



DAIMON2

Decision Support System (DSS)

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Decision Support System for Marine Munitions

2

Support a case-to-case decisions for munition findings

Expert knowlege from multiple research projects

Data collection and provision

Risk assessments & analysis

Recommended management options

Integrated into the Ammunition Cadastre Sea – AmuCad.org

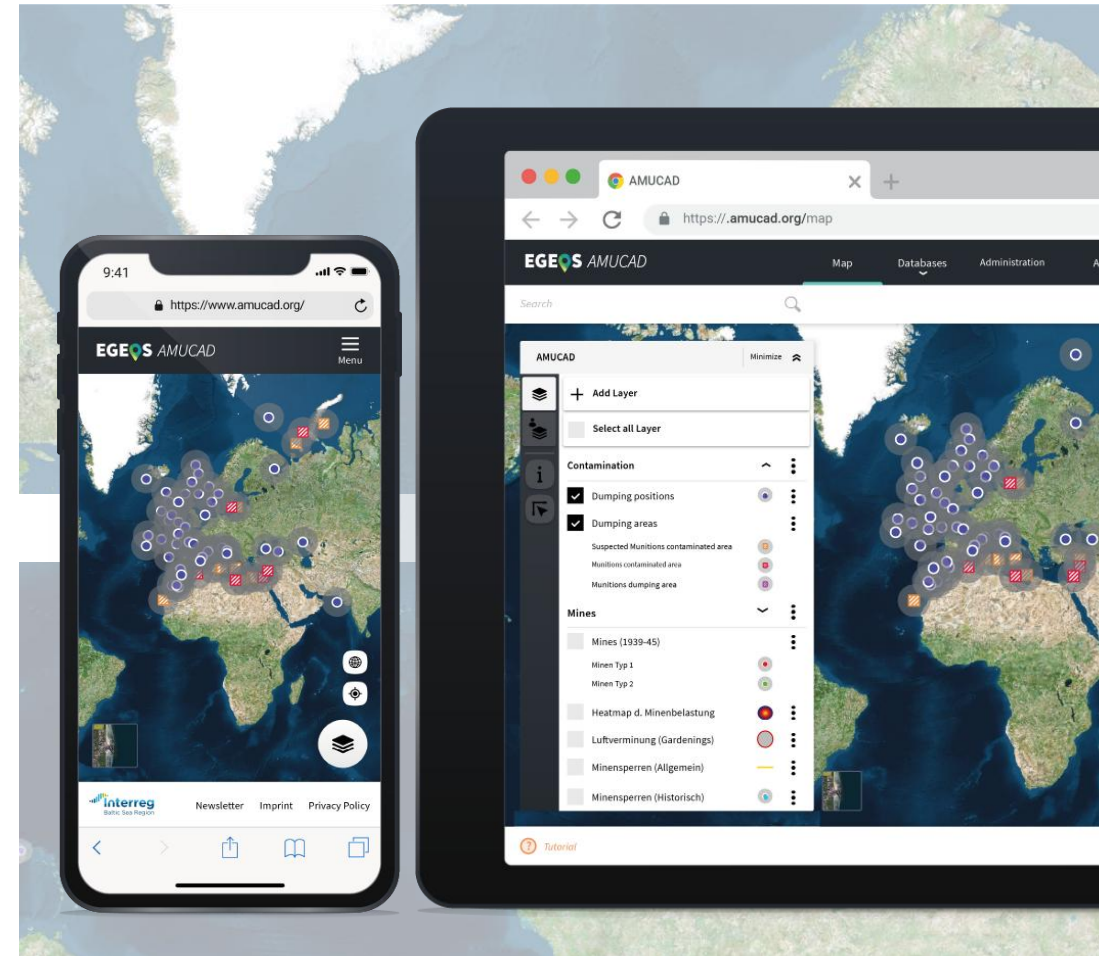


Combination of globally available data sets on the topic of munitions in the sea

