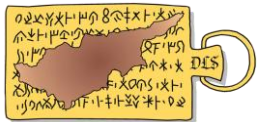




TRANSFORMING GIS IN DLS: CADASTRAL INFRASTRUCTURE, MAPPING ACTIVITIES & LATEST DEVELOPMENTS



REPUBLIC OF
CYPRUS



DEPARTMENT OF
LANDS AND SURVEYS



Klito Demetriou
Senior Lands Officer



DEPARTMENT OF
LANDS AND SURVEYS

AGENDA

□ Cadastral Management System

□ Mapping Activities in:

- Cartography
- Photogrammetry
- Hydrography

□ Conclusion

01

CADASTRAL MANAGEMENT SYSTEM

the system underpinning Cyprus Land Information Infrastructure



CADASTRAL SYSTEM: MAIN RESPONSIBILITIES

1.600.000 PARCELS



Property Boundary Delineation

- Handles applications for boundary revision in collaboration with licensed private surveyors.
- Day-to-day field survey transactions and updating of the official cadastral plan.



Unified Digital Cadastral Database

- Sporadic resurvey – daily through applications
- Moving towards fully digital outputs (plans, maps, reports), phasing out printed forms.

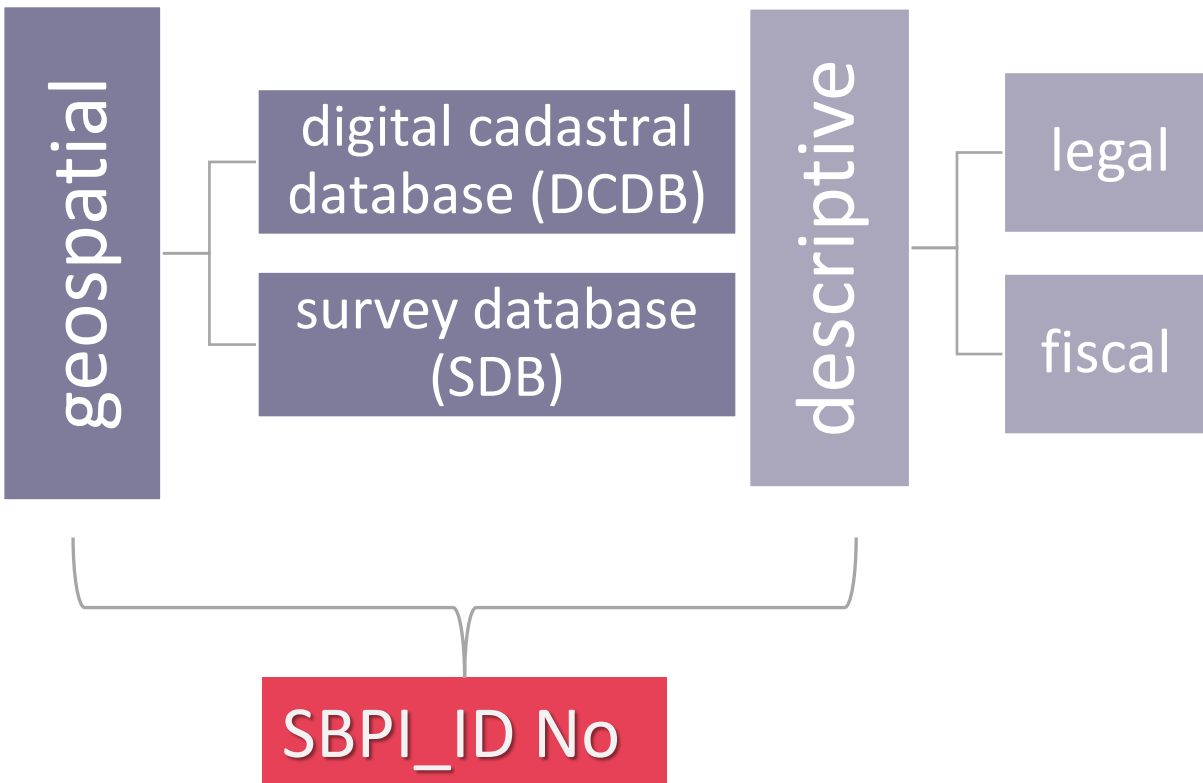


Resurvey Project Implementation

- Systematic re-survey
 - new cadastral plans
 - property boundaries defined by coordinates.



CADASTRAL SYSTEM – SINCE 1999



Digital Cadastral Database (DCDB)

- Unified digital cadastral map (fully digitized cadastral plans)

Survey Database (SDB)

- Parcel location and area based on systematic and sporadic resurveys

Database Maintenance & Revision

- Continuous updates to ensure accuracy and currency (& Updates of cadastral plans)

Unique Property Identifier (SBPI_ID)

- Links cadastral, legal, and fiscal data



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LANDS AND SURVEYS

CADASTRAL SYSTEM TRANSFORMATION - 2022 MILESTONE

BEFORE · Legacy System

Feature environment

ArcInfo / ArcEdit / ArcPlot

Oracle (traditional)

Solaris (Unix)

DIMS (customized workflows)



AFTER · Modern Stack

✓ Enterprise Parcel Fabric

✓ ArcGIS Pro

✓ Enterprise Geodatabase (SDE)

✓ Citrix & Virtual Machines

✓ predefined workflows

2022 upgrade: tech + people + workflows aligned



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MODERN INFRASTRUCTURE



ArcGIS Pro + Parcel Fabric



Workflow Manager



ArcGIS Insights / Dashboards /
Data Analytics



Citrix · 230 Virtual Machines, 1
user per VM, no local data storage

DASHBOARD CAPABILITIES

Real-time data visibility

Live monitoring of
applications

Automated reporting

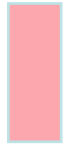
workflows enabled, data integrity improved,
operations streamlined



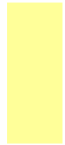
DEPARTMENT OF
LANDS AND SURVEYS

PARCEL FABRIC– DATA STRUCTURE

Single feature class: 'Parcels'
(=DCDB + SDB)



Surveyed Parcels



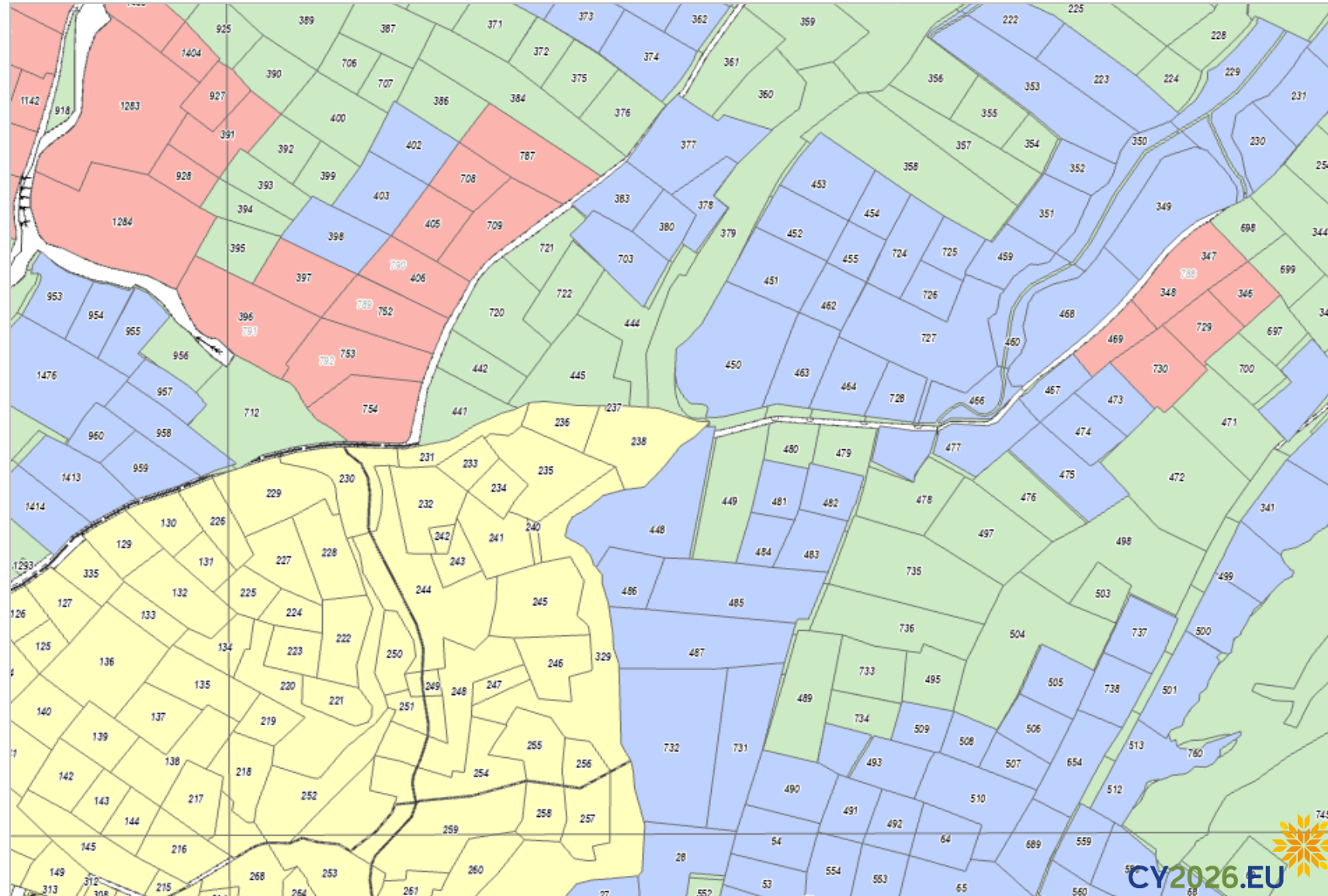
Resurveyed Parcels

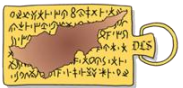


Digitized Parcels



Sporadic Parcels
(*non-Parcel Fabric*)





PARCEL FABRIC— KEY BENEFITS



Integrated cadastral data model

Parcels, structures, easements, leases

Centralized dataset

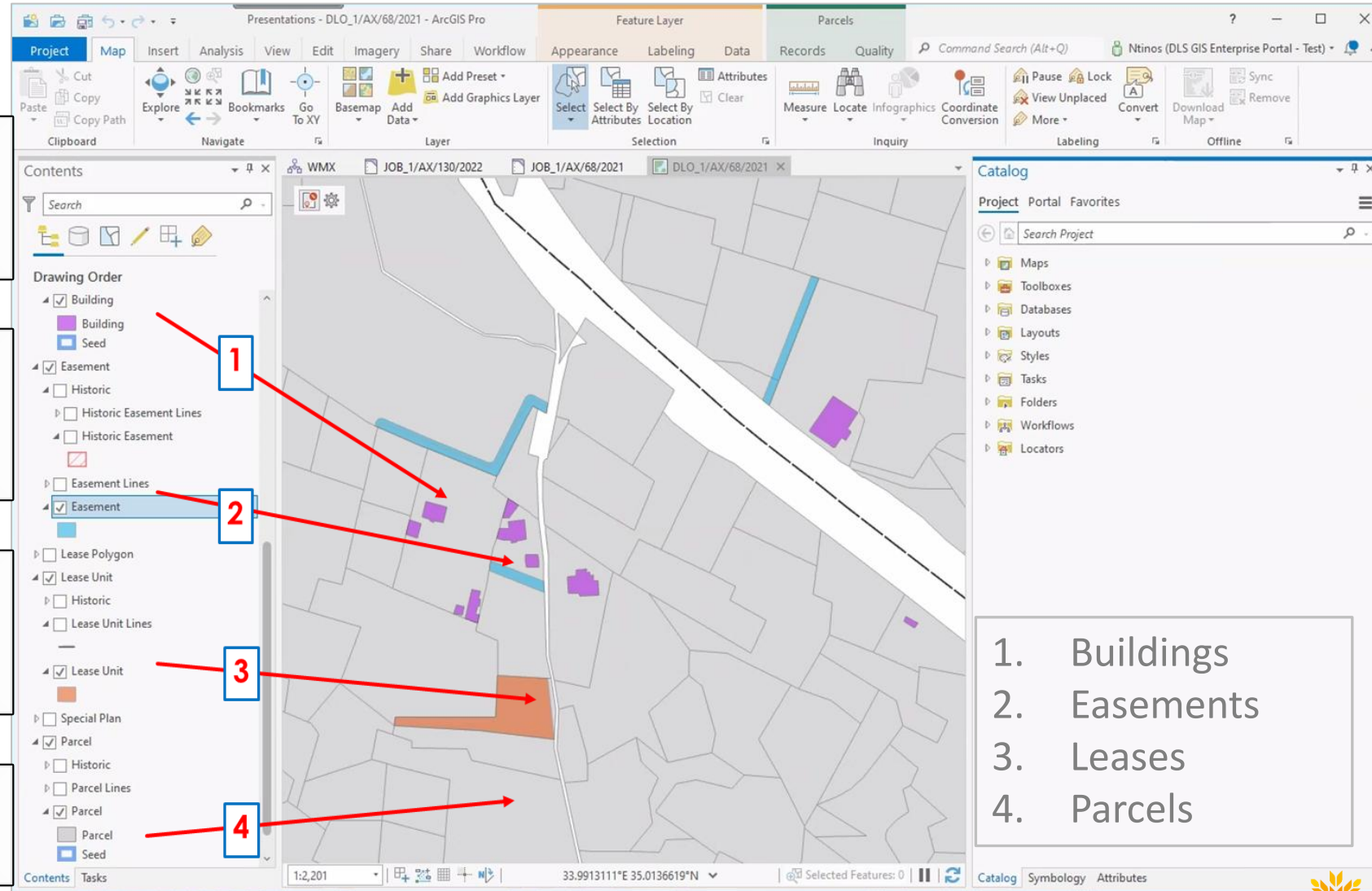
Single source of truth
Integrity & uniqueness

Parcel alignment

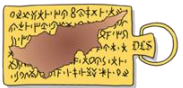
Improves accuracy of neighboring parcels

Parcel history

Access to historical records

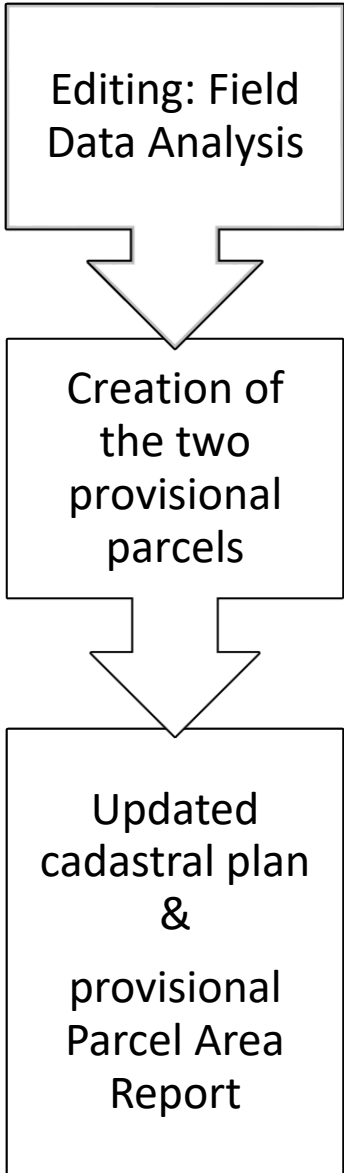


1. Buildings
2. Easements
3. Leases
4. Parcels



DEPARTMENT OF
LANDS AND SURVEYS

PARCEL FABRIC– PARCEL SUBDIVISION



Τμήμα Κτηματολογίου και Χωρομετρίας

Αριθμός Φακέλου: 3/ΑΧ/40/2022
 Επαρχία: ΑΜΜΟΧΩΣΤΟΣ
 Δήμος/Κοινότητα: ΔΗΜΟΣ ΠΑΡΑΛΙΜΝΙΟΥ
 Ενορία: None
 Τμήμα: 4

Ετοιμάστηκε από: nkontos
 Υπογραφή: _____
 Για Λεπ. Κτηματικών Χαρτογραφήσεων
 Ημερομηνία: 16.05.2023

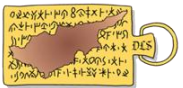
Κατάλογος εμβαδών προτεινόμενων τεμαχίων

Φύλλο / Σχέδιο	Αρχικό τεμάχιο	Αριθμός Τεμαχίου	Εμβαδό (τ.μ)	Παρατηρήσεις
2-290-379	970	1837	786	
2-290-379	970	1838	814	

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ
 ΤΜΗΜΑ ΚΤΗΜΑΤΟΛΟΓΙΟΥ ΚΑΙ ΧΩΡΟΜΕΤΡΙΑΣ
 ΣΧΕΔΙΟ ΥΠΟΘΕΣΗΣ

Φάκελος: 3/ΑΧ/40/2022
 Διαχωρισμός
 Επαρχία: ΑΜΜΟΧΩΣΤΟΣ
 Δήμ/Κοιν: ΔΗΜΟΣ ΠΑΡΑΛΙΜΝΙΟΥ
 Ενορία: 0
 Τμήμα: 4
 Σχέδιο: 2-290-379
 Τεμάχιο: 1837, 1838, 970

Κλίμακα: 1:1,000
 Ημερομηνία: 16.05.2023
 Χρήστης: nkontos
 Εργασία: JOB_3/ΑΧ/40/2022



PARCEL FABRIC- HORIZONTAL SUBDIVISION

Horizontal_division_testing_13102022 - DLO_1/AX/130/2022 - ArcGIS Pro

Project | Map | Insert | Analysis | View | Edit | Imagery | Share | Workflow

Clipboard | Manage Edits | Snapping | Features | Selection | Tools | Elevation | Ground To Grid | Manage Quality

