WGS84 UTM 31N

Easting: 526673.2 E

Northing: 5083782.86 N

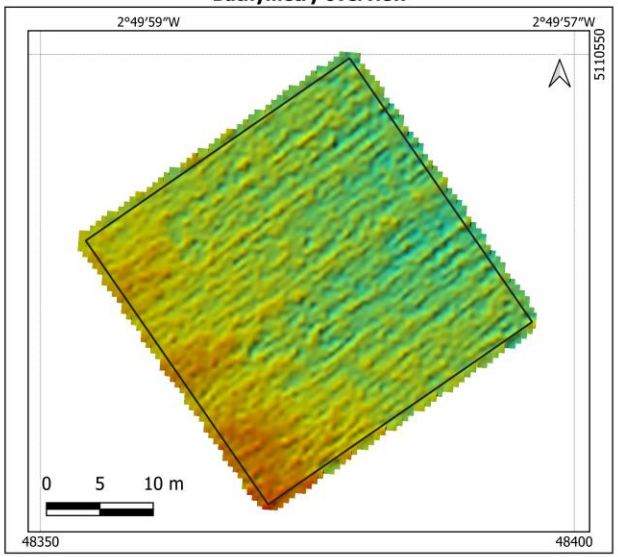
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

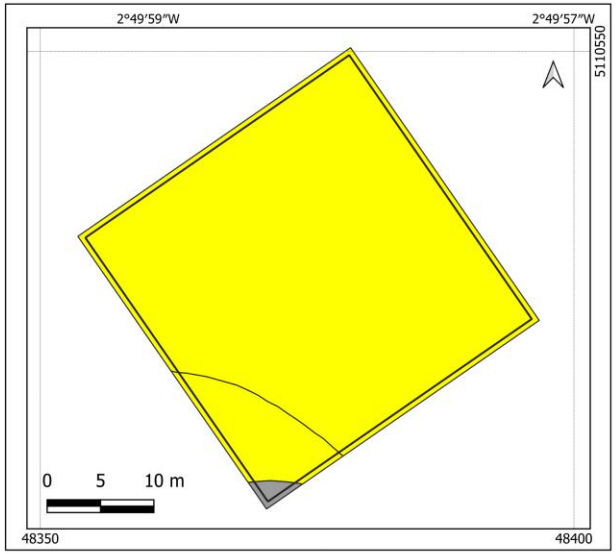
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

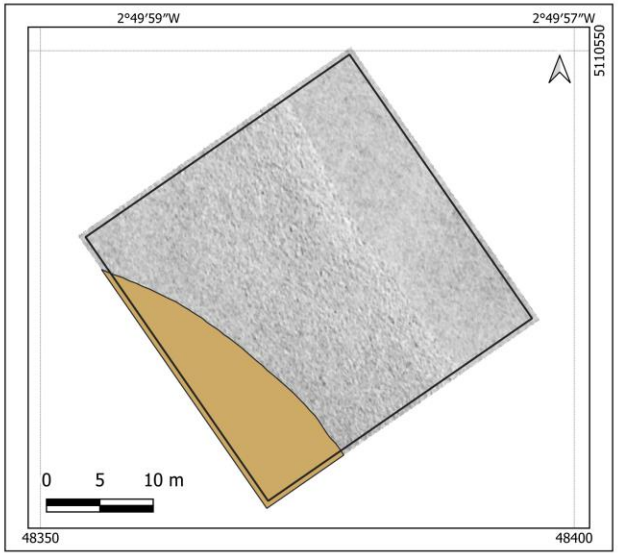
Bathymetry overview



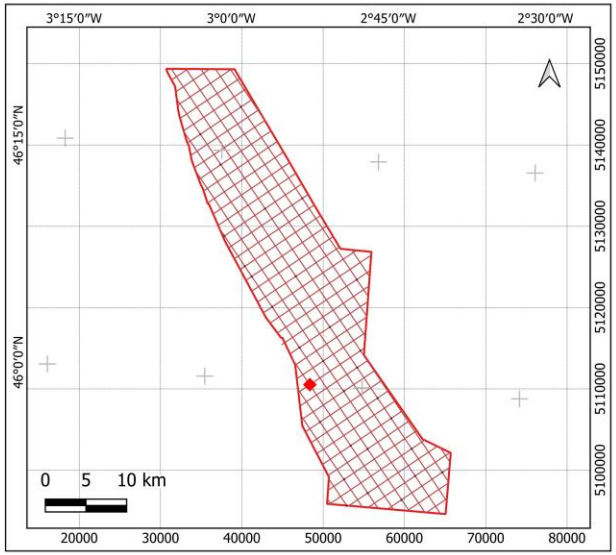
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-118.25 -117.75