Implementation of national and international research projects

Digital Hub for authorities, research, economy and military

www.AmuCad.org



Databases	
Documents	Maps
Munitions	Ships
Chemicals	
Locations	



Research Projects
DAIMON
NorthSeaWrecks
BASTA
ERPAD
*CONMAR

Research Project Associations	
UDEM	EXPLOTECT

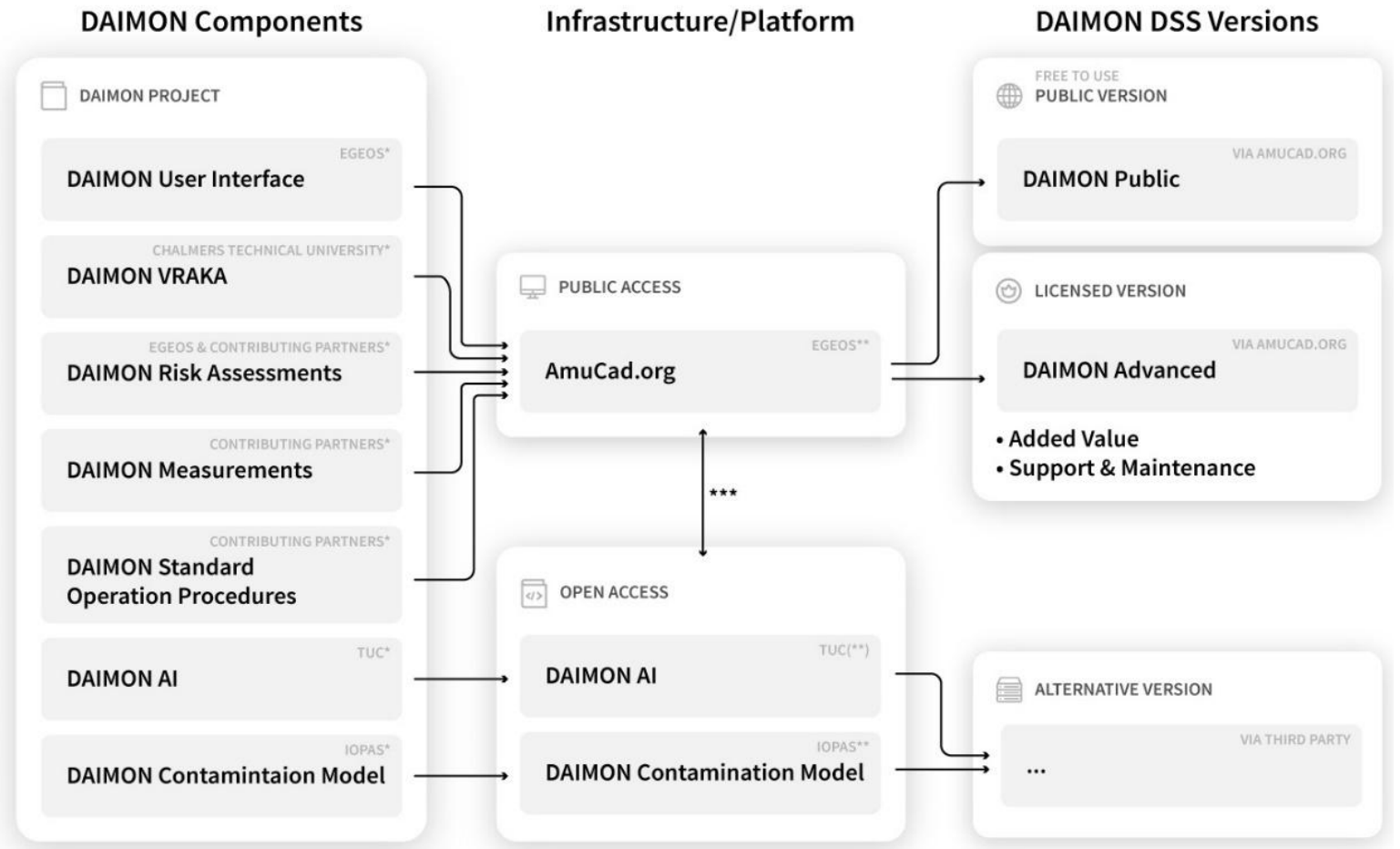
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Decision Support System for Marine Munitions