Tasks | JOB_1/AX/130/2022 | DLO_1/AX/130/2022 | JOB_1/AX/76/2021 | DLO_1/AX/76/2021 | JOB_3/AX/180/2022 | Catalog

Τμήμα Κτηματολογίου και Χωρομετρίας

Αριθμός Φακέλου: 1/AX/130/2022
 Αρ. Ειδικού Σχεδίου: ΕΣ7150
 Φύλλο / Σχέδιο: 21/62Ε1
 Αριθμός Τεμαχίου: 311

Ημερομηνία: 11.11.2022
 Επαρχία: ΛΕΥΚΩΣΙΑ
 Δήμος / Κοιν.: ΔΗΜΟΣ ΣΤΡΟΒΟΛΟΥ
 Ενορία: ΑΓΙΟΣ ΔΗΜΗΤΡΙΟΣ
 Τμήμα: 13

0 Ισόγειο

Κλίμακα: 1:500

Ετοιμάστηκε από: _____
 Ελέγχθηκε από: _____
 Ημερομηνία: _____

Τμήμα Κτηματολογίου και Χωρομετρίας

Αριθμός Φακέλου: 1/AX/130/2022
 Αρ. Ειδικού Σχεδίου: ΕΣ7150
 Φύλλο / Σχέδιο: 21/62Ε1
 Αριθμός Τεμαχίου: 311

Υπολογισμός από: nkantos
 Ημερομηνία: 01.11.2022

Επαρχία: ΛΕΥΚΩΣΙΑ
 Δήμος / Κοιν.: ΔΗΜΟΣ ΣΤΡΟΒΟΛΟΥ
 Ενορία: ΑΓΙΟΣ ΔΗΜΗΤΡΙΟΣ
 Τμήμα: 13

Για Λεπ. Κτηματικών Χαρτογραφίσεων

Ετοιμάστηκε από: _____
 Ελέγχθηκε από: _____
 Ημερομηνία: _____

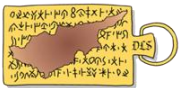
Οριζόντιος Διαχωρισμός - Κατάλογος Εμβαδών

Όροφος	Είδος Μονάδας	Αριθμός Μονάδας	Κλειστός Χώρος τ.μ.	Καλυμμένος Χώρος τ.μ.	Ακάλυπτος Χώρος τ.μ.
-1 Όροφος	Χώρος Τεταθμιασής	1		27	
-1 Όροφος	Χώρος Τεταθμιασής	2		27	
-1 Όροφος	Χώρος Τεταθμιασής	3		27	
-1 Όροφος	Χώρος Τεταθμιασής	4		27	
-1 Όροφος	Χώρος Τεταθμιασής	5		27	
0 Ισόγειο	Διαμέρισμα	1	90		
0 Ισόγειο	Διαμέρισμα	2	85		
0 Ισόγειο	Καλυμμένη Βεράντα	1.3		32	
0 Ισόγειο	Ακάλυπτη Βεράντα	1.5	35		
0 Ισόγειο	Ακάλυπτη Βεράντα	2.1			35
0 Ισόγειο	Καλυμμένη Βεράντα	2.2		51	
1 Όροφος	Διαμέρισμα	1	175		
1 Όροφος	Καλυμμένη Βεράντα	2		51	
1 Όροφος	Καλυμμένη Βεράντα	3		32	

33.3614111°E 35.1511392°N

Page 1

Σελίδα 1

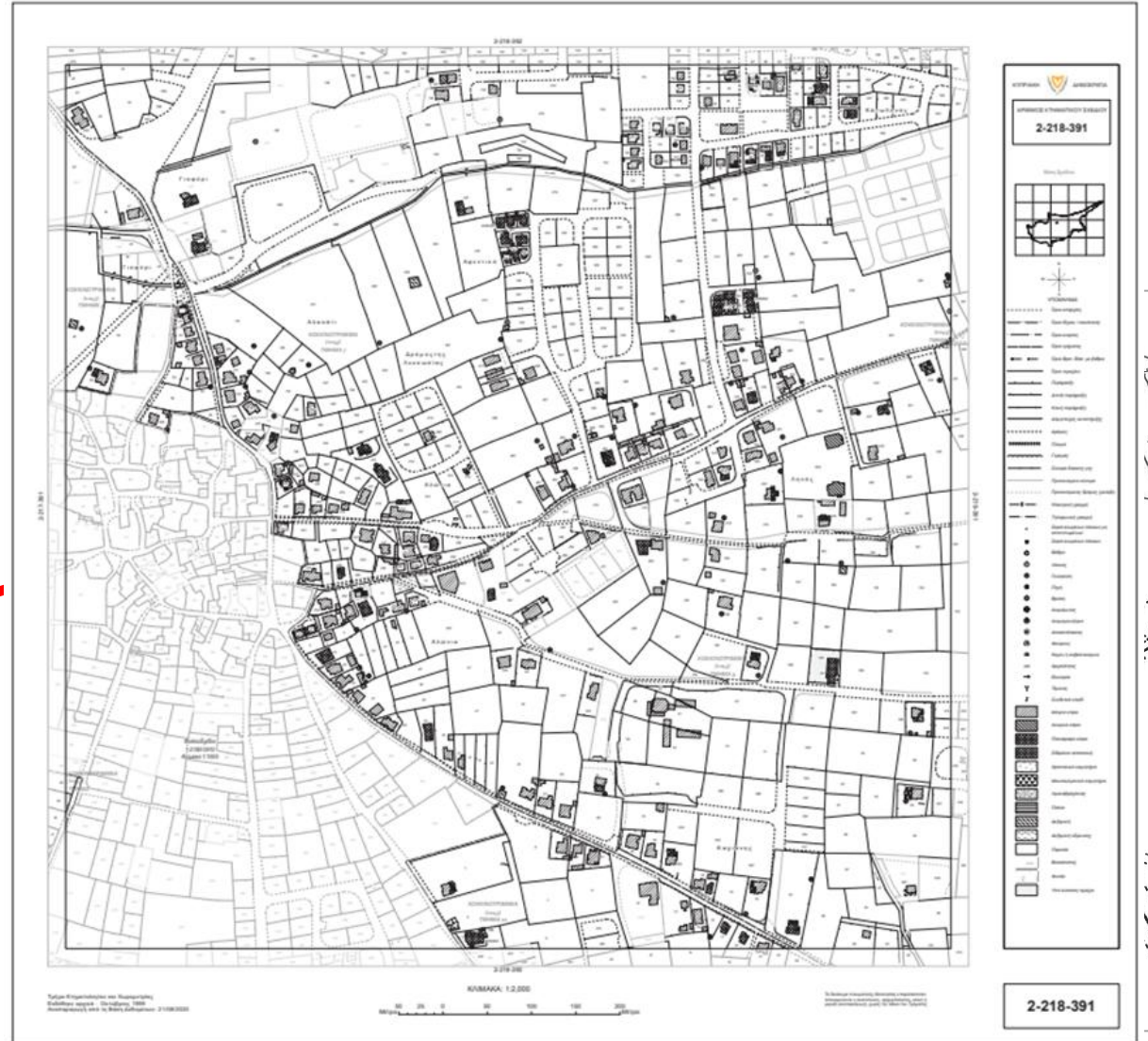
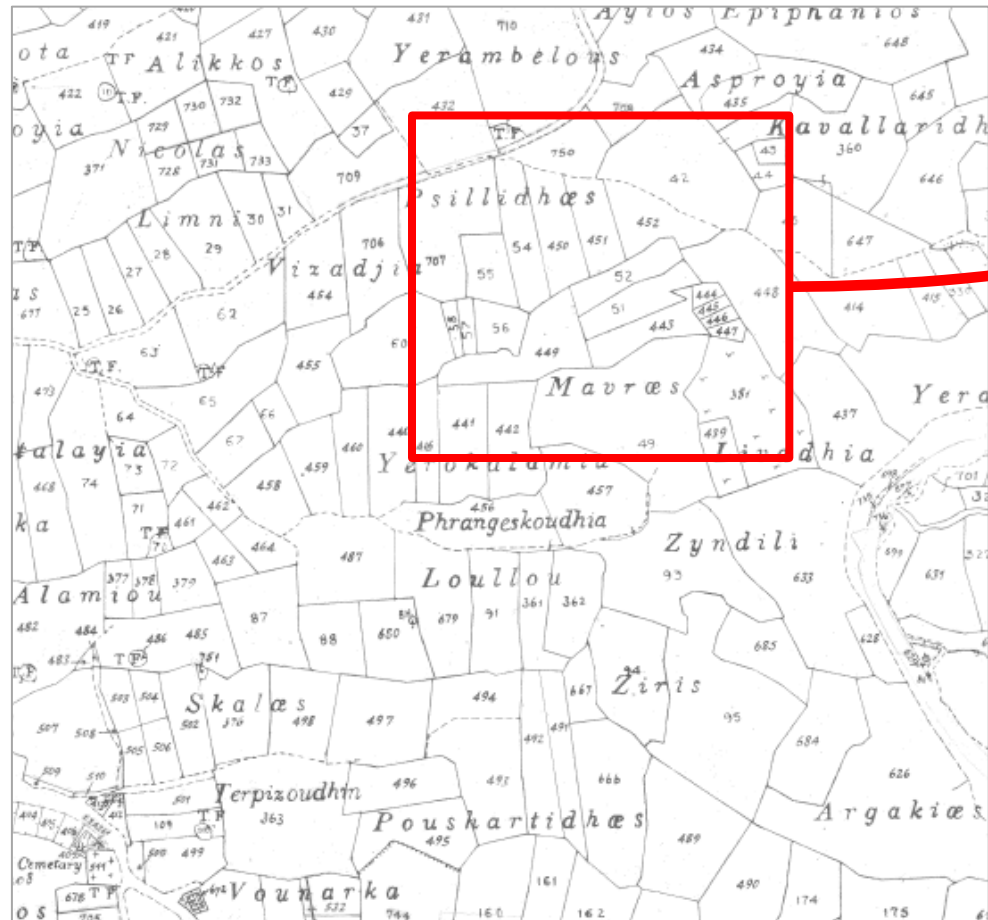


DEPARTMENT OF
LANDS AND SURVEYS

THE RESURVEY PROJECT

Produces an updated cadastral system with property boundaries precisely defined by coordinates

- Geodetic Reference System 1993(CGRS93)



resulting in newly designed, high-accuracy digital cadastral plans



DEPARTMENT OF
LANDS AND SURVEYS

THE RESURVEY PROJECT



UAVs as a Key Enabler for Modern Cadastral Surveying

DJI M350 RTK
P1: camera RGD, 45
MP
L2: Lidar Sensor

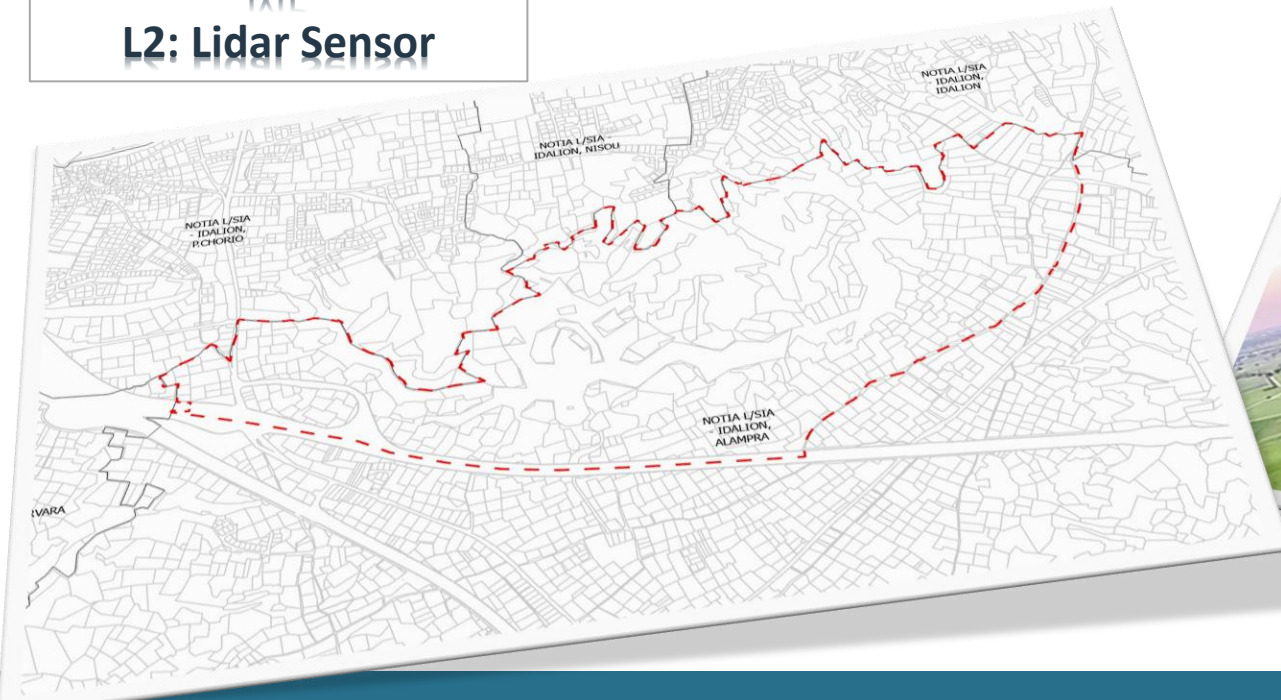
Accurate boundary detection

Feature recognition

Remote access

Faster coverage Vs traditional field
surveys

Reduced manpower requirements

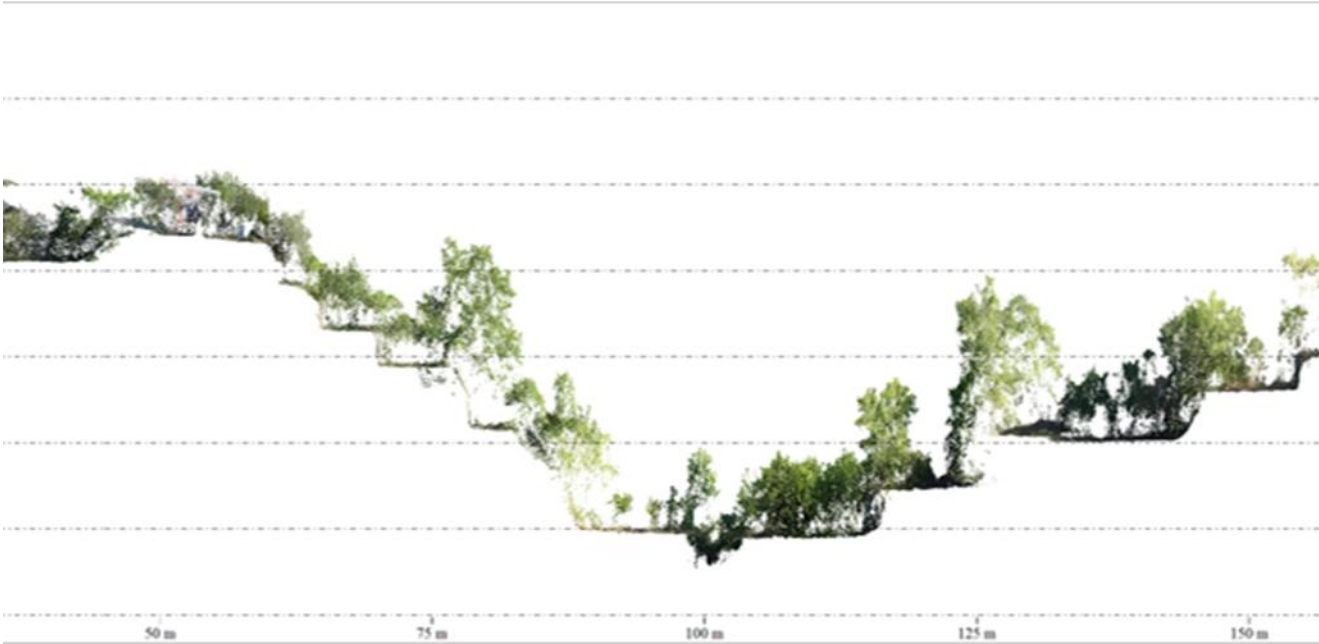




DEPARTMENT OF
LANDS AND SURVEYS

THE RESURVEY PROJECT

LiDAR intensity: supports precise boundary mapping & helps distinguish different surface features





DEPARTMENT OF
LANDS AND SURVEYS

DATA AVAILABILITY & APPLICATIONS

MAP VIEWERS Table of Contents

Table of Contents

Cadastral Map

- Parcels
- Sheet_Plans
- Planning Zones
- Postal Code Areas
- Administrative Boundaries**
 - Districts
 - AMMOCHOSTOS
 - KERYNEIA
 - LARINAKA
 - LEFKOSIA
 - LEMESOS
 - PAFOS
 - Municipalities_Clusters
 - Municipalities_Communities**
 - Quarters
 - Blocks
 - Localities
 - Topographic Features
 - Buildings
 - Contour Lines 1993
 - Coast Protection Zone
 - State Land
 - STATE LAND
 - GREEN PUBLIC OPEN SPACE
 - SPORADIC PARCELS**
 - White Zones

Identification Results

Parcels Districts Municipalities_Comm



REPUBLIC OF CYPRUS | MINISTRY OF INTERIOR
DEPARTMENT OF LANDS AND SURVEYS

HOME e-CADASTRE INTERACTIVE MAPS INSPIRE GEO-PORTAL EN

- Dashboard
- My Applications
- Account
- Inquiry

DEMARCATION OF IMMOVABLE PROPERTY

NTINOS KONTOZ

1. General Information 2. Property Selection 3. Map Viewer 4. Attachment Files 5. Delivery Method 6. Fee Payment

General Information Basemap Zoom In Zoom Out Zoom Back Identify Measure

Table of Content

Demarcation Points

Stop Adding

Delete Point

External Boundaries

Select Surveyor

NTINOS KONTOZ (999-99)