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_24

Geodesy: WGS84 UTM 31N

Easting: 512948.04 E

Northing: 5093978.08 N

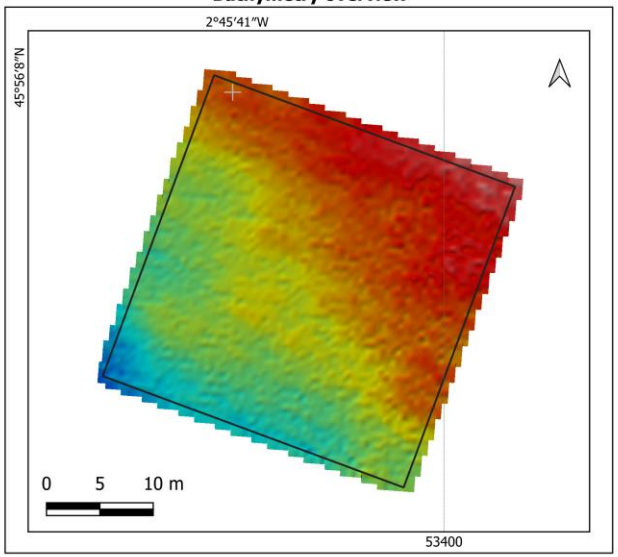
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

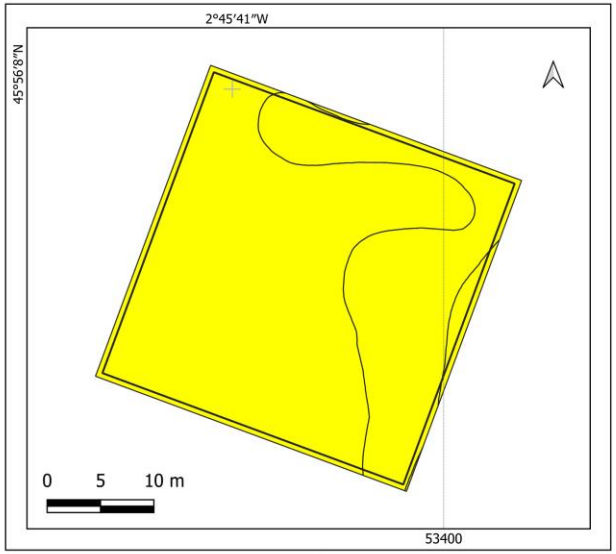
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