DAIMON DSS consists of several components

Open access of the key individual parts of the system

Public accessibility of the complete system via AmuCad.org



Biological Parameters

Parameters	Number of Samples	Search Radius (km)	Risk class
Fishes (CF Assessment)	144	30	Low
Fishes (LHI Assessment)	1	30	High
Fishes (ERY Assessment)	3	30	Very low
Fishes (HB Assessment)	3	30	Very low
Fishes (GLU Assessment)	3	30	Very low
Fishes (HCT Assessment)	3	30	Low
Fishes (FDI)	245	30	Low

Biodiversity			
Benthic Habitat	Low	HELCOM	
Pelagic Habitat	Very low	HELCOM	
Fish Assessment	Very low	HELCOM	
Harbour Porpoise Distribution	Average	HELCOM	

Shipping

Traffic intensity					
All	High	HELCOM	Passenger	High	HELCOM
Cargo	High	HELCOM	Rorocargo	Low	HELCOM
Container	High	HELCOM	Service	High	HELCOM
Fishing	Low	HELCOM	Tanker	High	HELCOM
Other	High	HELCOM			

Fishing

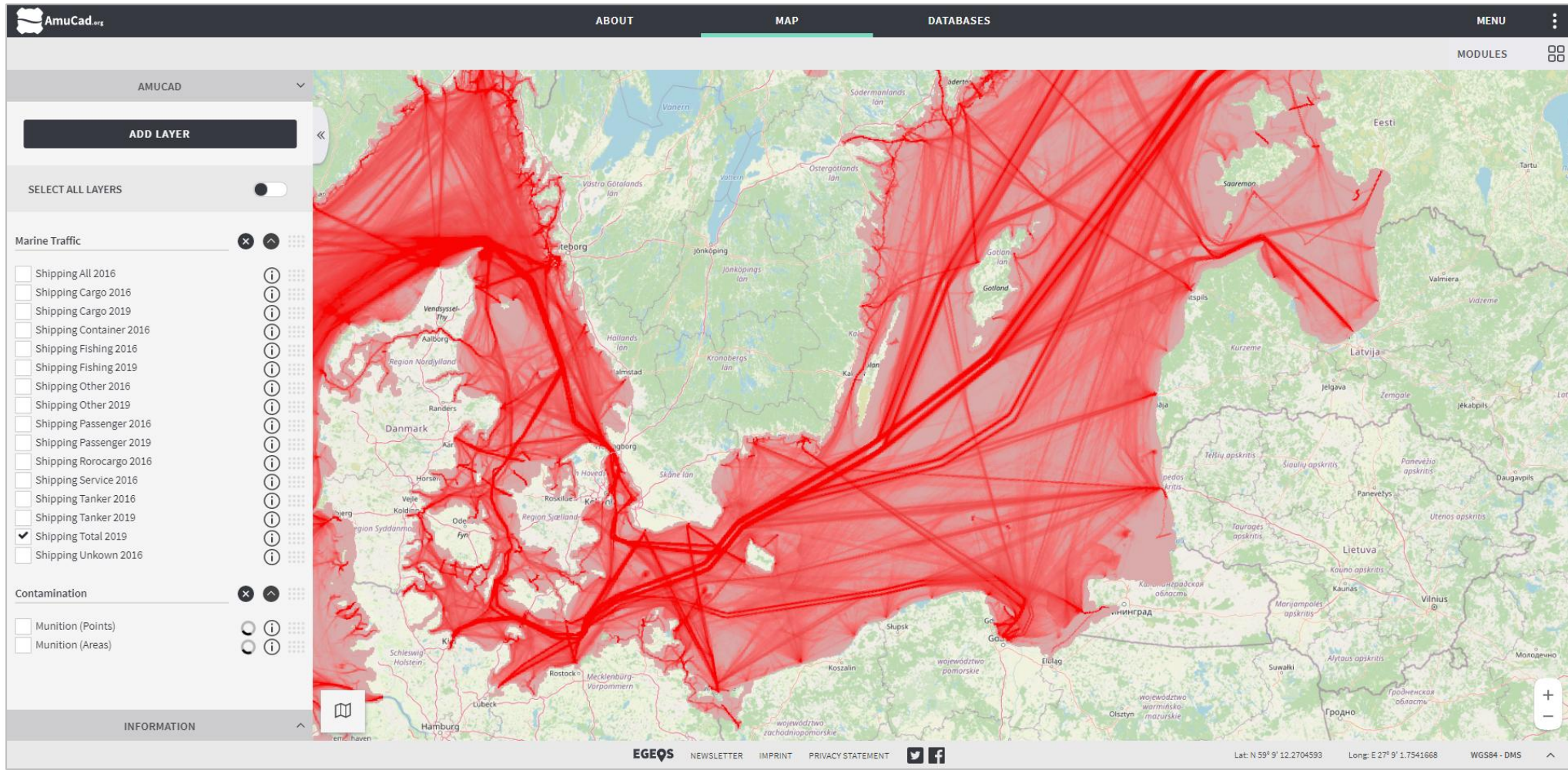
Fisheries			
Bottom Trawling	Very low	HELCOM	
Surface & Midwater	Very low	HELCOM	
Coastal & Stationary	Very low	HELCOM	