Points Count: 11
Price: 140

Proceed

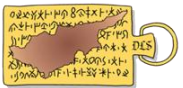
	1406
1.2021	€3,446,200.00
1.2018	€3,287,200.00
1.1980	NULL
	695
	1:1000

FLOORS	HEIGHT (meters)
8	31
6	24

ENCLOSED EXTENT	COVERED EXTENT	UNCOVERED EXTENT

A. GENERAL PARCEL INFORMATION

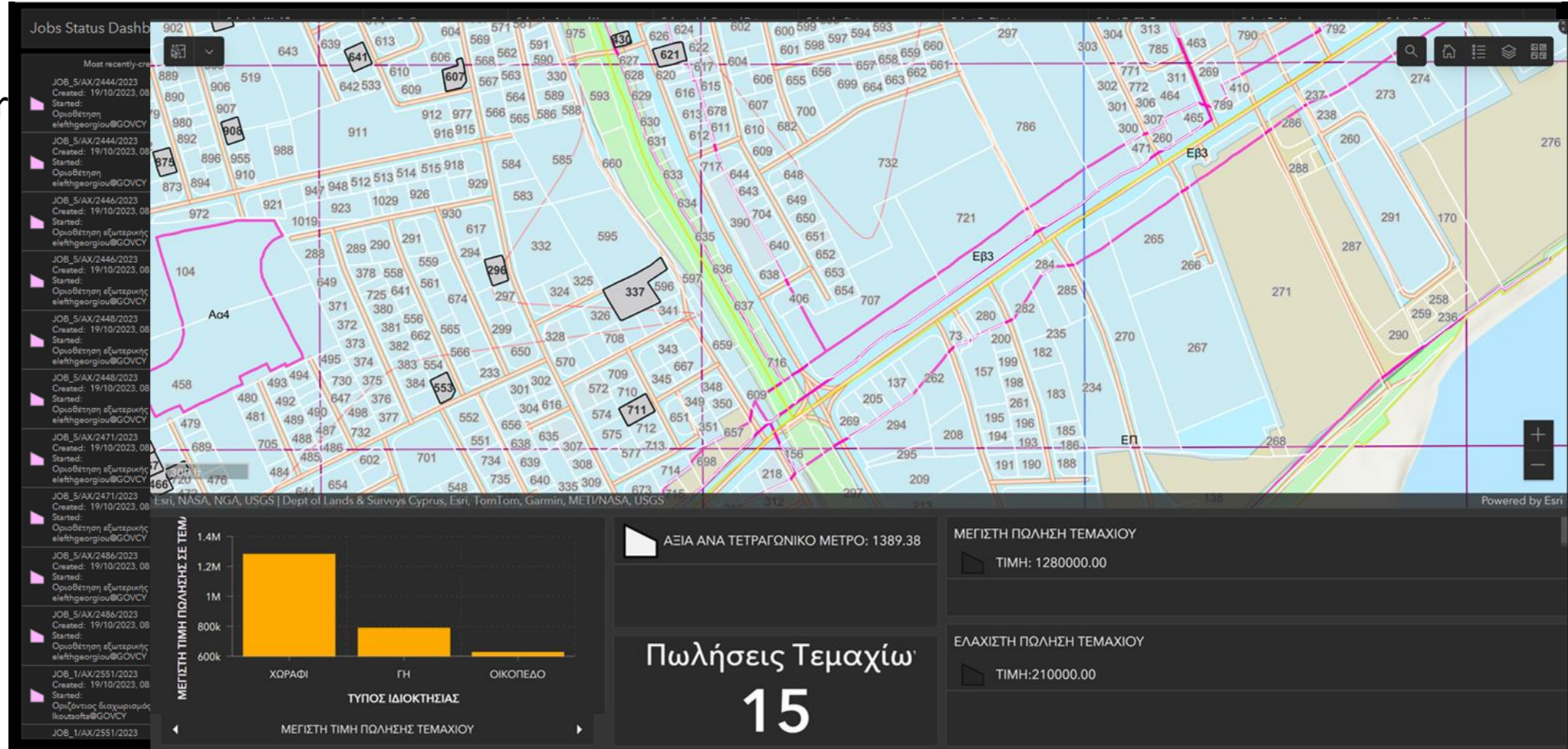
DISTRICT	LEFKOSIA	PARCEL AREA (Sq.m)	1406
MUNICIPALITY/COMMUNITY	LEFKOSIA, LEFKOSIA	PARCEL PERIMETER	
QUARTER	AGIOI OMOLOGITES	GENERAL ESTIMATION VALUE 1.1.2021	€3,446,200.00
BLOCK/REGISTRATION NUMBER	2/796	GENERAL ESTIMATION VALUE 1.1.2018	€3,287,200.00
BLOCK	02	GENERAL ESTIMATION VALUE 1.1.1980	NULL



DASHBOARDS

Provides real-time visibility into data for informed decision-making:

- Monitoring of applications
- Preparation of statistical reports





NEW CADASTRAL SYSTEM KEY ACHIEVEMENTS

1 Process Improvement

- Business process **reengineering** and **simplification**
- Predefined workflows
- Less file circulation

2 Higher Productivity

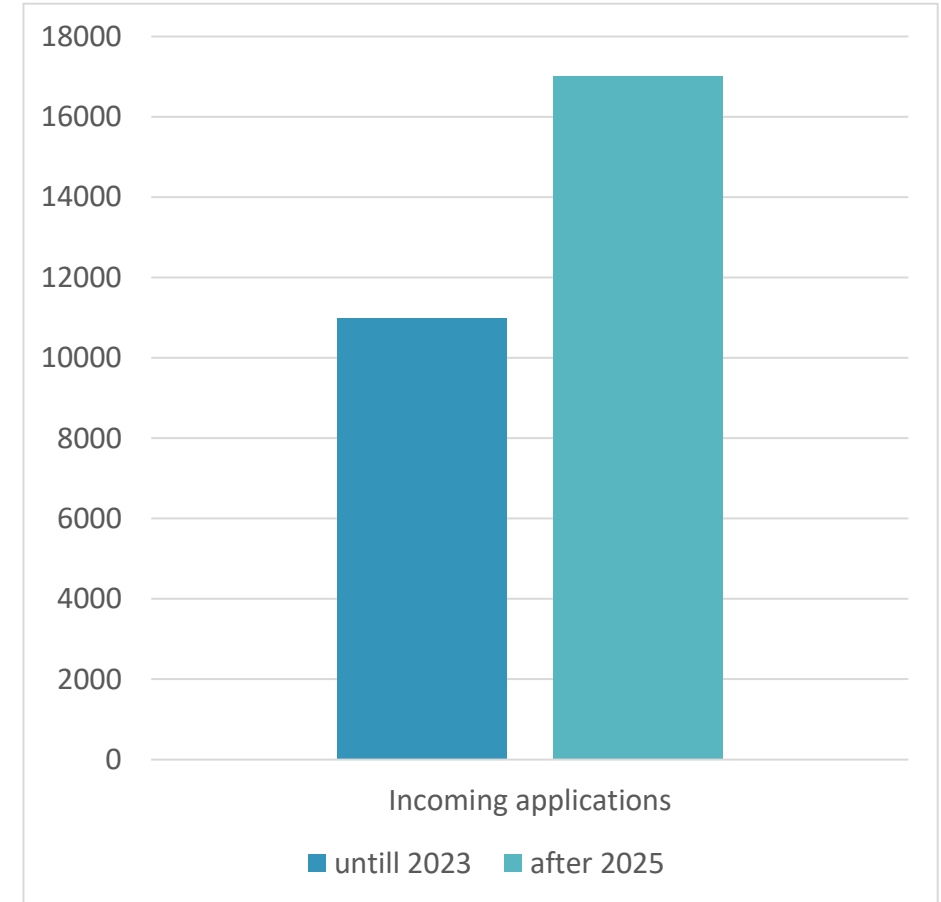
- Staff are managing 25% more workload

3 Improved Data Foundation

- Unified digital cadastral base
- Reliable, high-accuracy data for development studies

4 Digital Transformation

- Adoption of modern technologies
- Towards fully digital outputs (plans, maps, reports)
- Gradual elimination of paper



45% increase of incoming applications

02

CARTOGRAPHY

Official mapping, national products & European partnerships



CY OFFICIAL CARTOGRAPHIC ORGANIZATION (NMA)

Authoritative Geographic Data

Produces and manages official geographic data for Cyprus

Official Map Production

Produces the official map series covering Cyprus at multiple scales

Cartography & GIS Promotion

Promotes the development and use of cartography and GIS

National Applications Support

Supports mapping and cadastral applications across government departments

International Memberships & Partnerships

EuroGeographics Member

Active contributor to European geographic data bases

ICA Member

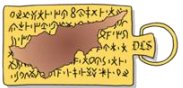
Full member of the International Cartographic Association (since 2004)

INSPIRE Compliance

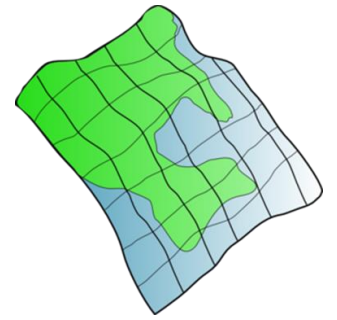
Data shared through EU INSPIRE Geoportal

EUROSTAT / GISCO / UNGGIM

Contributes to pan-European geographic database



DATA WORKFLOW & MAP PRODUCTS



INPUTS (data sources)

Aerial & satellite imagery

Cadastral map

Third-party/external data

Historic maps



SDE Enterprise
Geodatabase
(TDS)
ArcGIS Pro

OUTPUTS (products & services)

Topographic Maps
25k & 100k

Administrative Map
250k

Street Maps (10k /
7.5k / 5k)

Tourist Maps

INSPIRE / DLS Portal
web services

EuroGeographics
databases (ERM,
EBM, EGM)

ad hoc mapping and
cadastral applications

MAP PRODUCTS

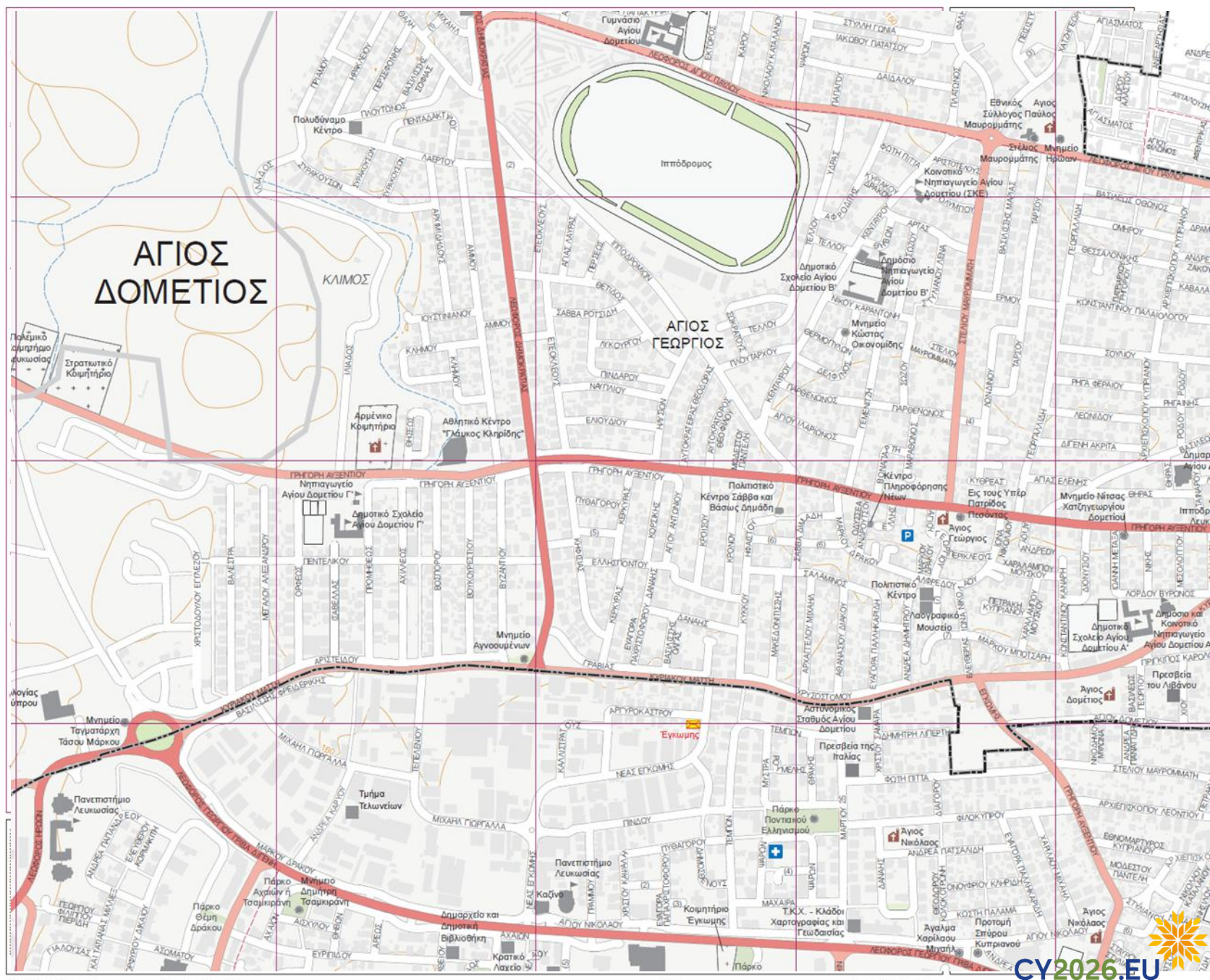
Street Maps:

Scales:

1:10,000 / 1:7,500 / 1:5000

Coverage:

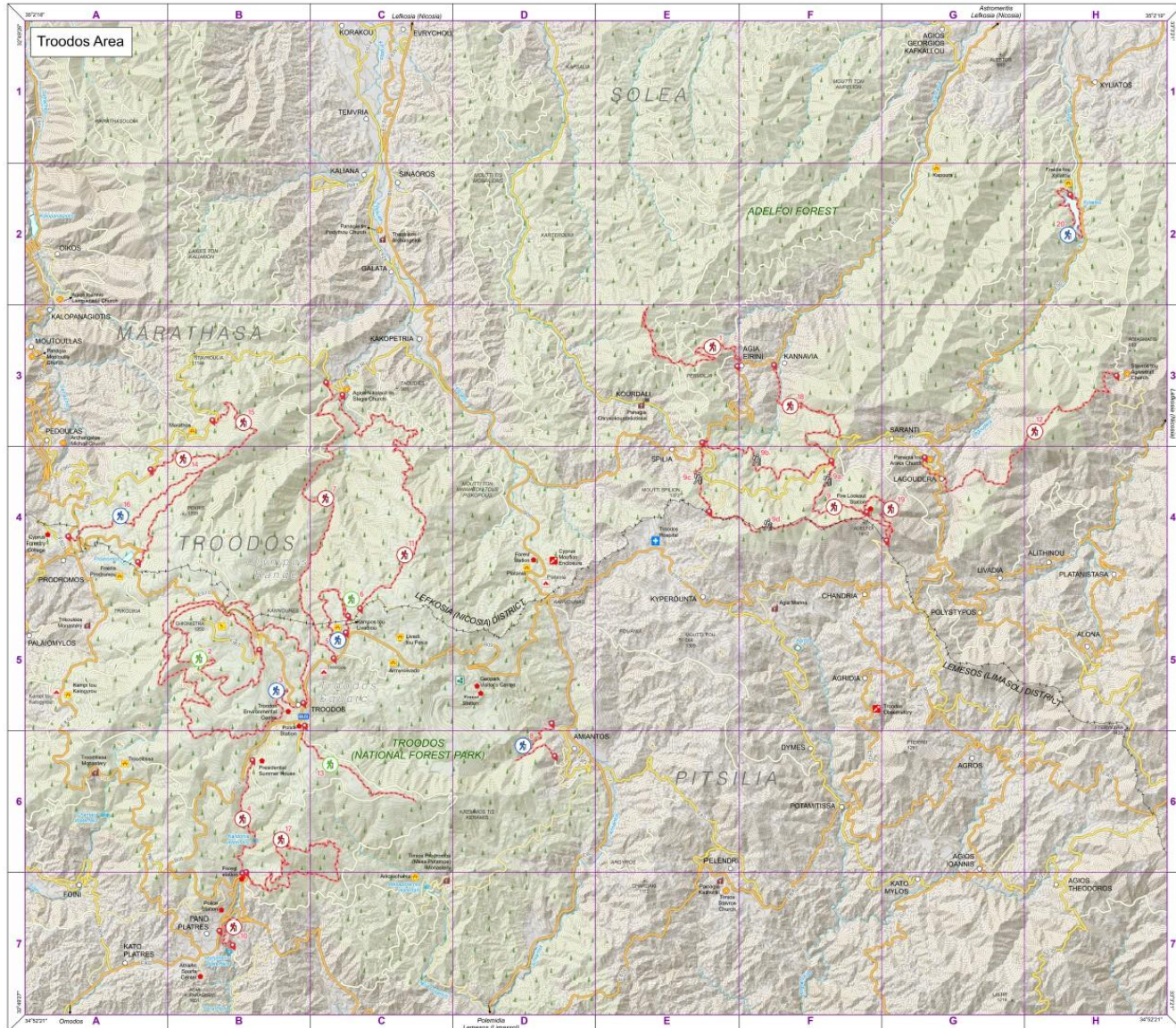
Detailed urban and town areas



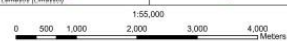


MAP PRODUCTS

DEPARTMENT OF
LANDS AND SURVY



Prepared by Lands and Survey Department,
Ministry of Interior, Nicosia 1982.
Revised December 2024