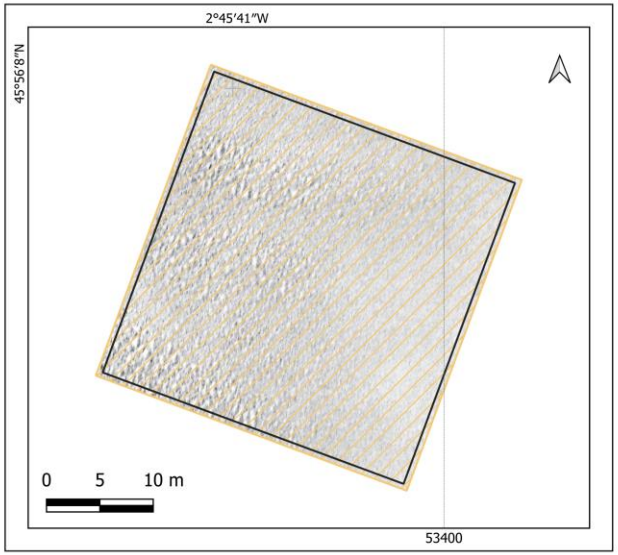
Bathymetry overview



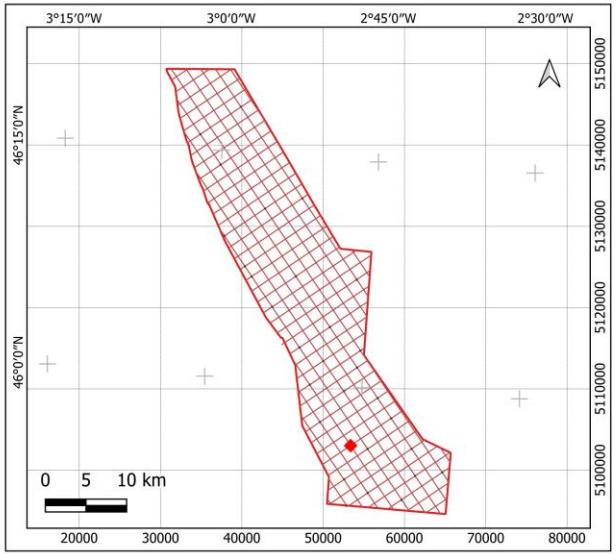
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-112.8 -112.4

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_25

Geodesy: WGS84 UTM 31N

Easting: 518497.49 E

Northing: 5086891.69 N

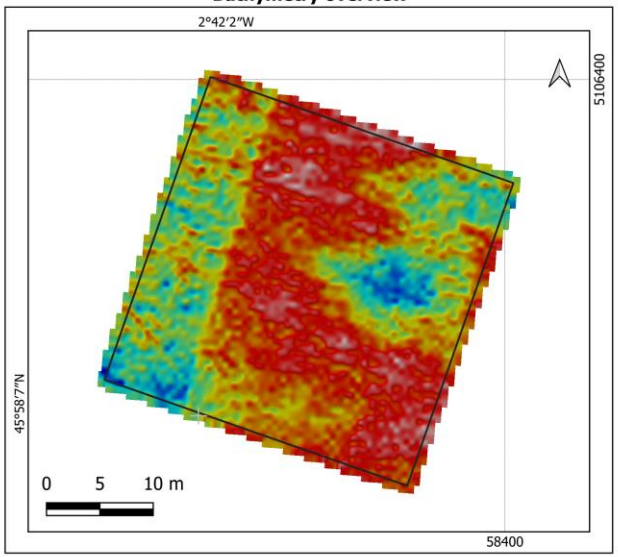
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

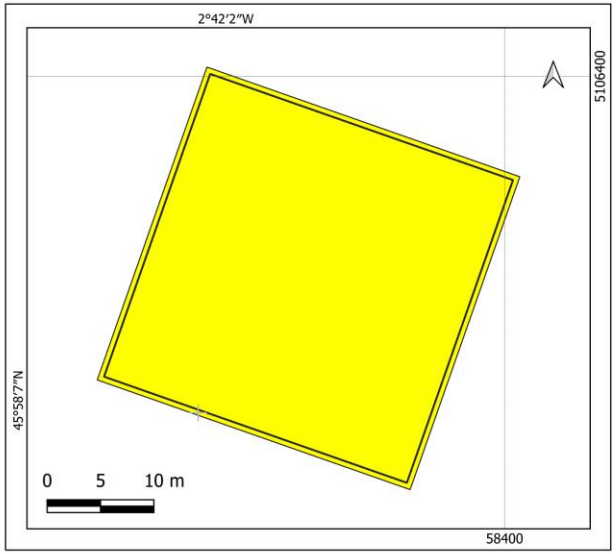
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