Physical information

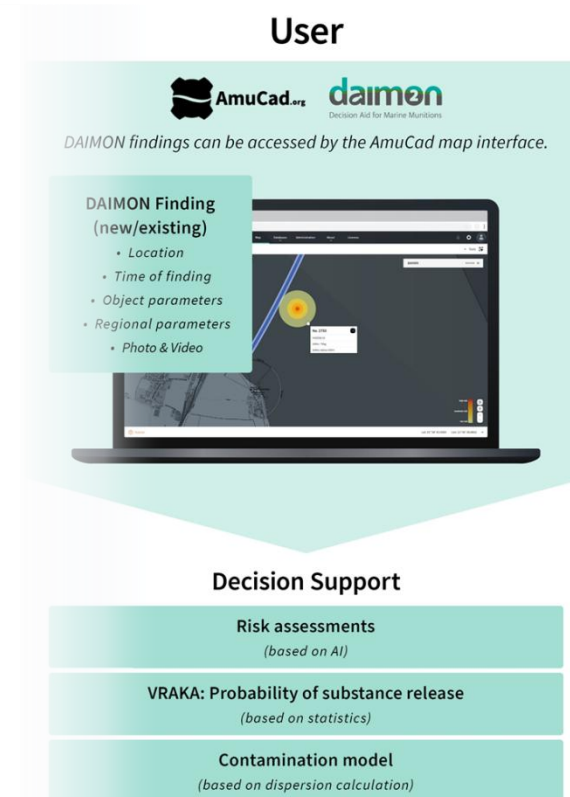
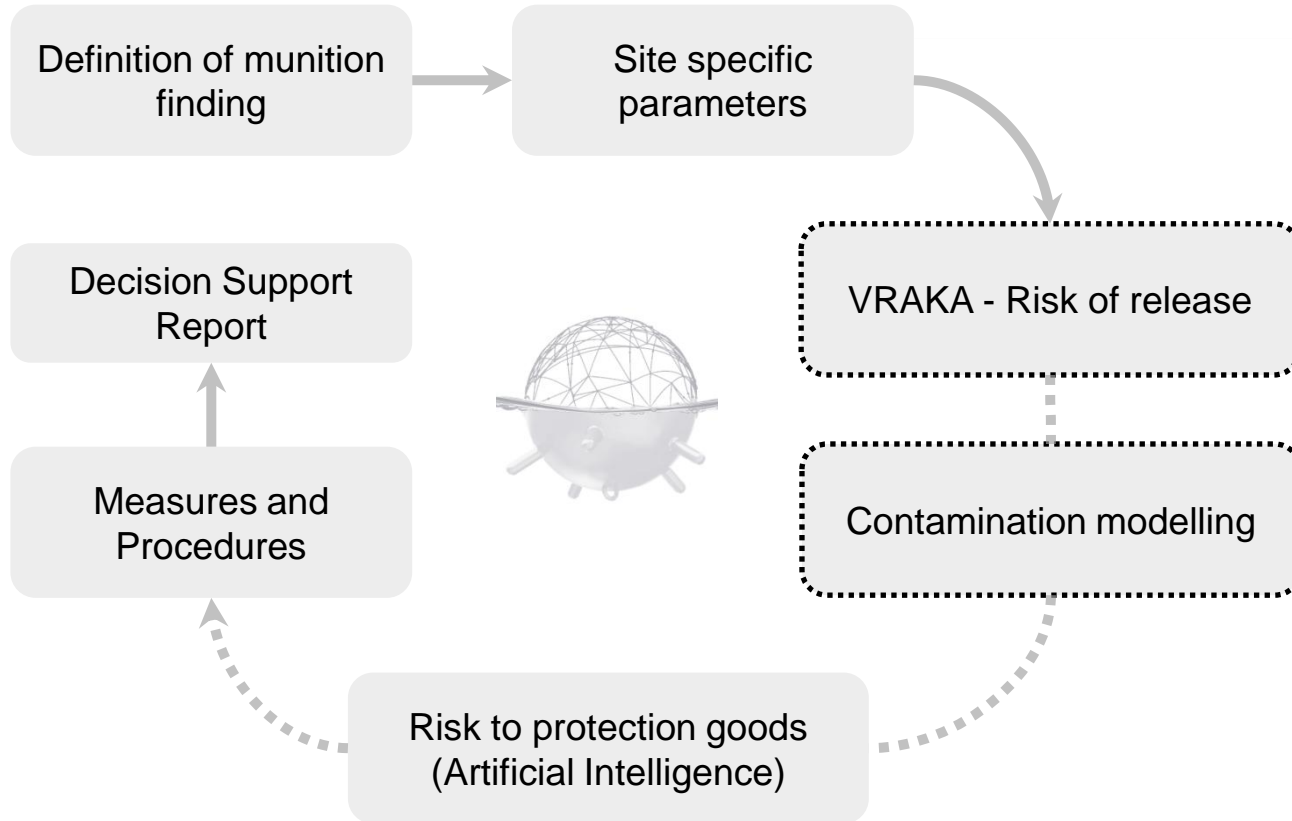
Physical features			
Seabed Slope	Unknown		
Anoxic Probability	Very low		
Oxygen Level Probability	Unknown		
	Mean	Dev.	Source
Current Velocity	0.01	0.01	IOW
Salinity	18.23	2.02	IOW
Temperature	9.86	6.03	IOW