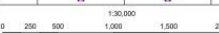
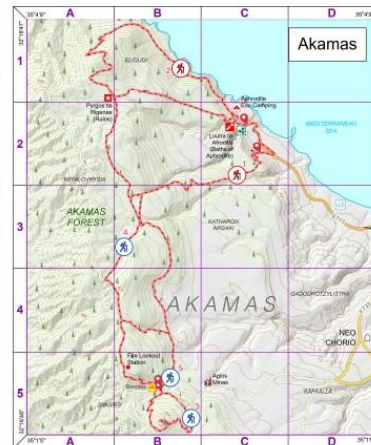
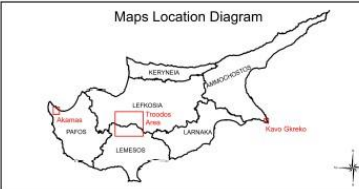


Notes on pronunciation:
in Greek: Εγγλέζοι
in English: Englezi
in Turkish: İngilizler
in Arabic: إنجليز

Tourist information provided by the Deputy Ministry of Tourism, December 2024.
new@dlss.gov.cy
Published and distributed by the Deputy Ministry of Tourism

NATURE TRAILS MAP

Maps Location Diagram



REFERENCE

- District Boundary
- Main Road
- Secondary Road
- Minor Road
- Loose Surface
- Cycle Path
- River
- Easy Trail
- Average Trail
- Difficult Trail
- Part of Trail
- Community Name
- Trigonometrical Station (Height in metres)
- Sea Names
- Church/Monastery
- Unesco Site
- Hospital
- Important Building
- Places of Interest
- Trail Starting Point
- Bus
- Ski Facilities
- Picnic Site
- Camping Site
- Botanical Garden
- Sea Sports
- Public Beach

INDEX

Troodos Area Trails

Numbering	Grid	Name	Route Length	Duration	Type
1	E3, F3	Agia Eirini - Limeria	5 km	2.5 hrs	Linear
2	B5	Arteme	7km	2.5-3 hrs	Circular
3	A5, B5, B6	Alakari	16km	4.5 hrs	Circular
4	B6, B7	Kakodima (Caledonia)	3 km	1.5 hrs	Linear
5	C5	Karpos tou Loukiza	3 km	1.5 hrs	Circular
6	C5	Livadi (Sinetshani)	1.5 km	30 minutes	Circular
7	B4, B5, C3, C4, C5	Karposou - Agios Nektarios tis Stegas	0.5 km	4 hrs	Linear
8	D5, D6	Kali Anaktoria - Lourmota Ion Aetoi	2.5 km	1 hr	Linear
9	E3, E4, F4	Mader	13 km	5.5 hrs	Circular
10	F4	Mader (Seliadi tou Koranami - Mader Lookout Station)	3.6 km		Circular
11	Bb	Mader (Seliadi tou Koranami - Mouti tis Choras)	3.8 km		Circular
12	E3, E4	Mader (Mouti tis Choras - Doka tis Thess)	1.8 km		Circular
13	E4, F4	Mader (Doka tis Thess - Mader Lookout Station)	3.8 km		Circular
14	B7	Mikromera Waterfall	1.2 km	30 minutes	Linear
15	C3, C4, C5	Mikrita tis Pitsias	8 km	3 hrs	Linear
16	G4, H3	Paranga tou Anika - Stavros tou Agiamati	7 km	3 hrs	Linear
17	B5, B6, C6	Pindaros	1 km	1 hr	Linear
18	A4, B4	Prodomos Dam - Stavroulla	4.5 km	1.5 hrs	Linear
19	A4, B3, B4	Prodomos Dam - Stavroulla	5.5 km	2 hrs	Linear
20	A4, A4	Prodomos - Zoumi	3 km	1 - 1.5 hrs	Linear
21	B5, B7, C6, C7	Pitri Dendro - Phoukatas	9 km	3 - 4 hrs	Circular
22	F3, F4	Seliadi tou Koranami	3 km	1.5 hrs	Linear
23	F4, G4	Texis tis Madaris	3 km	1.5 hrs	Circular
24	H2	Xylifos Dam	3.8 km	1-1.5 hrs	Circular

Akamas Trails

Numbering	Grid	Name	Route Length	Duration	Type
1	A2, B1, B2, C2	Adonis	7.5 km	3.5 hrs	Circular
2	A1, B1, C1, C2	Alfandi	7.5 km	3.5 hrs	Circular
3	B5	Phrasourmos	3 km	2 hrs	Circular
4	B3, B4, B5	Singres	6 km	2 hrs	Circular
5	B4, B5	Singres (short route)	2.5 km	1 hr	Circular

Kavogkreko Trails

Numbering	Grid	Name	Route Length	Duration	Type
1	B3, B4, C3, C4	Abdidi	2 km	1 hr	Circular
2	B1, B2, B3, C2	Kirnos - Agios Anargyros	4.8 km	2 hrs	Circular
3	C3	Kirnos	1.7 km	45 minutes	Circular
4	A3, A4, B4, C2, C3, C4	Sea Caves - Agios Anargyros	4 km	1.5 hrs	Linear

FREE OF CHARGE

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MAP PRODUCTS

DEPARTMENT OF LANDS AND SURVEYS

Topographic Maps (1:25000)

Cartographic Production: Semi-automated



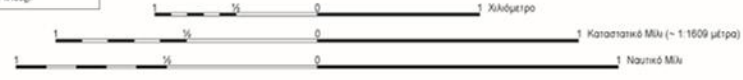
Ετοιμάστηκε και εκδόθηκε το [2022] από το Τμήμα Κτηματολογίου και Χωρομετρίας, Κλάδος Χαρτογραφίας



ΠΛΗΡΟΦΟΡΙΕΣ ΧΑΡΤΗ ΑΠΟ [2021] ΔΙΕΘΝΗ ΟΡΙΑ ΑΠΟ [2021]

ΓΙΑ ΝΑ ΒΕΒΑΙΩΣΕΤΕ ΟΤΙ ΑΥΤΟΣ Ο ΧΑΡΤΗΣ ΕΚΤΥΠΩΘΗΚΕ ΣΤΗ ΣΩΣΤΗ ΚΙΜΑΚΙΑ, ΤΑ 5.000 ΜΕΤΡΑ (5 ΧΙΛΙΑ ΚΙΛΩΜΑΤΡΑ) ΥΜΗ, ΘΑ ΠΡΕΠΕΙ ΝΑ ΑΝΤΙΣΤΟΙΧΟΥΝ ΑΚΡΙΒΩΣ ΣΕ 20 ΕΚΑΤΟΣΤΑ (0,27 ίντσες)

Κλίμακα 1:25,000



ΥΨΟΜΕΤΡΟ ΣΕ ΜΕΤΡΑ
ΙΣΟΔΙΑΤΑΣΗ ΙΣΟΥΨΩΝ 20 ΜΕΤΡΑ
ΒΟΗΘΗΤΙΚΕΣ ΙΣΟΥΨΕΣ ΙΣΟΔΙΑΤΑΣΗΣ 10 ΜΕΤΡΩΝ

ΕΛΛΕΓΧΟΕΙΣ ΠΛΗΚΤΙΣΜΟ ΓΕΩΔΕΤΙΚΟ ΣΥΣΤΗΜΑ 1964
ΚΑΝΟΝΟΣ 1 000 ΜΕΤΡΑ ΖΩΝΗ ΥΠΜ. 36
ΠΡΟΒΟΛΗ ΕΠΙΓΡΑΦΗ ΜΕΡΑΤΟΡΩΝ
ΚΑΤΑΧΩΡΟ ΓΕΩΔΕΣ ΜΕΣΟ ΕΠΙΠΕΔΟ ΘΑΛΑΣΣΑΣ
ΟΡΟΠΟΣΤΟ ΓΕΩΔΕΣ ΠΛΑΓΙΟΚΩΜΟ ΓΕΩΔΕΤΙΚΟ ΣΥΣΤΗΜΑ 1984
ΤΟ ΑΡΧΕΙΟ ΕΤΟΙΜΑΣΤΗΚΕ ΑΠΟ [ΤΜΗΜΑ ΚΤΗΜΑΤΟΛΟΓΙΟΥ ΚΑΙ ΧΩΡΟΜΕΤΡΙΑΣ, ΚΛΑΔΟΣ ΧΑΡΤΟΓΡΑΦΙΑΣ]

ΠΑΡΑΔΕΙΓΜΑ ΑΝΑΦΟΡΑΣ ΤΕΤΡΑΓΩΝΙΟΥ ΜΕ ΠΡΟΣΕΓΓΙΣΗ 100 Μ

ΑΝΑΦΟΡΑ ΤΕΤΡΑΓΩΝΙΟΥ ΜΕ ΠΡΟΣΕΓΓΙΣΗ 100 Μ

- Αριθμός που φέρει τον αριθμό οριζώντιοις είναι 1 ή αριθμός που σημειώνει τα εκατόνα γραφεί του αριθμού. Ενδεικτικά τα δεκάτα της επίσημης τετραγωνικής του οριζώντιοις είναι 12, 13.
- Αριθμός που φέρει τον αριθμό κλάδων τετραγωνικών είναι από το δεκάτο και ακολουθεί το κλάδο γραφείο του αριθμού. Ενδεικτικά τα δεκάτα της επίσημης τετραγωνικής του οριζώντιοις είναι 45, 46.

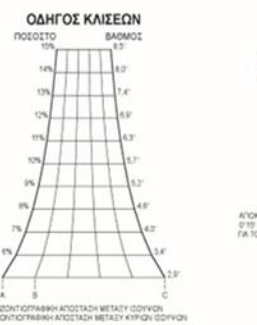
Όταν αναφέρεται αριθμός οριζώντιοις 100000, προστίθεται το δεκάτο και είναι αρνητικό για να κληθεί ο αριθμός 100000,0.

Όταν αναφέρεται αριθμός κλάδων τετραγωνικών 305, προστίθεται το δεκάτο και είναι αρνητικό, να φέρει τον αριθμό 305,0.

Παράδειγμα: VE 12 13 45 305
ΕΠΙΣΤΗΜΟΝΙΚΗ ΣΤΑΣΗ ΤΕΤΡΑΓΩΝΙΟΥ ΜΕ ΠΡΟΣΕΓΓΙΣΗ 100 Μ

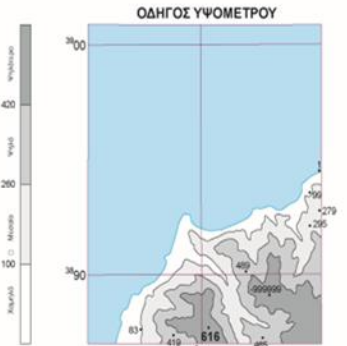
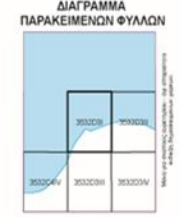
© COPYRIGHT [2022] ΑΠΟ ΤΗΝ ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ

Τα πνευματικά δικαιώματα της Κύπρου δίδονται από το τμήμα πνευματικών δικαιωμάτων του Υπουργείου Εσωτερικών και Επικοινωνίας Παράκλιτος. Οι ισχύοντες νόμοι είναι: Ν.63 (I) / 77, Ν.18 (I) / 83, Ν.54 (I) / 99, Ν.12 (I) / 2001, Ν.128 (I) / 2002, Ν.128 (I) / 2004 και Ν.123 (I) / 2006.



WGS 84

ΠΡΟΣΟΧΗ: ΕΠΑΛΗΘΕΥΣΤΕ ΤΗΝ ΚΟΚΚΙΝΗ ΕΥΑΝΑΓΓΕΛΙΣΜΟΤΗΤΑ



ΠΟΜΟΣ, ΚΥΠΡΟΣ 3532D31 [DLS-25K] ΕΚΔΟΣΗ [1 - 2022]

ΑΝΑΦΕΡΤΕ ΟΛΕΣ ΤΙΣ ΔΙΟΡΘΩΣΕΙΣ, ΠΡΟΒΙΘΙΚΕΣ ΚΑΙ ΣΧΟΛΙΑ ΣΤΟ ΤΜΗΜΑ ΚΤΗΜΑΤΟΛΟΓΙΟΥ ΚΑΙ ΧΩΡΟΜΕΤΡΙΑΣ, ΚΛΑΔΟΣ ΧΑΡΤΟΓΡΑΦΙΑΣ, ΜΕΣΟ ΤΗΛΕΦΩΝΟΥ 00357-22408733 Ε-MAIL: delimitation@dlsc.gov.cy ΗΛΕΚΤΡΟΝΙΚΟ ΔΕΛΤΙΑ (ΑΝΟΙΧΤΟ) Η ΓΡΑΦΤΗ ΕΤΟΝ, ΔΙΕΥΘΥΝΤΗ ΤΜΗΜΑΤΟΣ ΚΤΗΜΑΤΟΛΟΓΙΟΥ ΚΑΙ ΧΩΡΟΜΕΤΡΙΑΣ ΚΕΝΤΡΙΚΑ ΓΡΑΦΕΙΑ, ΚΤΗΡΙΟ 'ΣΑΖΩΝ', ΟΔΟΣ ΙΑΞΙΩΝΩΝ 10, 1082, ΛΕΥΚΩΣΙΑ, ΚΥΠΡΟΣ



MAP PRODUCTS

DEPARTMENT OF LANDS AND SURVEYS

SERIES 1501-AIR
SHEET NI-36-03
EDITION 1-01-S

POPULATED PLACES

ROADS

BOUNDARIES

HYDROGRAPHIC FEATURES

HYDROGRAPHICAL NAMES

HYDROGRAPHIC FEATURES

LAND USES

VERTICAL OBSTRUCTIONS (VO) (>=150 feet)

CABLES

AIRCRAFT FACILITIES (Military or Civil)

RADIO FACILITIES

Other Facilities

CAUTION - AIR INFORMATION EFFECTIVE TO JULY 2025

ATTENTION - THIS CHART CONTAINS MAXIMUM ELEVATION FIGURES (MEF)

LOCATION DIAGRAM

SCALE 1:250,000
CYPRUS-KYPROS

SERIES 1501-AIR
SHEET NI-36-03
EDITION 1-01-S



Prepared and published in 2025 by the Department of Lands & Surveys
Ministry of Interior, CYPRUS

MAP INFORMATION AS OF 2025
INTERNATIONAL REQUIREMENTS AS OF 2025

JOINT OPERATIONS GRAPHIC (AIR)
SCALE 1:250,000

CONVERSION OF ELEVATIONS

FEET	METERS
100	30.48
200	60.96
300	91.44
400	121.92
500	152.40
600	182.88
700	213.36
800	243.84
900	274.32
1000	304.80
1100	335.28
1200	365.76
1300	396.24
1400	426.72
1500	457.20
1600	487.68
1700	518.16
1800	548.64
1900	579.12
2000	609.60
2100	640.08
2200	670.56
2300	701.04
2400	731.52
2500	762.00
2600	792.48
2700	822.96
2800	853.44
2900	883.92
3000	914.40
3100	944.88
3200	975.36
3300	1005.84
3400	1036.32
3500	1066.80
3600	1097.28
3700	1127.76
3800	1158.24
3900	1188.72
4000	1219.20
4100	1249.68
4200	1280.16
4300	1310.64
4400	1341.12
4500	1371.60
4600	1402.08
4700	1432.56
4800	1463.04
4900	1493.52
5000	1524.00
5100	1554.48
5200	1584.96
5300	1615.44
5400	1645.92
5500	1676.40
5600	1706.88
5700	1737.36
5800	1767.84
5900	1798.32
6000	1828.80
6100	1859.28
6200	1889.76
6300	1920.24
6400	1950.72
6500	1981.20
6600	2011.68
6700	2042.16
6800	2072.64
6900	2103.12
7000	2133.60
7100	2164.08
7200	2194.56
7300	2225.04
7400	2255.52
7500	2286.00
7600	2316.48
7700	2346.96
7800	2377.44
7900	2407.92
8000	2438.40
8100	2468.88
8200	2499.36
8300	2529.84
8400	2560.32
8500	2590.80
8600	2621.28
8700	2651.76
8800	2682.24
8900	2712.72
9000	2743.20
9100	2773.68
9200	2804.16
9300	2834.64
9400	2865.12
9500	2895.60
9600	2926.08
9700	2956.56
9800	2987.04
9900	3017.52
10000	3048.00

LIMITED DISTRIBUTION
COMMERCIAL SALE PROHIBITED

OTHER FACILITIES

CAUTION - Cable/Cables pylons, indicated by an unshaded vertical obstruction symbol, range from 200 to 250 (200-250) feet in height above mean sea level (MSL). (1:50,000) chart being printed from the same chart.

The number of parentheses, '()', following a populated place name indicates more than one place is named on the chart.