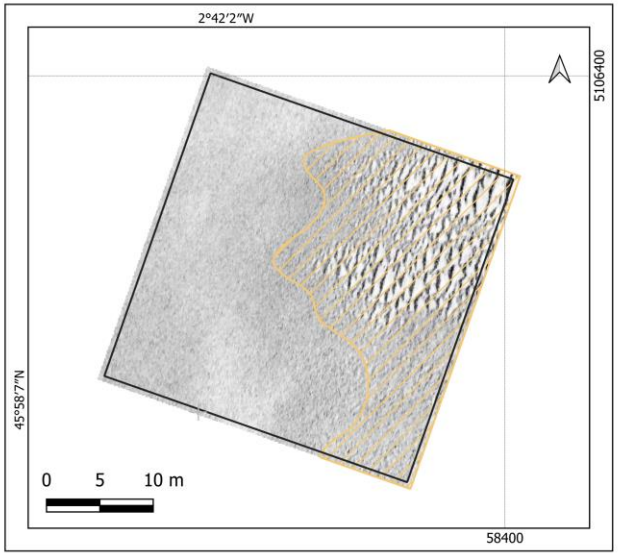
Bathymetry overview



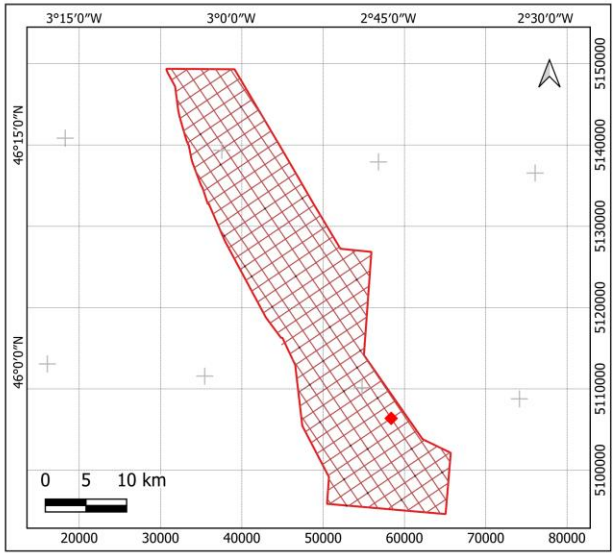
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-105.35 -105.25

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_26

Geodesy: WGS84 UTM 31N

Easting: 523213.48 E

Northing: 5090604.54 N

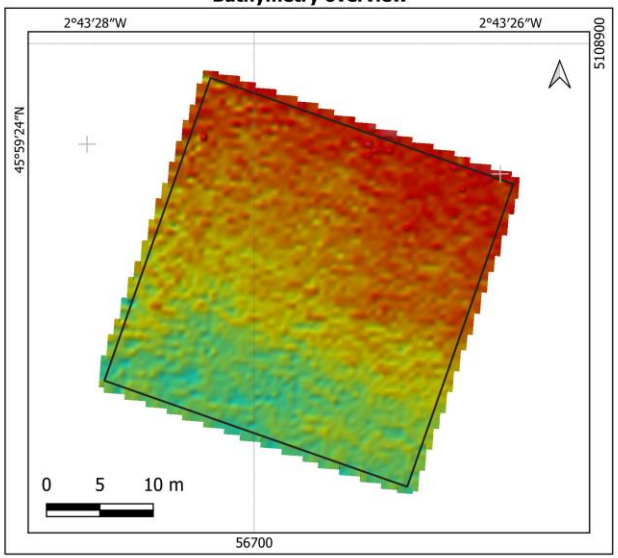
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