Infrastructure

Infrastructure			
Group: Bathing			
Source: HELCOM			
7873.25 m	3624.51 m	2331.57 m	
7620.65 m	3414.74 m	6281.40 m	
6446.27 m	2833.01 m	9027.56 m	
5053.42 m	9479.09 m		
Group: Pipelines			
unknown: 4949.33 m			
Group: Cables			
Denmark-Poland 2: 7597.57 m			



DAIMON Decision Support System

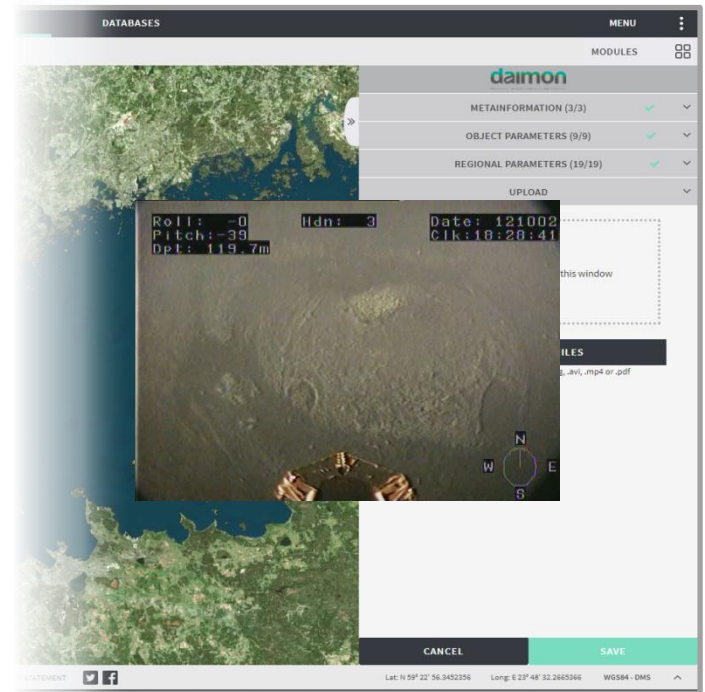
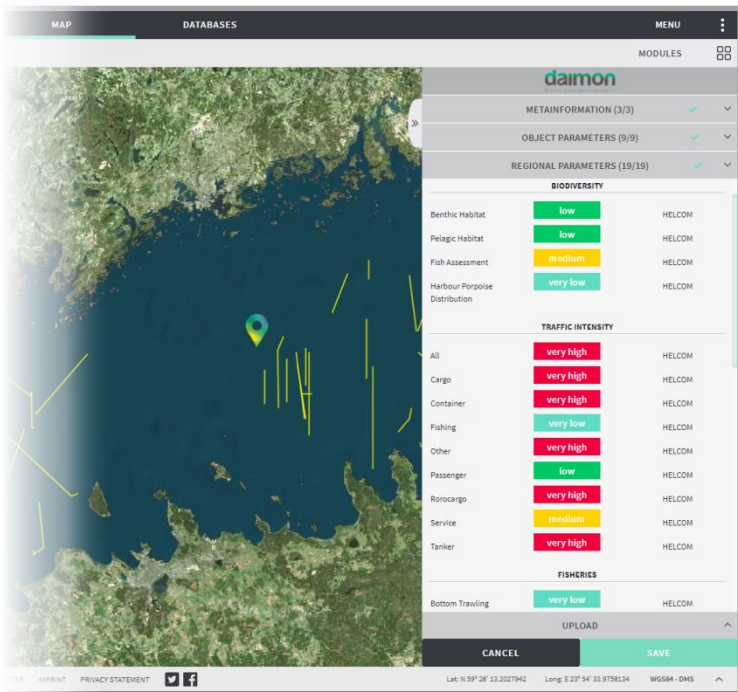
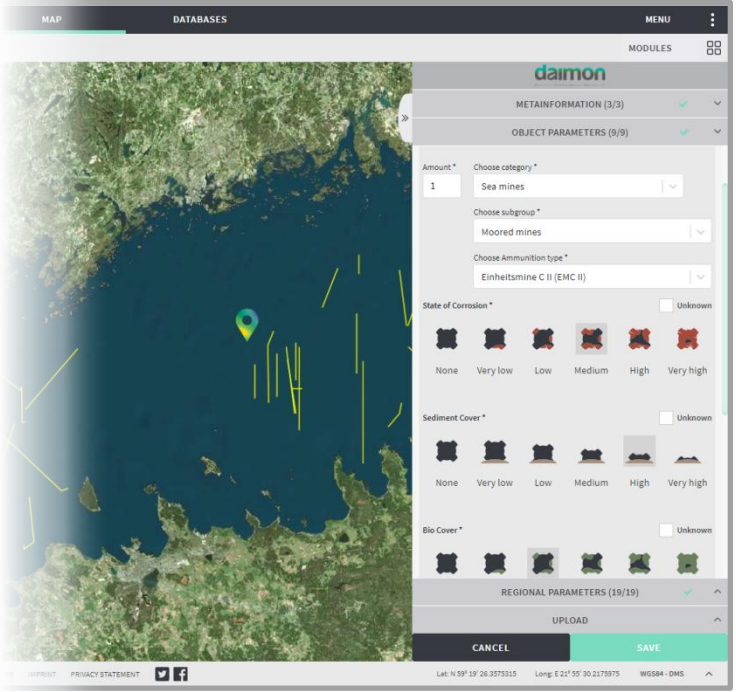