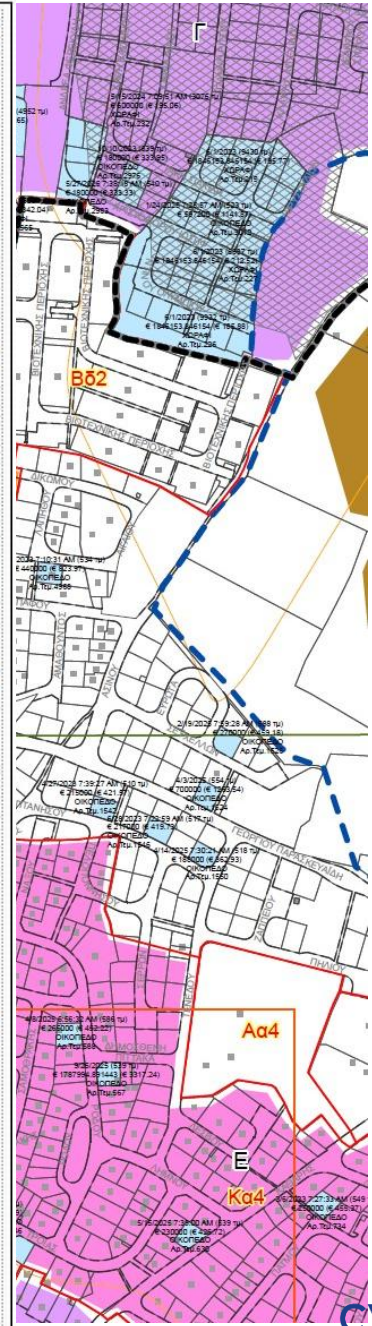
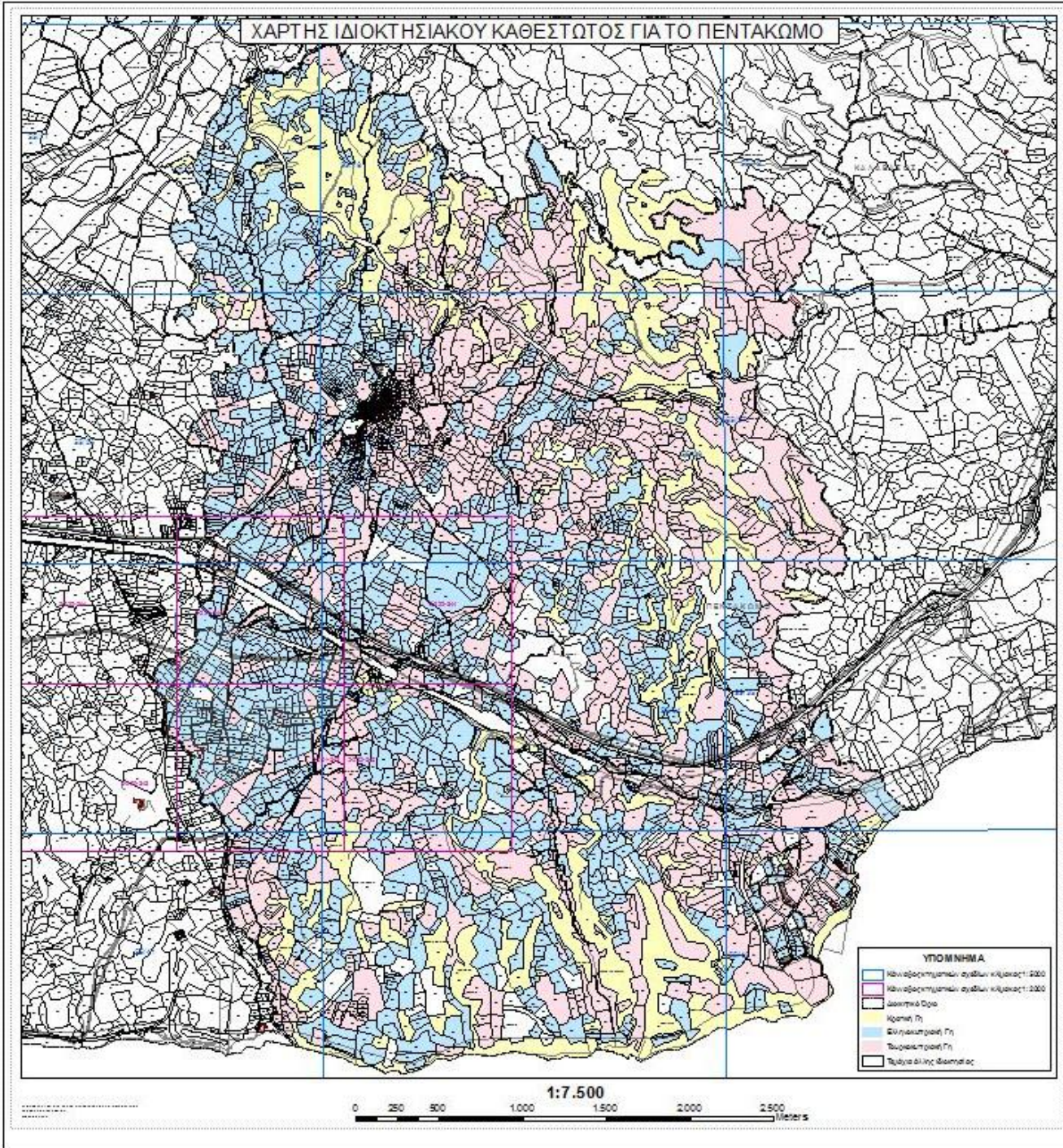
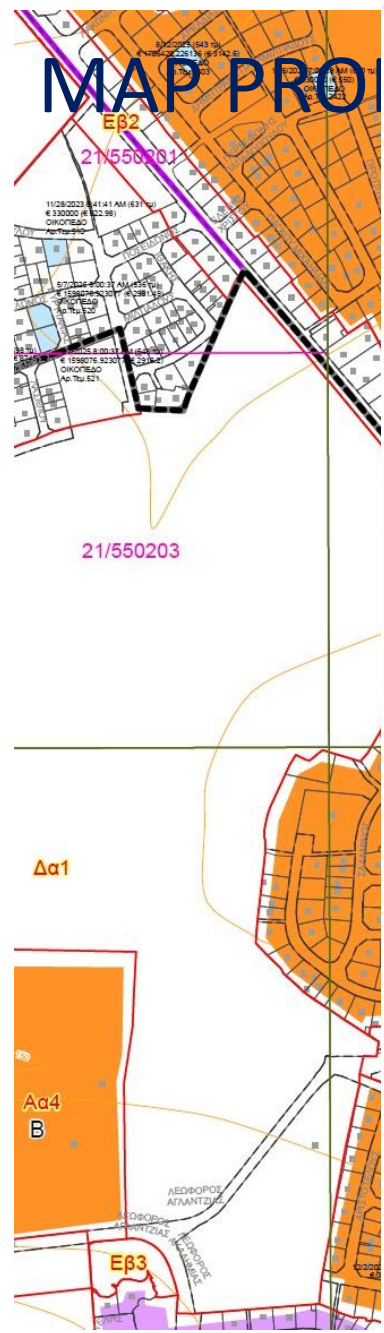
- Tower:**
- Comm.; Non-comm.; Water; Water intake; Cooling
 - Lighthouse; Windmill; Wind turbine; Crane
 - Power substation; Storage tank; Extraction mine;
 - Flare pipe; Smokestack; Non-water well; Ski jump
 - UNESCO World Heritage Site; Sports ground

- AIRSPACES**
- Training Areas
 - Temporary Reserved/Segregated Areas
 - Restricted Areas
 - Gliders And UAV Areas
 - Forest Department UAV Areas
 - Danger Areas
 - Model Strip Polygons

- VERTICAL OBSTRUCTIONS (VO) (>=150 feet)**
- Single; Multiple; Radio aid
 - 374 - Elevation of obstruction top above sea level (361) - Height of obstruction top above ground level
 - Wind farm; Wind turbine VO: Single; Multiple
 - Cable/Linear VO: Long; Short

- CABLES**
- Power transmission line; Pylon VO
- AIRCRAFT FACILITIES (Military or Civil)**
- Land aerodrome:

- RADIO FACILITIES**
- VOR; VORTAC
 - TACAN; VOR/DME
 - Other Facilities





DEPARTMENT OF
LANDS AND SURVEYS

DATA AVAILABILITY

- DLS PORTAL:
central national geodata access
point
- CY INSPIRE Geo

ΓΕΩΓΡΑΦΙΚΑ ΔΕΔΟΜΕΝΑ -
SHAPE FILES

**Οδικό Δίκτυο (Έκδοση
2016)**

ΓΕΩΓΡΑΦΙΚΑ ΔΕΔΟΜΕΝΑ -
SHAPE FILES

**Κατάλογος Γεωγραφικών
Περιοχών - Σύστημα
Πληροφοριών Γης
(Αννλικά)**

ΓΕΩΓΡΑΦΙΚΑ ΔΕΔΟΜΕΝΑ -
SHAPE FILES

Περιοχές Natura2000

ΓΕΩΓΡΑΦΙΚΑ ΔΕΔΟΜΕΝΑ -
SHAPE FILES

**Όρια Ταχυδρομικών
Τομέων**

Cyprus INSPIRE GeoPortal

- Geoportal
- Catalog**
- Map
- About

Search Catalog 🔍 Search the Catalog... Search

Map

Earthstar Geographics esri

Any Intersects Within

108 items By Relevance ▾

ANNEX 3 | Land Use - Department of Town planning and Housing (Metadata of Data)
 gptadmin 2024-12-21 N/A Land use, farming, environment
 Data originated from the Town Housing Planning Department concerning planning Zones in polygon form, digitized by the the Department of Lands and Surveys.
[HTML](#) [XML](#) [JSON](#) [Links](#) [Download \(HTTP\)](#)

ANNEX 2 | LANDCOVER_LPIS_CAPO (Metadata of Download Service)
 gptadmin 2024-12-21 N/A infoMapAccessService
 Land Parcel Identification System (LPIS) for agricultural parcels under Integrated Administration and Control System (IACS). Agricultural Parcels. "Agricultural parcel" means a continuous area of land,
[HTML](#) [XML](#) [JSON](#) [Links](#) [Add to Map](#) [Preview](#)

ANNEX 3 | Utility and governmental services - Larnaka Water Board (Metadata of Data)
 gptadmin 2024-12-21 N/A Utility and governmental services
 Data concerning Utility and Government Services. Data originated from the Larnaka Water Board are: 1. Air_Valves 2. CUPLING 3. Distribution_AC 4. Distribution_PE 5. Distribution_UPVC 6.Fire_Hydrants 7.
[HTML](#) [XML](#) [JSON](#) [Links](#) [Download \(HTTP\)](#)

ANNEX 1 | Administrative units - Department of Lands and Surveys (Metadata of Data)
 gptadmin 2024-12-21 N/A Administrative units, administrative units, Δήμοι
 Data originated from the Department of Lands and Surveys concerning the Administrative Boundaries for the Republic of Cyprus. The Data is in polygon form and they consist of the following levels: 1. Districts 2.
[HTML](#) [XML](#) [JSON](#) [Links](#) [Download \(HTTP\)](#)

ANNEX 3 | Production and Industrial Facilities - Mines Service (Metadata of Data)
 gptadmin 2024-12-21 N/A Production and industrial facilities, economy
 Data concerning Production and Industrial Facilities. Data include Mines Leases.
[HTML](#) [XML](#) [JSON](#) [Links](#) [Download \(HTTP\)](#)

ANNEX 2 | LANDCOVER_EFA_TREES_CAPO (Metadata of Download Service)
 gptadmin 2024-12-21 N/A infoMapAccessService

Χάρτες της Κύπρου

Τουριστικοί Χάρτες

Οδικοί Χάρτες



ΧΑΡΤΗΣ ΕΞΥΠΗΡΕΤΗΣΗΣ
ΤΟΥΡΚΟΚΥΠΡΙΩΝ



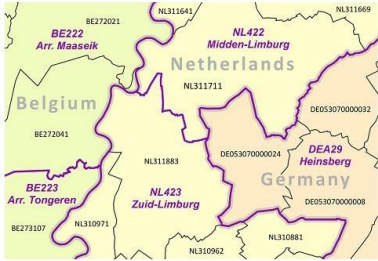
DEPARTMENT OF
LANDS AND SURVEYS

INTERNATIONAL REPRESENTATION (COLLABORATION & INTEGRATION)

EuroGeographics > Maps for Europe > EuroBoundaryMap

EuroBoundaryMap

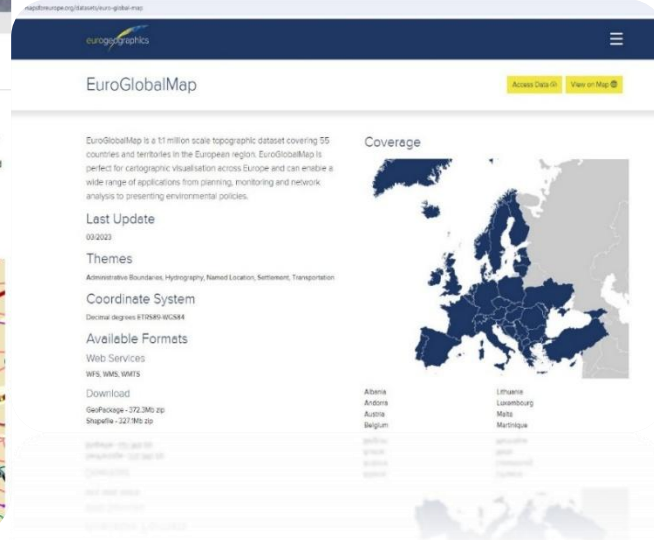
EuroBoundaryMap is a seamless geo-database at the scale 1:100 000 covering 56 European countries and territories (according to ISO country code and Kosovo) from 39 data producers. It contains geometry, names and codes of administrative and statistical units continuously updated by our members, the national mapping and cadastral authorities (NMCAs) of Europe. It links to the updated statistical LAU- and NUTS-codes for all local administrative units of the 27 member states of the European Union.



EuroRegionalMap

EuroRegionalMap 2021 is a pan-European dataset containing topographic information at the scale 1:250 000 covering 51 European countries and territories (according to ISO country code) from 36 data producers including 27 EU member states, 4 EFTA states (Liechtenstein, Norway, Iceland, Switzerland), Georgia, Moldova, North Macedonia, Serbia, Kosovo, Ukraine and the United Kingdom. It is a seamless and harmonised data and is produced in cooperation by the National Mapping and Cadastral Agencies (NMCA) of Europe, using official national databases.

EuroRegionalMap is ideal for a wide range of uses, including spatial analysis, cartographic publishing and backdrop visualisation, or in combination with other datasets for marketing planning and socio-economic analysis, environmental analysis, and transport management.



EuroGlobalMap

EuroGlobalMap is a 1:1 million scale topographic dataset covering 55 countries and territories in the European region. EuroGlobalMap is perfect for cartographic visualisation across Europe and can enable a wide range of applications from planning, monitoring and network analysis to presenting environmental policies.

Last Update
03/2023

Themes

Administrative Boundaries, Hydrography, Named Location, Settlement, Transportation

Coordinate System

Decree degrees E100491 W00484

Available Formats

Web Services

WFS, WMS, WMTS

Download

GeoPackage - 372.340.210

Shapefile - 122.989.210

Coverage



Albania
Andorra
Austria
Belgium
Bosnia
Bulgaria
Croatia
Cyprus
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Marshall
Moldova
Montenegro
Netherlands
Norway
Poland
Portugal
Romania
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tunisia
Turkey
Ukraine
United Kingdom



International Cartographic Association
Association Cartographique Internationale



03

PHOTOGRAMMETRY

Geodetic Reference system, aerial photography, orthophoto evolution and AI extraction

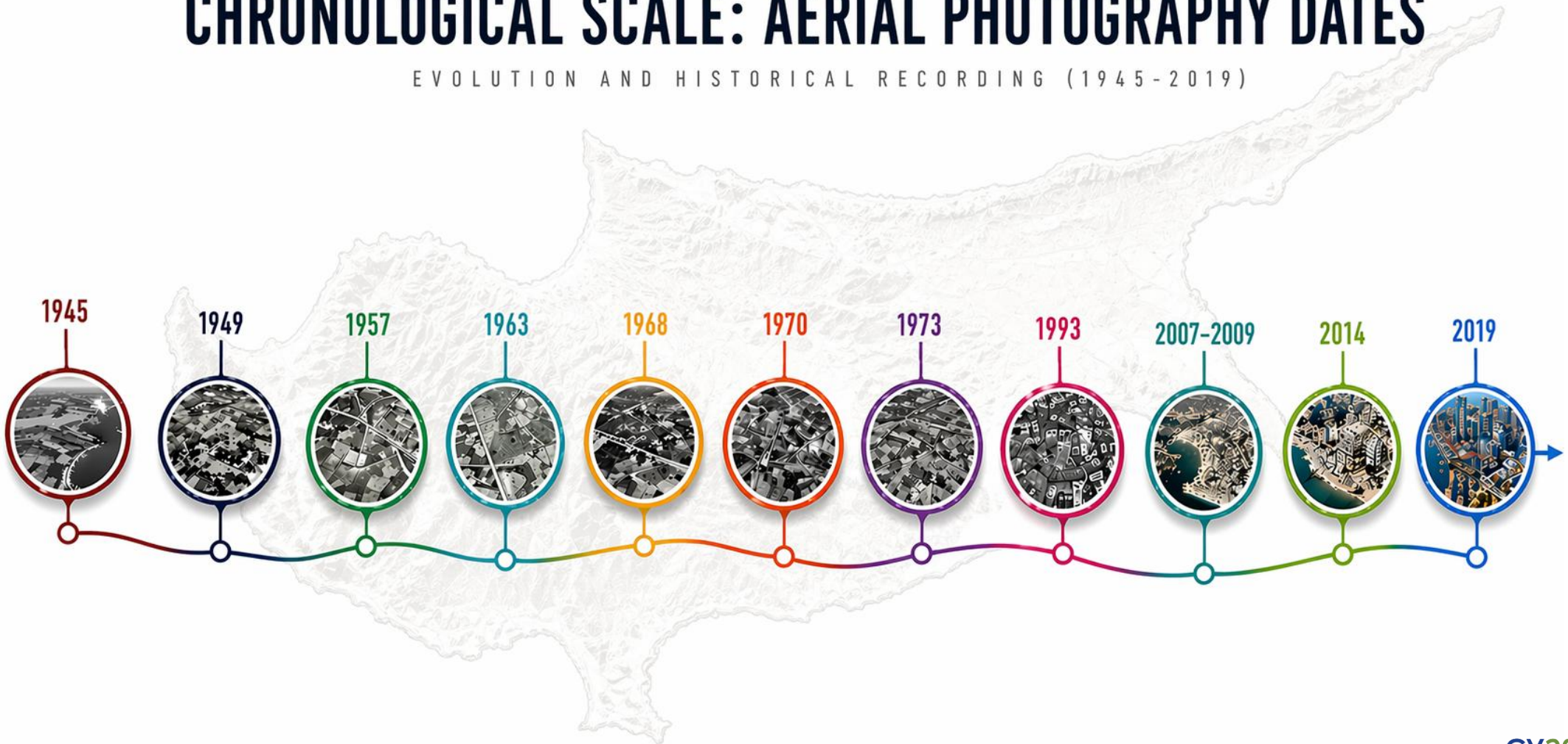




PHOTOGRAMMETRY

CHRONOLOGICAL SCALE: AERIAL PHOTOGRAPHY DATES

EVOLUTION AND HISTORICAL RECORDING (1945 - 2019)





AERIAL PHOTOGRAPHY DIGITAL TRANSITION & LIDAR EVOLUTION

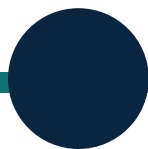
2007–2009



First Digital Orthophoto

50 cm GSD
Fully georeferenced
colour orthophoto
coverage

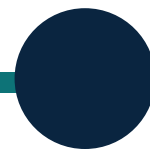
2014



LiDAR Introduced

10 cm GSD
LiDAR at 4 pts/m²
DTM/DSM produced
(~50 cm accuracy)

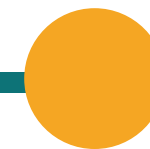
2019



Urban LiDAR Upgrade

10 cm GSD
maintained
LiDAR density
increased to 10
pts/m² in urban areas

2027



Next Generation (Planned)

5 cm GSD aerial
photography
Nationwide LiDAR at
4 pts/m²
High data accuracy
baseline



BUILDING FOOTPRINT EXTRACTION

Hybrid approach

Combines LiDAR (10 pts/m²) with
multispectral imagery,

Enables automated classification of

Buildings (BU) & vegetation (NDVI based
VEG),

Outputs:

- High-fidelity 3D models.
- Regularized building footprints from
point cloud (LAS dataset).