Bathymetry overview



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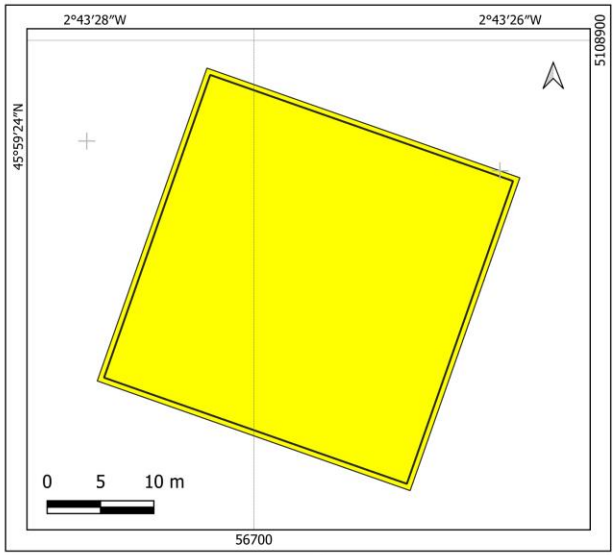
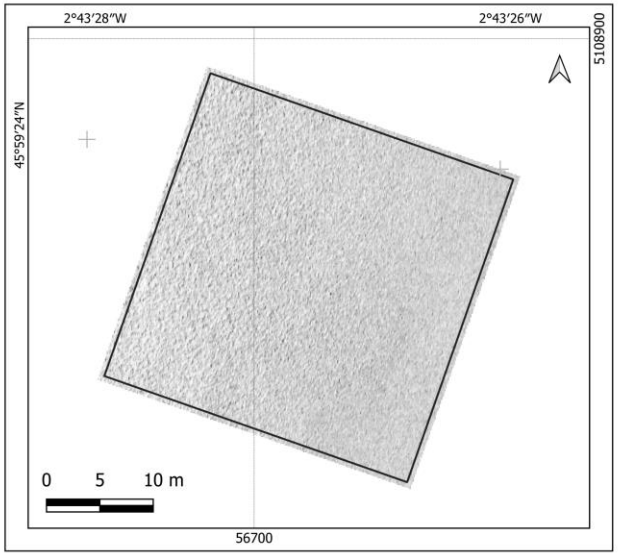
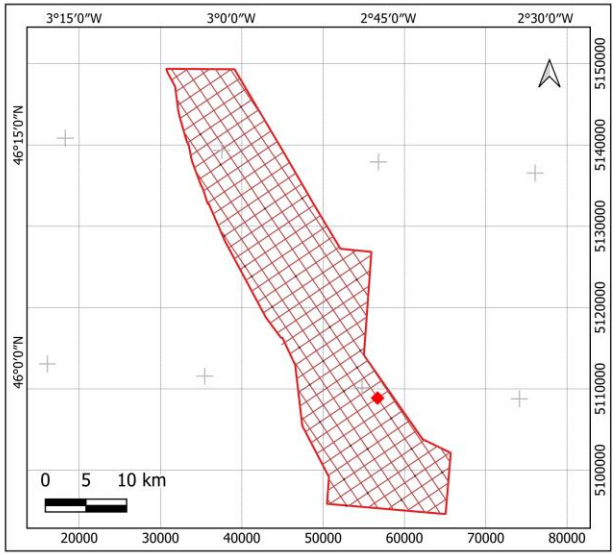


Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-112.1 -111.85

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_27

Geodesy: WGS84 UTM 31N

Easting: 521358.1 E

Northing: 5092961.99 N

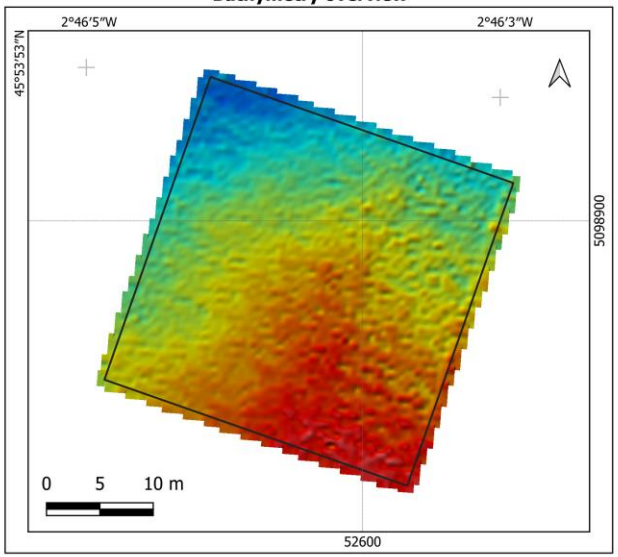
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