Munition findings

Finding type, location & condition

Site specific parameters

Visual material



Munition findings

The screenshot displays the AmuCad.org web application interface. At the top, there is a navigation bar with the AmuCad.org logo and menu items: ABOUT, MAP, DATABASES, and MENU. The main area is a map of the Baltic Sea region, showing various countries and regions including Denmark, Sweden, Poland, and parts of Germany and the Baltic states. The map is overlaid with several data layers, including munition findings (represented by orange and red shapes and points), contacts (blue points), fishes (yellow points), and sediments (brown shaded areas). A sidebar on the right contains logos for daimon and Interreg, a 'NEW FINDING' button, a 'SELECT ALL LAYERS' toggle, and a list of layers with checkboxes: Ammunitions, Contacts, Fishes, and Sediments. At the bottom right, there is an 'INFORMATION' panel showing coordinates (Lat: N 57° 40' 54.3417919, Long: E 5° 5' 18.4355098) and the coordinate system (WGS84 - DMS). The footer of the application includes the EGEOS logo, links for NEWSLETTER, IMPRINT, and PRIVACY STATEMENT, and social media icons for Twitter and Facebook.

VRAKA-CWA

The screenshot displays the DAIMON software interface. On the left, a map shows the location. The main content area is divided into several sections:

- EXPLANATIONS:** Text describing the assessment results, including a 68.0% probability mean value and a 95% certainty range.
- Probability of release (cumulative):** A line graph showing the cumulative probability of release versus the probability of opening. The mean value is 68.0%, and the 95% certainty range is between 33.32% and 98.38%.
- Probability of release, contribution for each activity:** A bar chart showing the contribution of various activities to the total probability of release. The highest contribution is from 'Handling' at 79.89%.
- Object Parameters:** A list of parameters for the assessment, including Sample Code (No2990), Object Type (Ammunition), Date of Detection (2020-11-03 10:55), Confidence of dataset (69), and Ammunition type (A Mark VI - F642/23C).
- Buttons:** Three buttons are visible: 'VRAKA MODEL', 'CONTAMINATION MODEL', and 'DECISION SUPPORT SYSTEM'.

AmuCad.org

ABOUT MAP DATABASES MENU

AMUCAD

ADD LAYER

DESELECT ALL LAYERS

Contamination

- Munition (Points)
- Munition (Areas)

INFORMATION

EGEOS NEWSLETTER IMPRINT PRIVACY STATEMENT

Let: N 54° 42' 34.3059521 Long: E 12° 29' 18.8338985 WGS84 - DMS

MODULES

INFORMATION

Sample Code	No3269
Object Type	Ammunition
Date of Detection	2021-06-14 10:17
Description	Test
Confidence of dataset	60

Object Parameters

Ammunition type	Unknown
Bio cover:	No value given
Corrosion level:	= 40 (in %)
Sediment cover:	= 60 (in %)
TNT Equivalent:	No value given
Charges:	No value given
Location:	No value given

VRAKA MODEL

CONTAMINATION MODEL

DECISION SUPPORT SYSTEM

VRAKA-CWA

Contamination Model

Contamination Model (IOPAN)



AmuCad.org

ABOUT MAP DATABASES MENU

AMUCAD

ADD LAYER

DESELECT ALL LAYERS

Contamination

- Munition (Points)
- Munition (Areas)