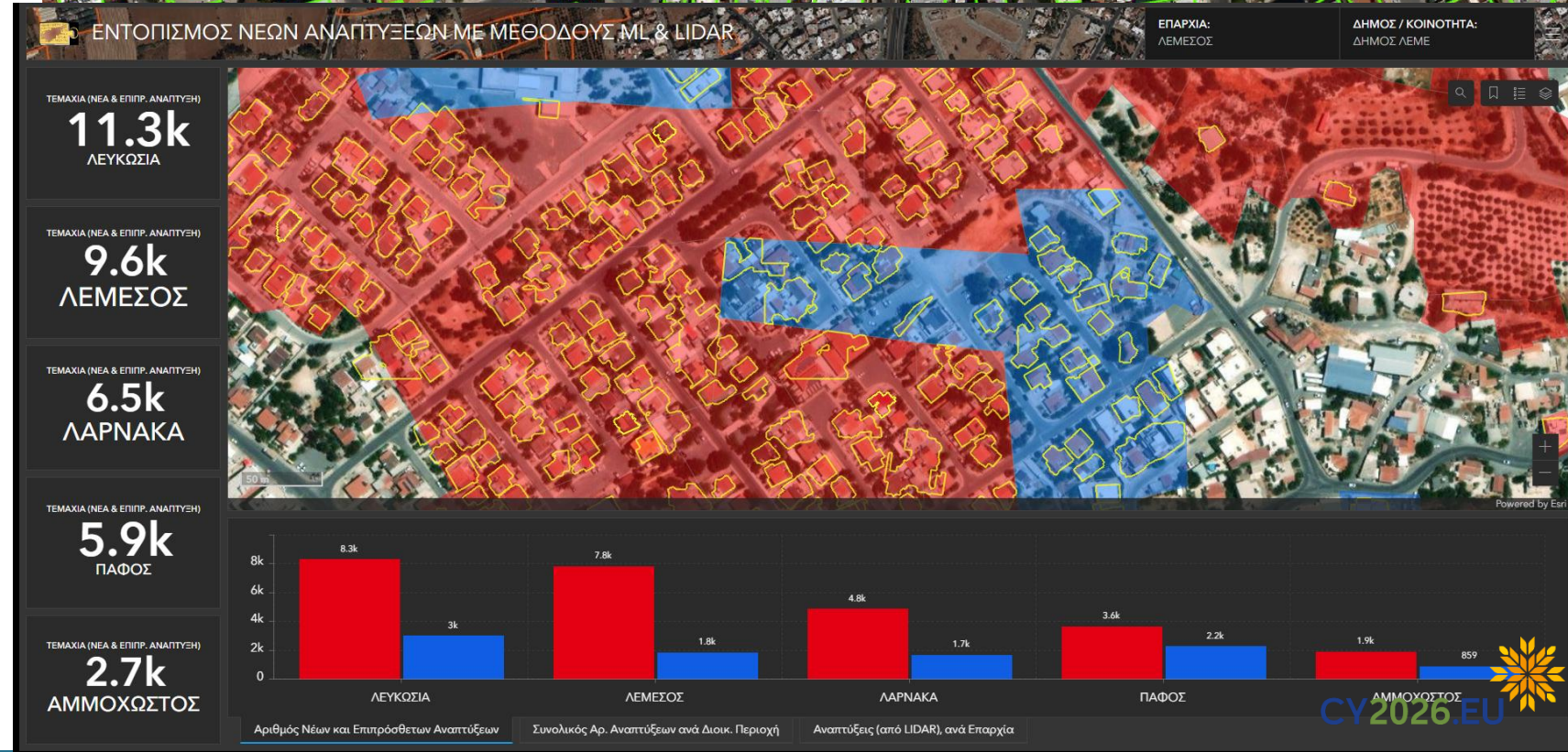


DEPARTMENT OF
LANDS AND SURVEYS

BUILDING FOOTPRINT EXTRACTION

AI Pre-Trained model - (RGB)

- Extract building footprints from RGB imagery alone.
- Pattern- and texture-based detection for fast, scalable urban mapping with minimal data preparation
- Data displayed in dashboard

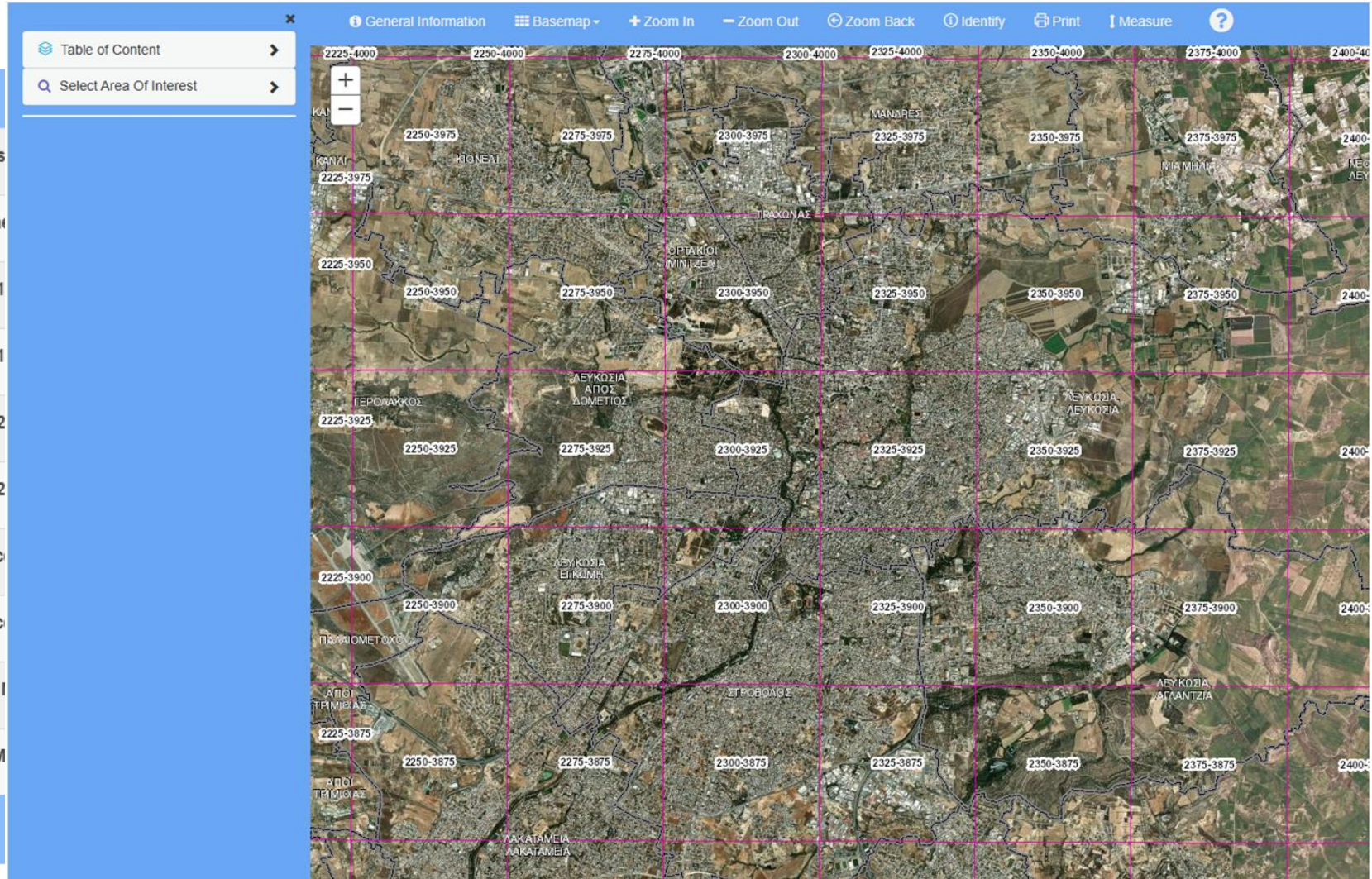




DEPARTMENT OF
LANDS AND SURVEYS

DATA AVAILABILITY

Product	Help Text
1 Buildings 2014	Segmentation of the building's
2 Footprints 2014	Unified building Outline Perim
3 Contours 1963 with interval 5m	Contours per 5m for the year 1
4 Contours 1993 with interval 5m	Contours per 5m for the year 1
5 Contours 2014 with interval 1m	Contours per 1m for the year 2
6 Contours 2019 with interval 1m	Contours per 1m for the year 2
7 DSM/Grid/50cm 2014	DSM/Grid/50cm (Digital Surfac
8 DSM/Grid/50cm 2019	DSM/Grid/50cm (Digital Surfac
9 DTM/Grid/10m 1963	DTM/Grid/10m (Digital Terrain I
10 DTM/Grid/5m 1993	DTM/Grid/5m (Digital Terrain M



DLS PORTAL: <https://eservices.dls.moi.gov.cy/#/customer/application/new/48>

CY Login required!



PHOTOGRAMMETRIC DATA: USES & APPLICATIONS

INTERNAL USE

Land Parcel Analysis — Slopes & Applications

- Property valuation
- Solar park development
- State land allocation
- Boundary dispute resolution

3D Topographic Documentation

- Terrain mapping (3D)
- Fences, enclosures & embankments
- Rivers and waterways
- Historical Vs modern aerial comparison

EXTERNAL USERS

ACADEMIA

CITIZENS

PRIVATE
SECTOR

POPULAR DATASETS

Orthophotos

High-res colour aerial imagery, georeferenced

- *Geodetic reference system 1993 (CGRS93)*

DTM / DSM

Digital Terrain & Surface Models from LiDAR

Contour Lines

5m & 10m interval topographic contours

island-wide

04

HYDROGRAPHY

Hydrographic surveys, nautical cartography and maritime policy

HYDROGRAPHY: OFFICIAL HYDROGRAPHER OF CYPRUS



Hydrography

Hydrographic Surveys

Sea level data collection and monitoring along Cyprus coastline.



Nautical Cartography

Maritime Space Monitoring

Nautical publications update and maritime chart production.



Geographic Policy

IHO / MSP Collaboration

Works with other hydrographic offices and the IHO. Law of the Sea obligations.



Database Maintenance

Ongoing Updates

Ensures maritime geospatial database remains accurate and current.



Maritime Spatial Planning

Strategic Framework

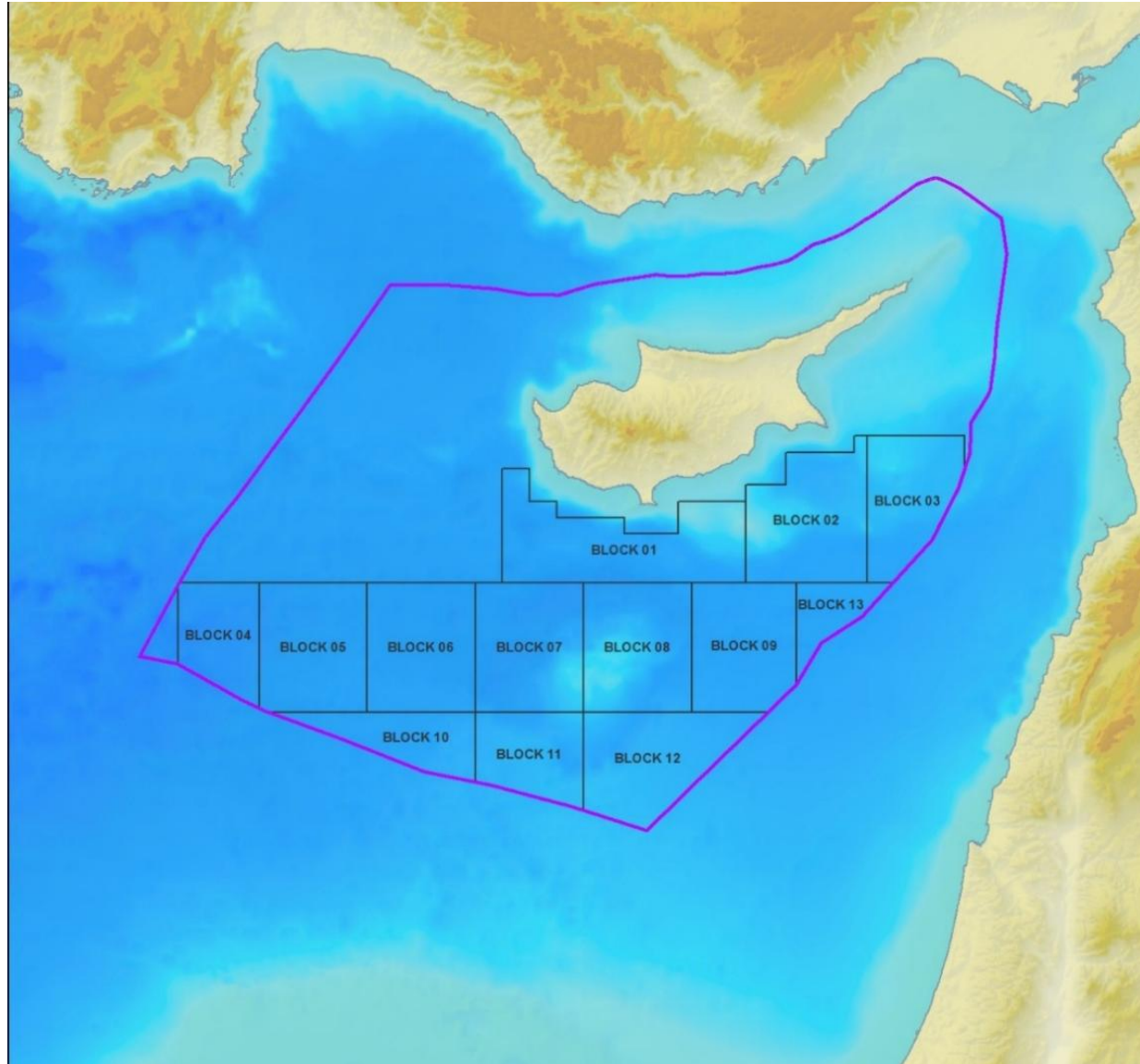
Contributes to Maritime Spatial Planning (MSP) under EU frameworks.