Bathymetry overview



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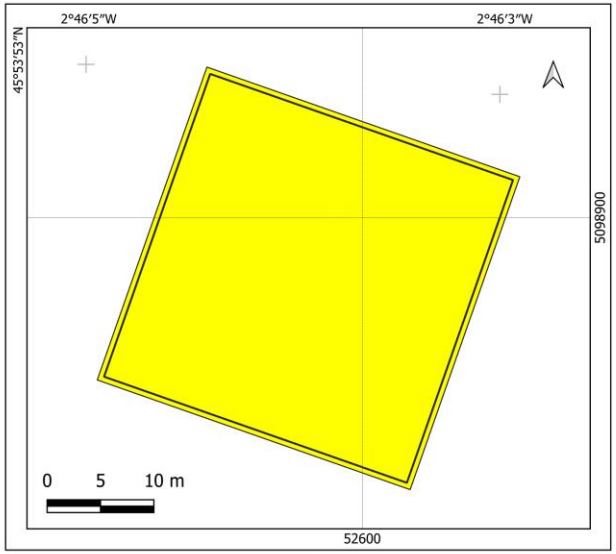
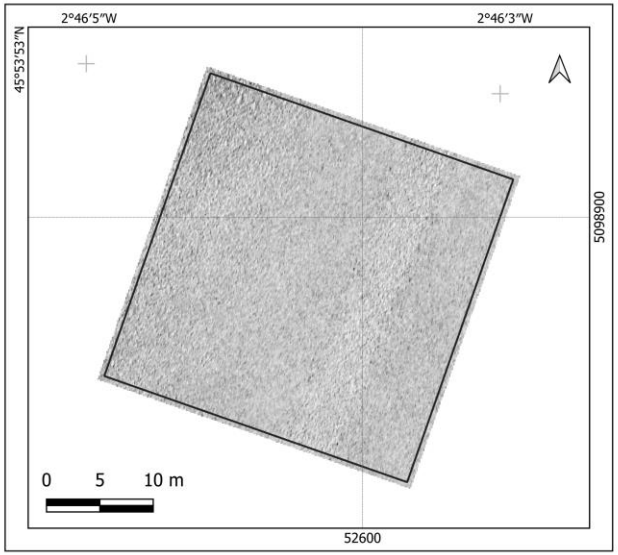
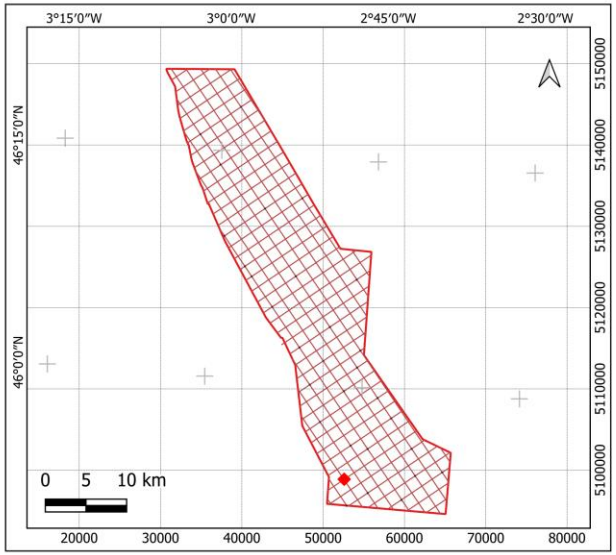


Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-115.55 -115.1

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_28

Geodesy: WGS84 UTM 31N

Easting: 518019.52 E

Northing: 5082722.48 N

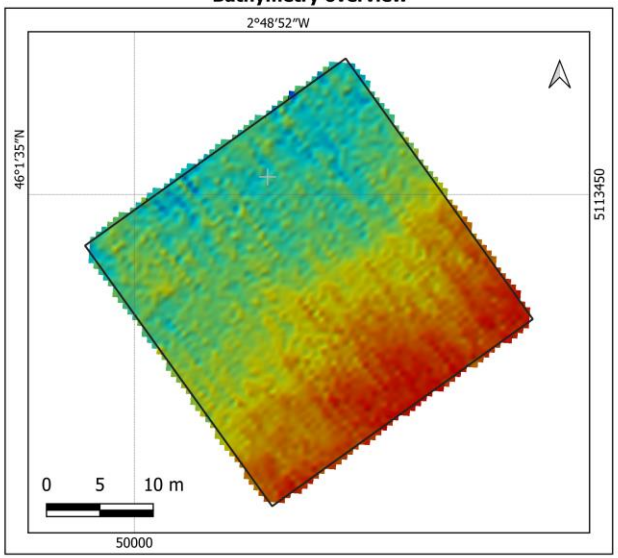
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

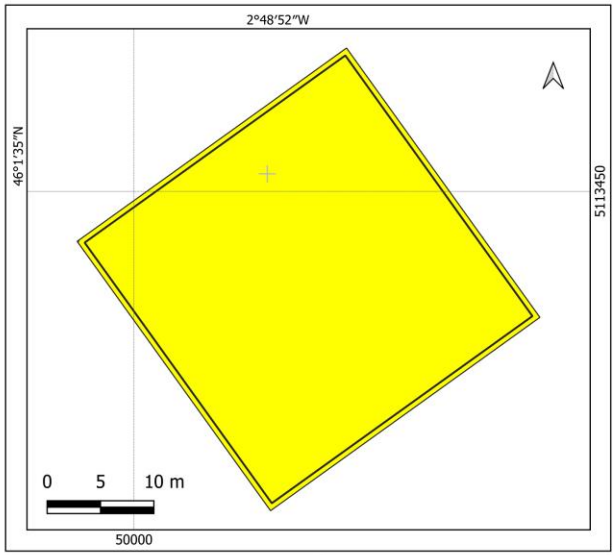
6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

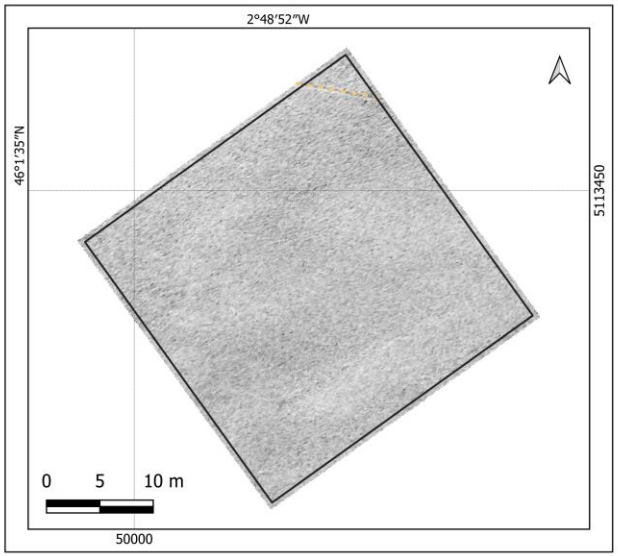
Bathymetry overview



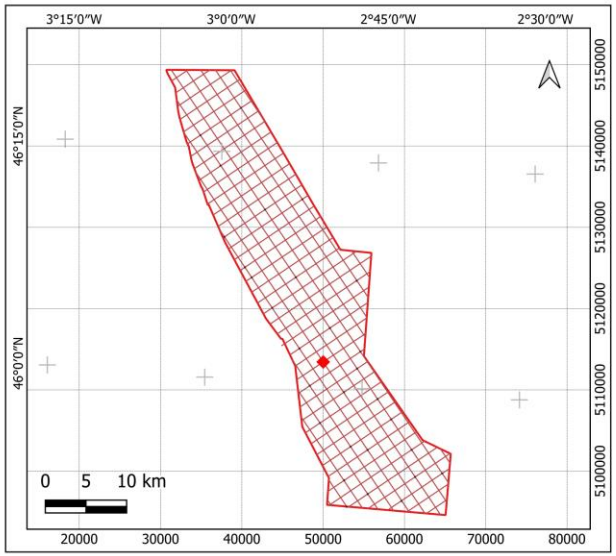
Sedimentation



Side scan sonar mosaic and seabed features



Location



Legend

Bathymetry (in m LAT):

-114.45 -114.2

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_29

Geodesy: WGS84 UTM 31N

Easting: 514361.43 E

Northing: 5096999.01 N

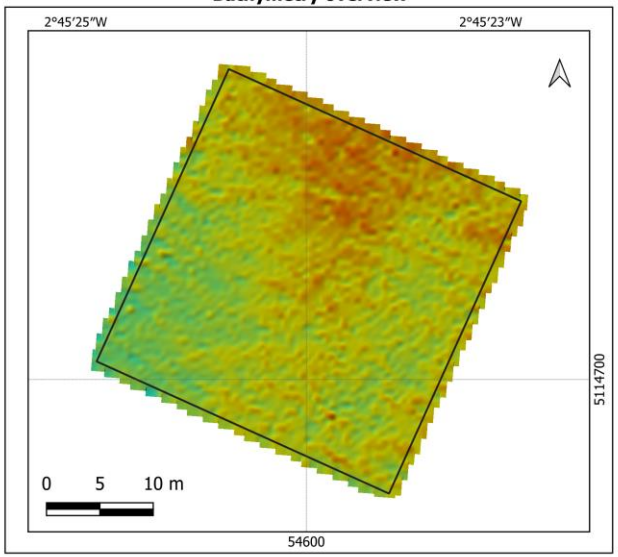
DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