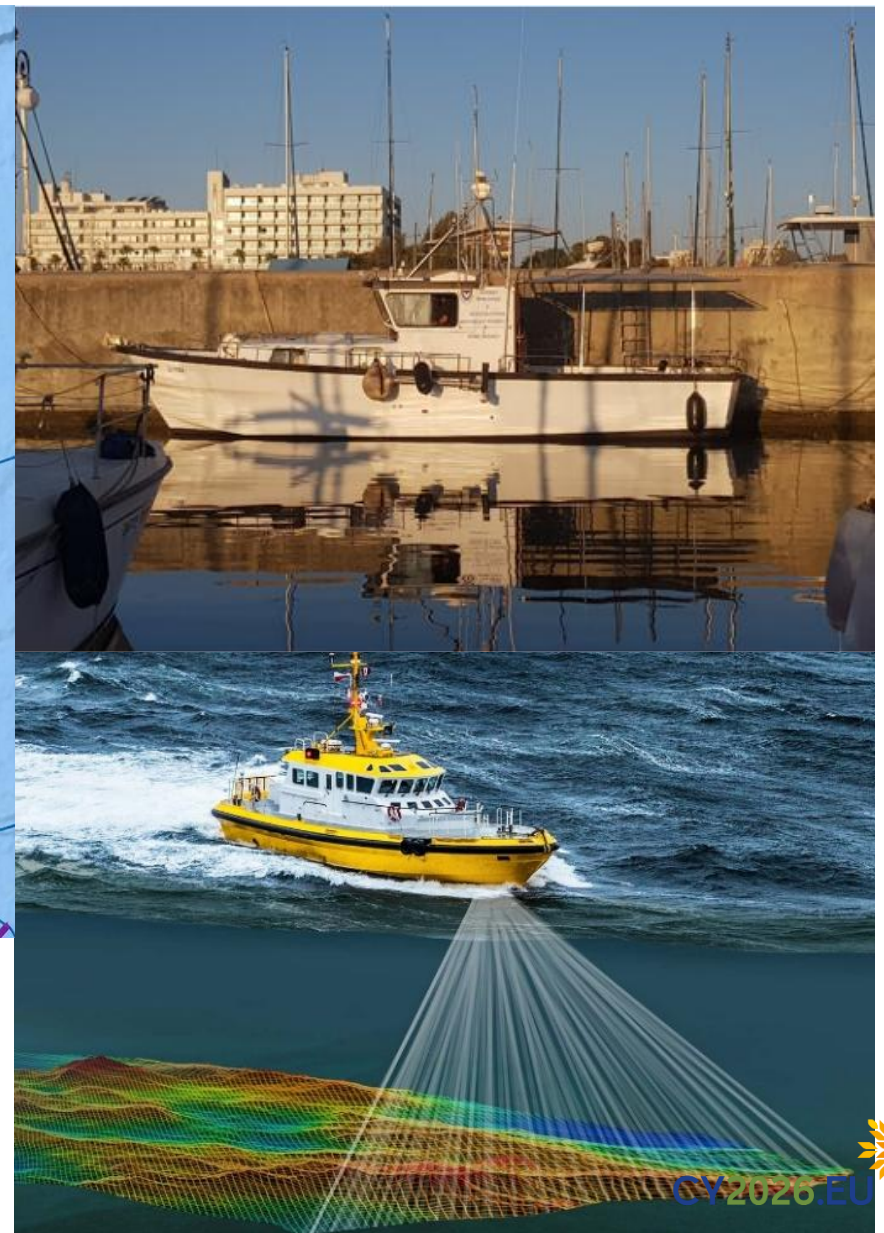
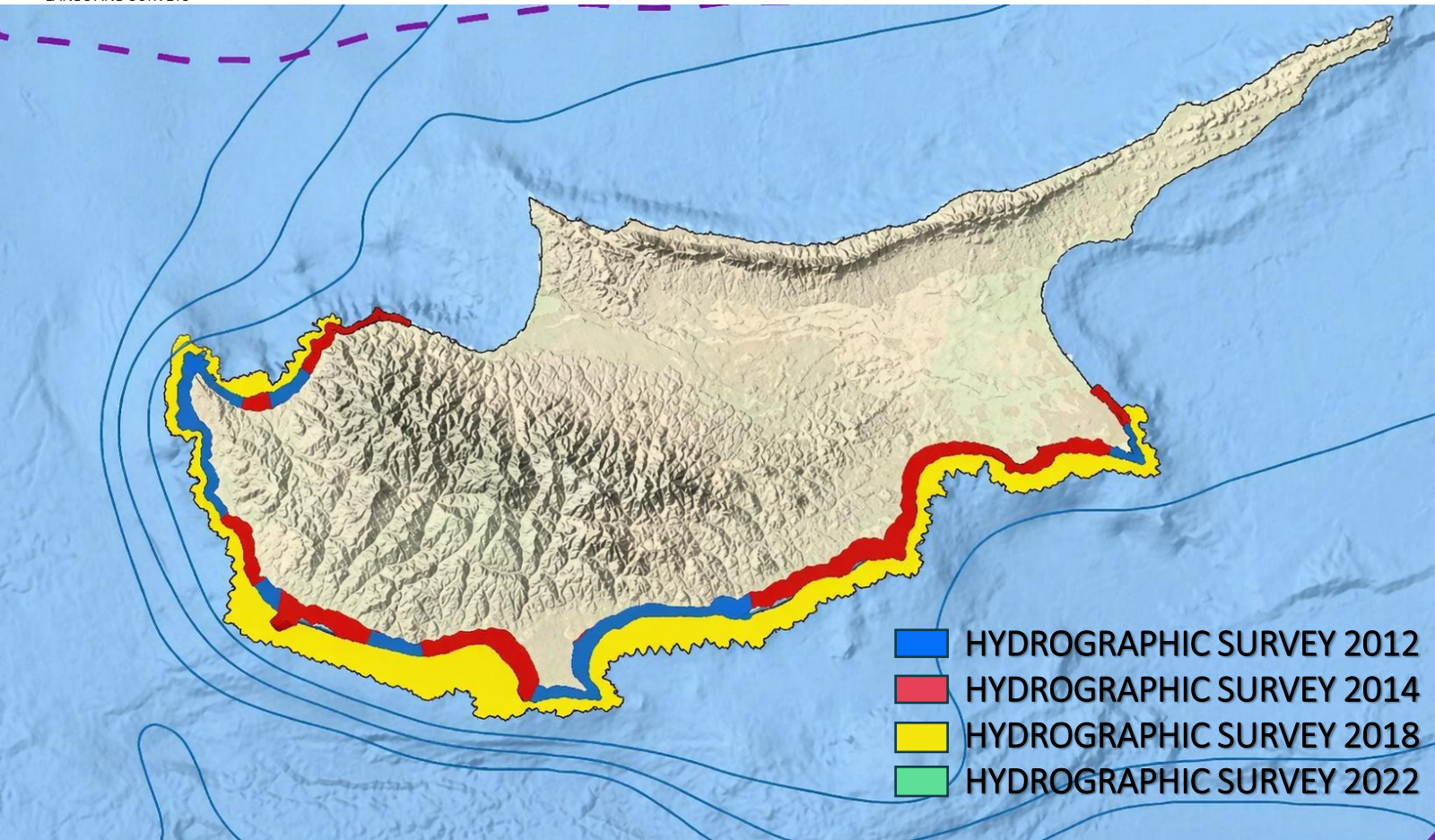
DEPARTMENT OF
LANDS AND SURVEYS

GEOGRAPHIC POLICY – LAW OF THE SEA





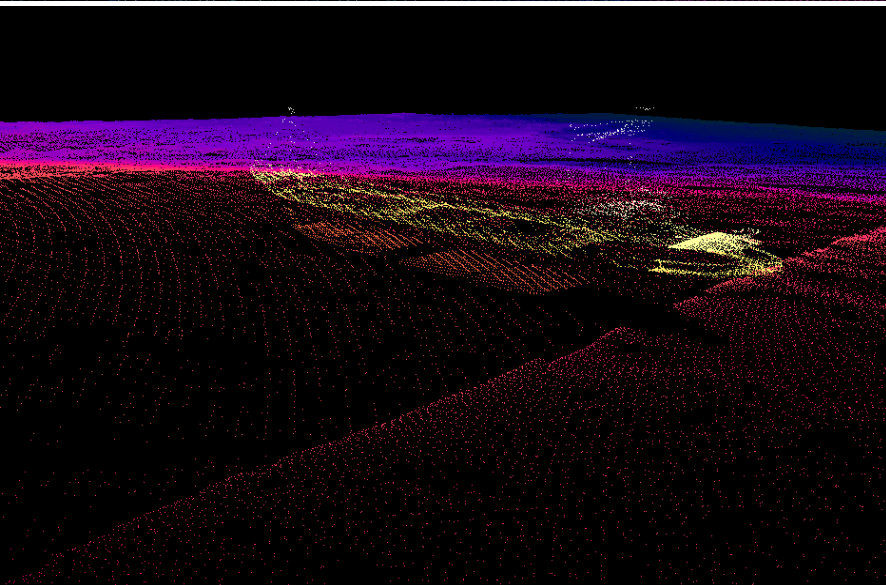
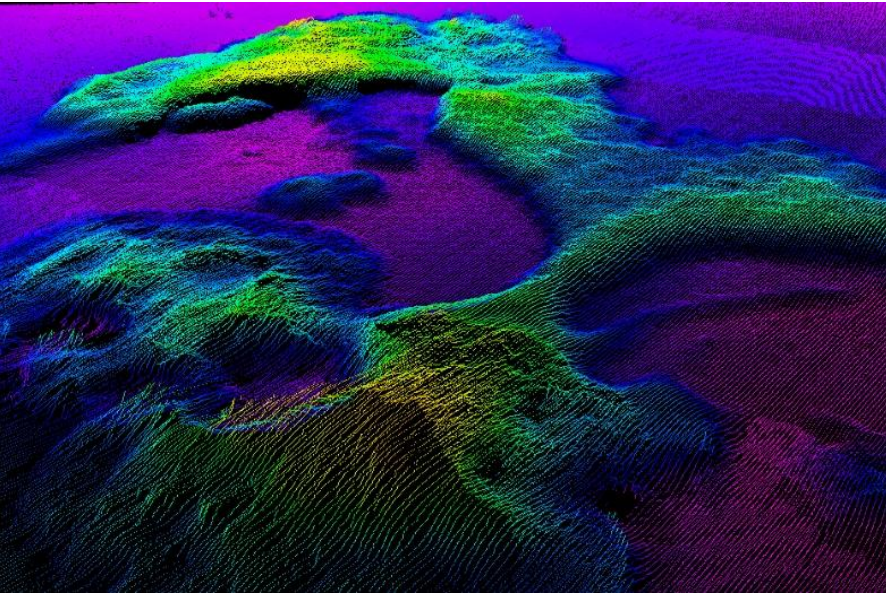
HYDROGRAPHIC SURVEYS - VESSEL ALKYON



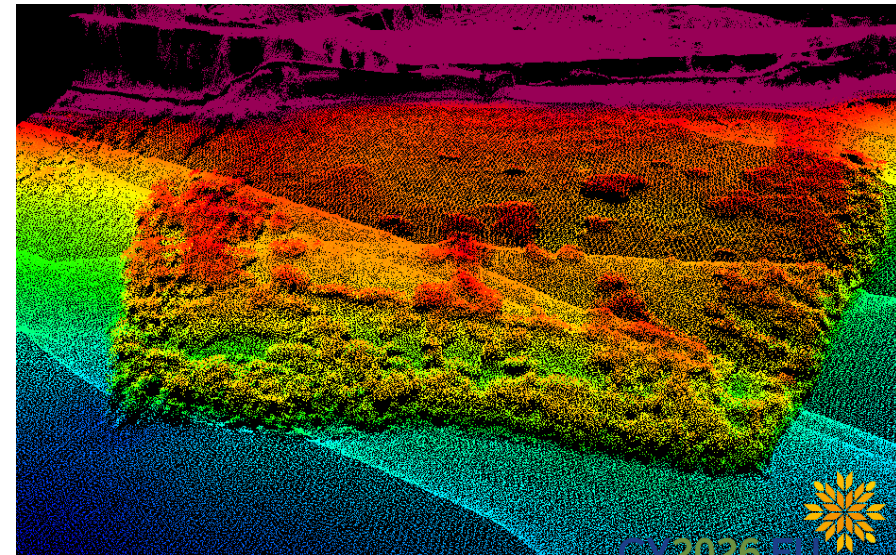
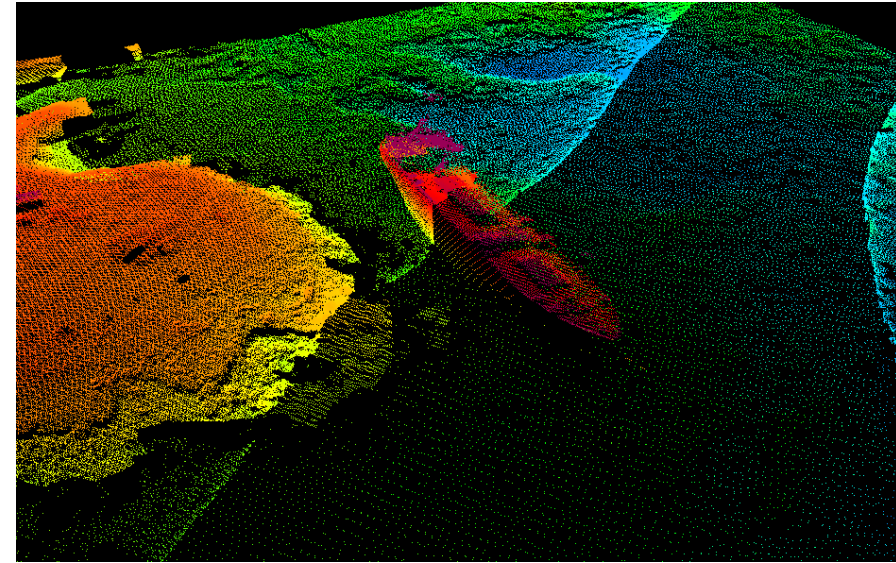
- operating since September 2021.
- equipped with a Multibeam Echo Sounder System.



HYDROGRAPHIC SURVEYS



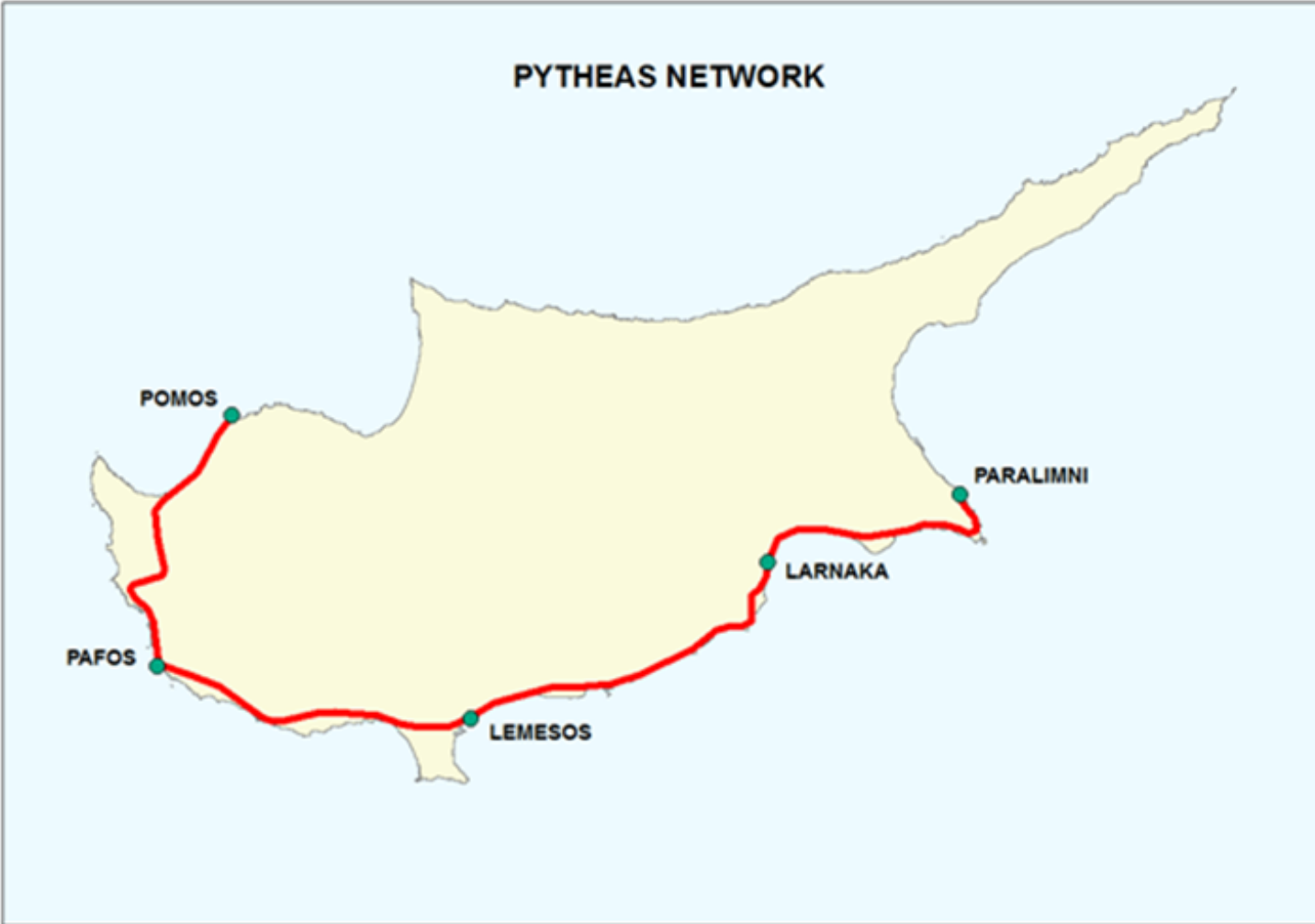
- LEFT: Multibeam
- RIGHT: Lidar





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PYTHEAS NETWORK





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MONITORING OF THE MARITIME SPACE