Bathymetry overview



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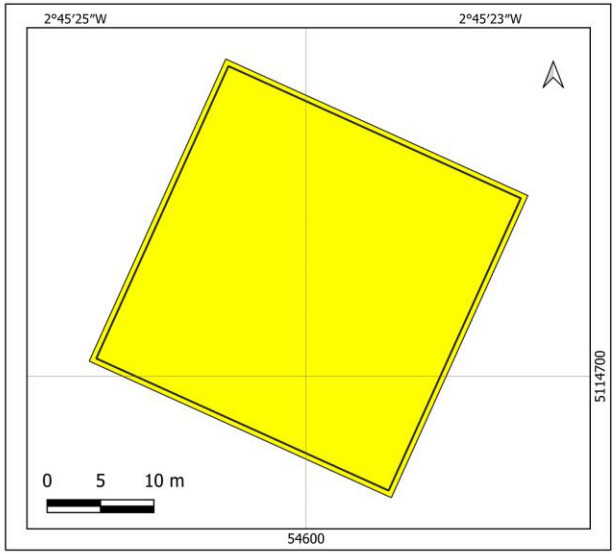
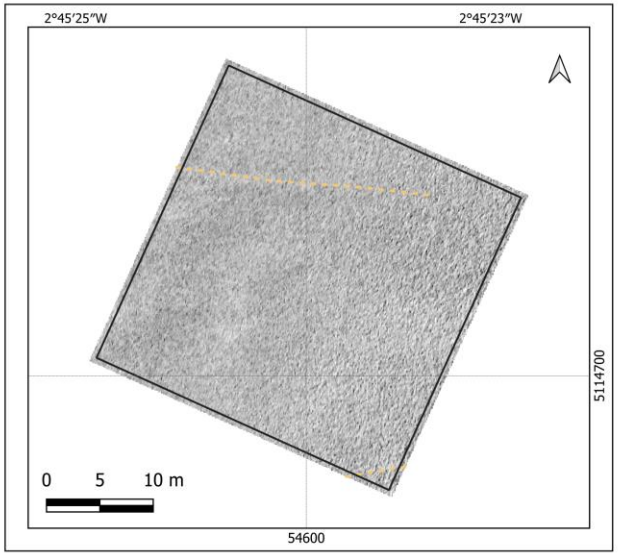


Side scan sonar mosaic and seabed features



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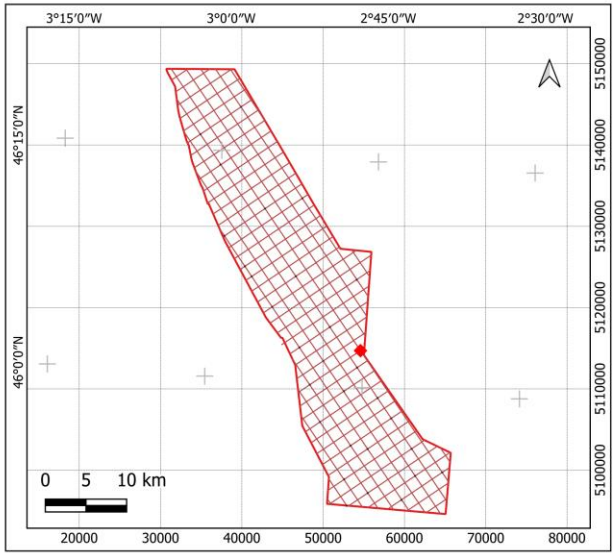

Legend

Bathymetry (in m LAT):

-111.25 -111

Seabed features:

- Ripples
- Trawl scar
- Hummocky seafloor

Sedimentation:

- Gravel
- Silty-Sand
- Sand

Survey and box boundary and line plan:

- GGNS zone boundary
- Survey box boundary
- Line plan

Location information

Location: DGEC_GGN&S_30

Geodesy: WGS84 UTM 31N

Easting: 518825.67 E

Northing: 5098604.61 N

DGEC - GGNS 2DUHRS and UXO Survey

UXO Factual Report

6168_1-RR-02

MINISTÈRE DE LA TRANSITION ÉNERGÉTIQUE
Liberté Égalité Fraternité

APPENDIX B. ALARP CERTIFICATES