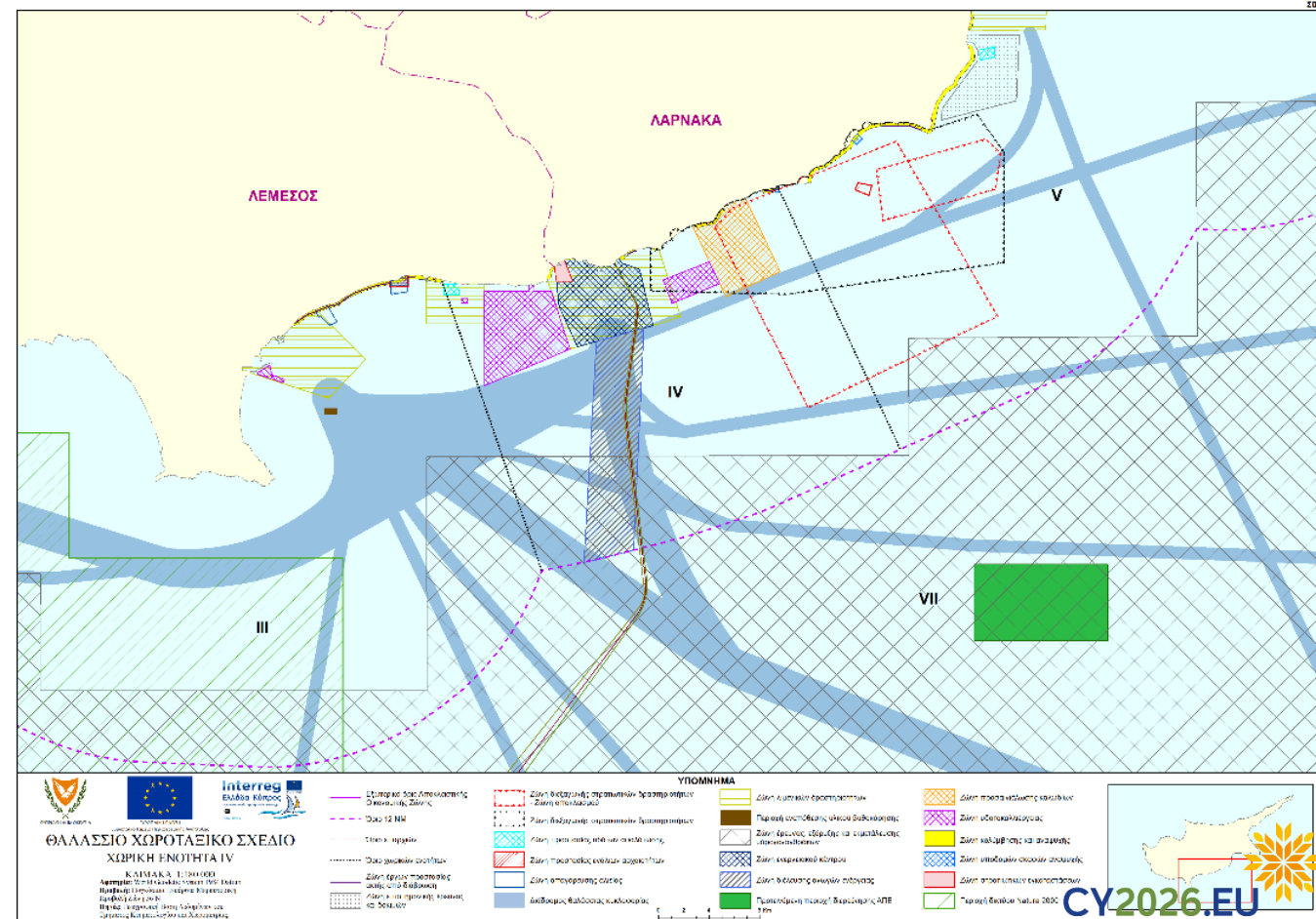
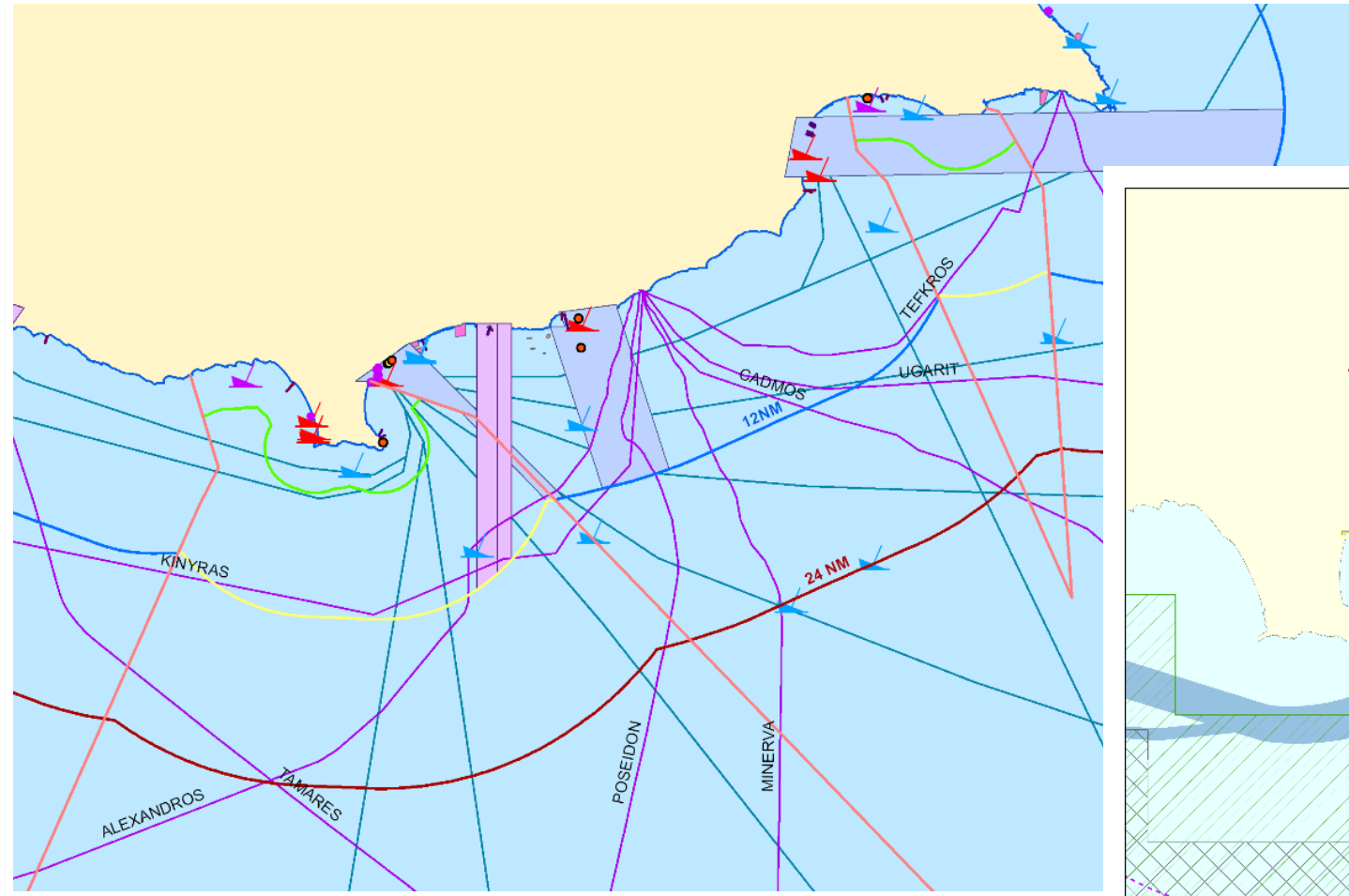
The screenshot displays a GIS application interface with the following components:

- Contents Panel (Left):** Shows a search bar and a drawing order list. The active map is 'Map1', which includes:
 - GISHYDRO.CYBuoys
 - cyb1188_1189
 - GISHYDRO.NavaidInspection
 - CLASS
 - LIGHT
 - BUOY
 - <all other values>
 - GISHYDRO.ChartUpdateMonitoringSy...
 - Status
 - Reported-DLS assessment
 - Data delivered from authority-DLS as...
 - Data delivered to UKHO for assessm...
 - Chart updated
 - No update needed-DLS assessment
 - Cancelled by DLS
 - ENC updated No Chart
 - <all other values>
 - GISHYDRO.NauticalNAVAIDs
 - Class
 - Light
 - Buoy, Cardinal
 - Buoy, Isolated Danger
 - Buoy, Special Purpose/General
 - Buoy, Lateral
 - Buoy, Safe Water

- Map (Center):** A nautical chart of a coastal area with a yellow highlighted region. It features several colored circular markers (red, purple, green, blue) and orange circles highlighting specific points of interest.
- Catalog Panel (Right):** Lists various GIS data layers under the 'DLSPROD.sde' dataset:
- Coastline.gdb
- DLISTEST.sde
- DLSPROD.sde
 - GISCARTO.Administrative
 - GISCARTO.Air
 - GISCARTO.APE
 - GISCARTO.EAC
 - GISCARTO.Hydrography
 - GISCARTO.LandConsolidations
 - GISCARTO.Lefkes_Zones
 - GISCARTO.Phyiography
 - GISCARTO.PostalCodes
 - GISCARTO.PricesPerSyntDomis
 - GISCARTO.RoadNetwork
 - GISCARTO.SewerageBoards
 - GISCARTO.Status
 - GISCARTO.Status2022
 - GISCARTO.TDS
 - GISCARTO.TDS_CARTO
 - GISCARTO.TownPlanning
 - GISCARTO.ValuationAreas
 - GISCARTO.Vegetation
 - GISHYDRO.Air
 - GISHYDRO.Bathy
 - GISHYDRO.Land
 - GISHYDRO.LOS
 - GISHYDRO.MSP
 - GISHYDRO.Sea
 - GISHYDRO.UKHO



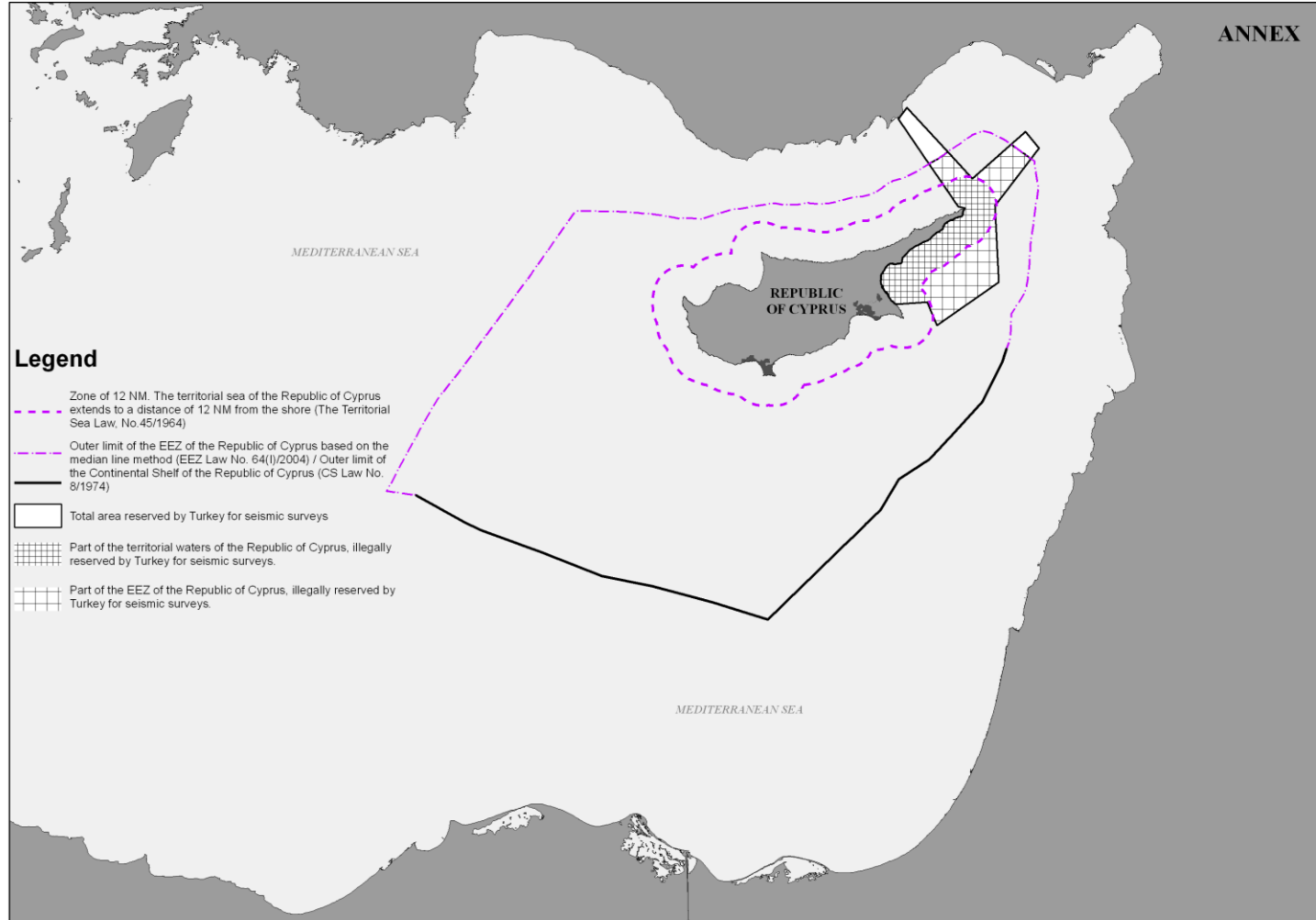
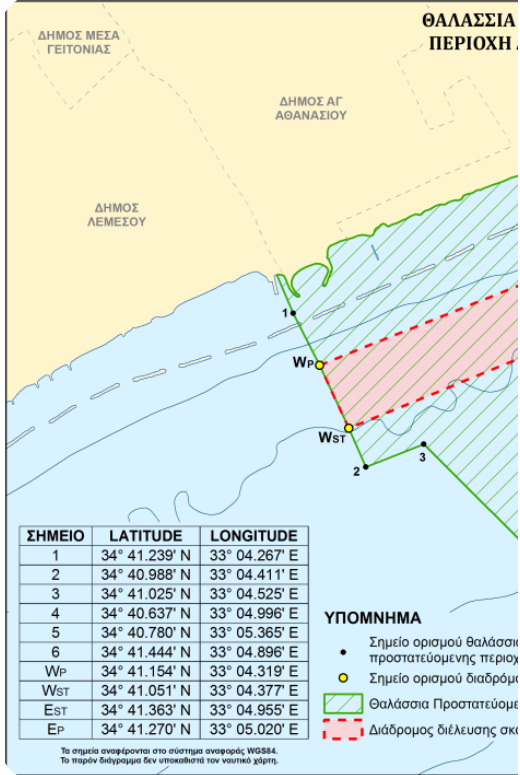
MARITIME SPATIAL PLANNING





CARTOGRAPHIC SUPPORT TO OTHER DEPARTMENTS

DEPARTMENT OF
LANDS AND SURVEYS



ANNEX





DEPARTMENT OF
LANDS AND SURVEYS

DATA AVAILABILITY

<http://portal.dls.moi.gov.cy> (CY Login required)

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ | ΥΠΟΥΡΓΕΙΟ ΕΣΩΤΕΡΙΚΩΝ
ΤΜΗΜΑ ΚΤΗΜΑΤΟΛΟΓΙΟΥ ΚΑΙ ΧΩΡΟΜΕΤΡΙΑΣ

ΠΥΛΗ ΓΙΑ ΠΟΛΙΤΕΣ ΗΛΕΚΤΡΟΝΙΚΕΣ ΑΙΤΗΣΕΙΣ ΠΛΗΡΗΣΗΣ ΣΕ ΧΑΡΤΕΣ ΓΕΩ-ΠΥΛΗ "INSPIRE"

Περιεχόμενα Αναζήτηση Υπόβαθρο Αναγνώριση Ακύρωση επιλογής Μεγέθυνση Σμίκρυνση Επικοινωνία Αρχική Εκτύπωση Μέτρηση Προσθήκη Δεδομένων Μεγ. Χάρτη

Γ. ΜΗΚ: 38.14925879 Γ. ΠΛ: 33.21706734
Κλίμακα 1:2311162

Αρχική Σελίδα
Χάρτες Ισοπεδίων
Συνόμοιοι
Κυβερνητική Πύλη Διαδικτυωκό
Εκτύπωση

Συνήθετα Ερωτήματα
Αποποίηση
Επικοινωνία
Υπευθύνος Σελίδας

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14 Ευρωπαϊκό Ταμείο Ανάπτυξης
Κυπριακή Δημοκρατία
Ευρωπαϊκή Ένωση
Το Έργο συγχρηματοδοτήθηκε από την Ευρωπαϊκή Ένωση
(Ευρωπαϊκό Ταμείο Περιφερειακής Ανάπτυξης) και από Εθνικούς Πόρους

Earthstar Geographics esri

Show desktop





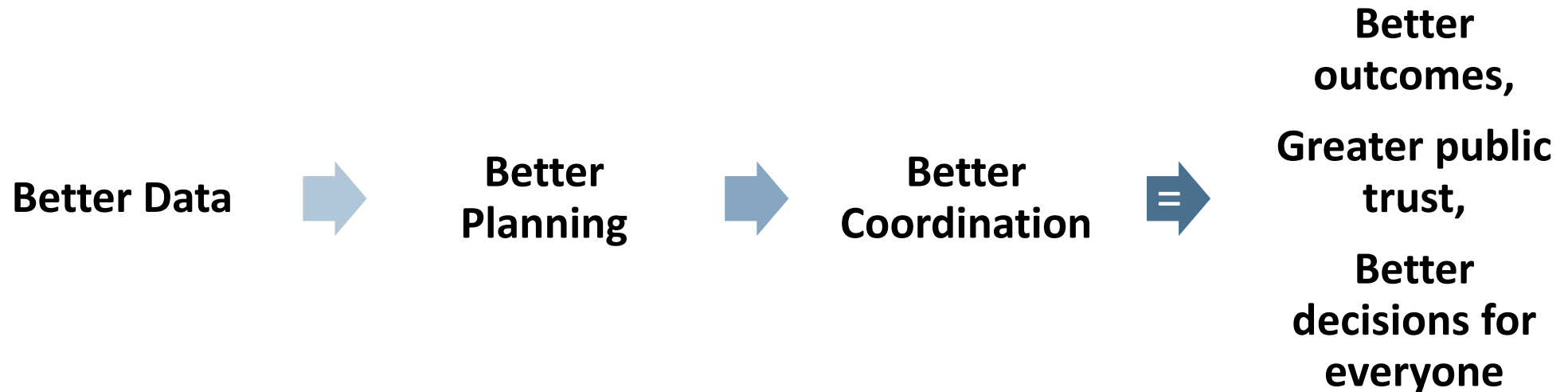
CONCLUSION

INTEGRATED GEOSPATIAL FRAMEWORK:

- *cadastre* • *cartography* • *photogrammetry* • *hydrography*,

AND ALSO: • land registry • valuation • tenure • state land, ALL UNDER ONE ORGANIZATION

DLS is consistently working to produce high-quality data & adopt new technologies to stay aligned with emerging developments





Thank you

QUESTIONS?



REPUBLIC OF
CYPRUS



DEPARTMENT OF
LANDS AND SURVEYS



kdemetriou@dls.moi.gov.cy