Information

Modules: daimon, Interreg

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VRAKA MODEL

CONTAMINATION MODEL

DECISION SUPPORT SYSTEM

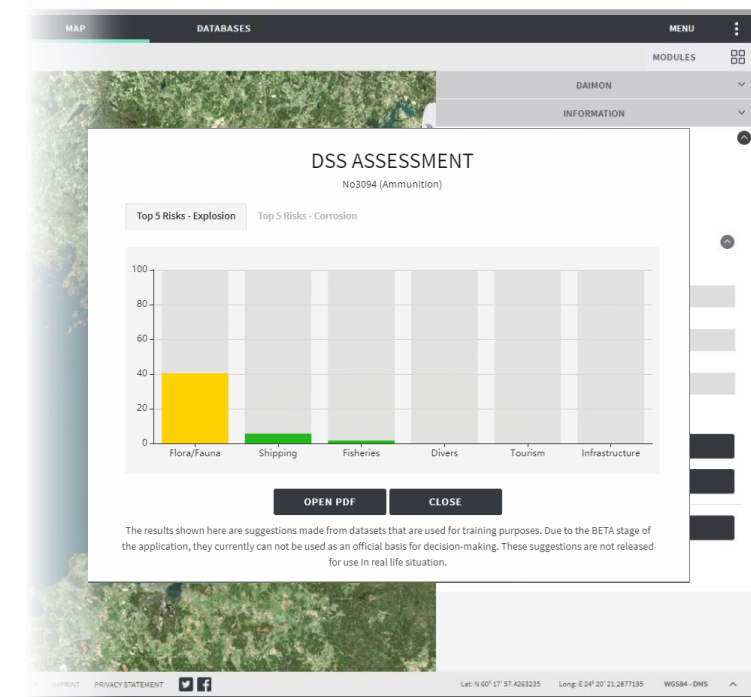
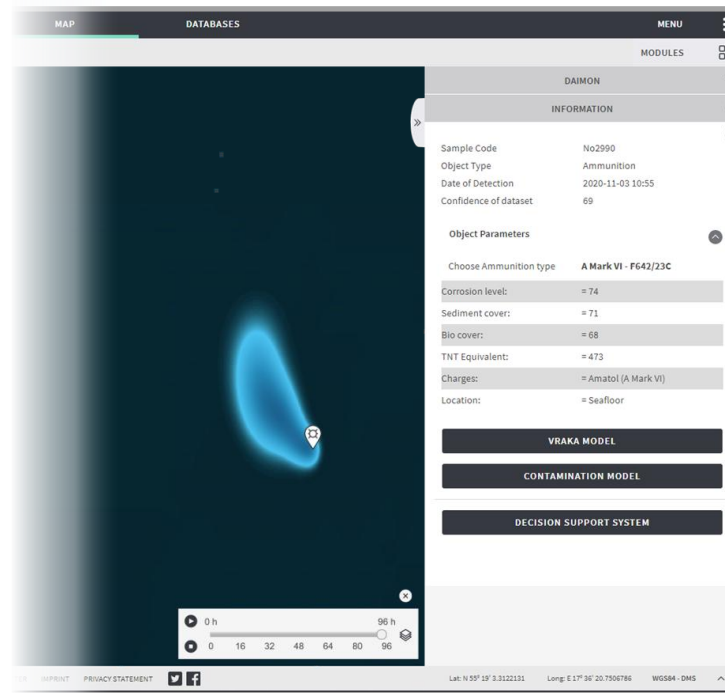
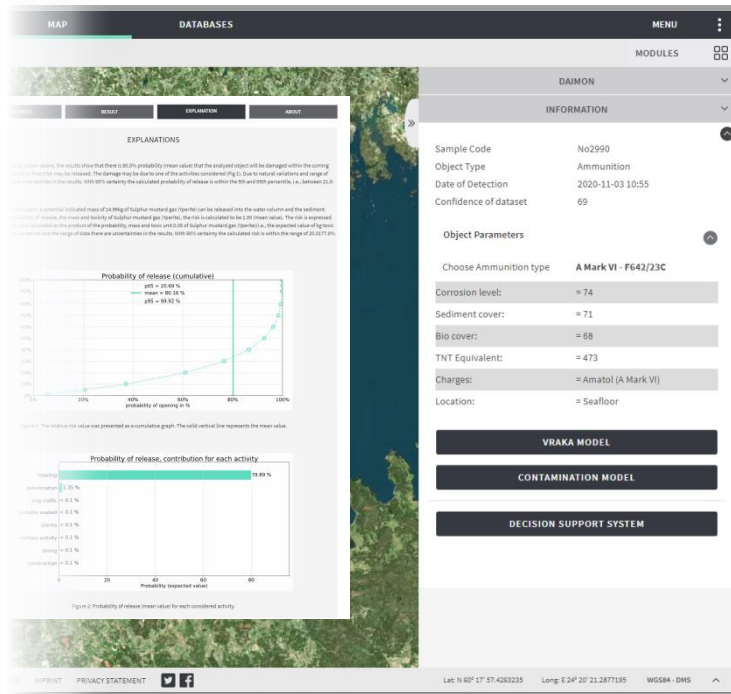
EGEQS NEWSLETTER IMPRINT PRIVACY STATEMENT

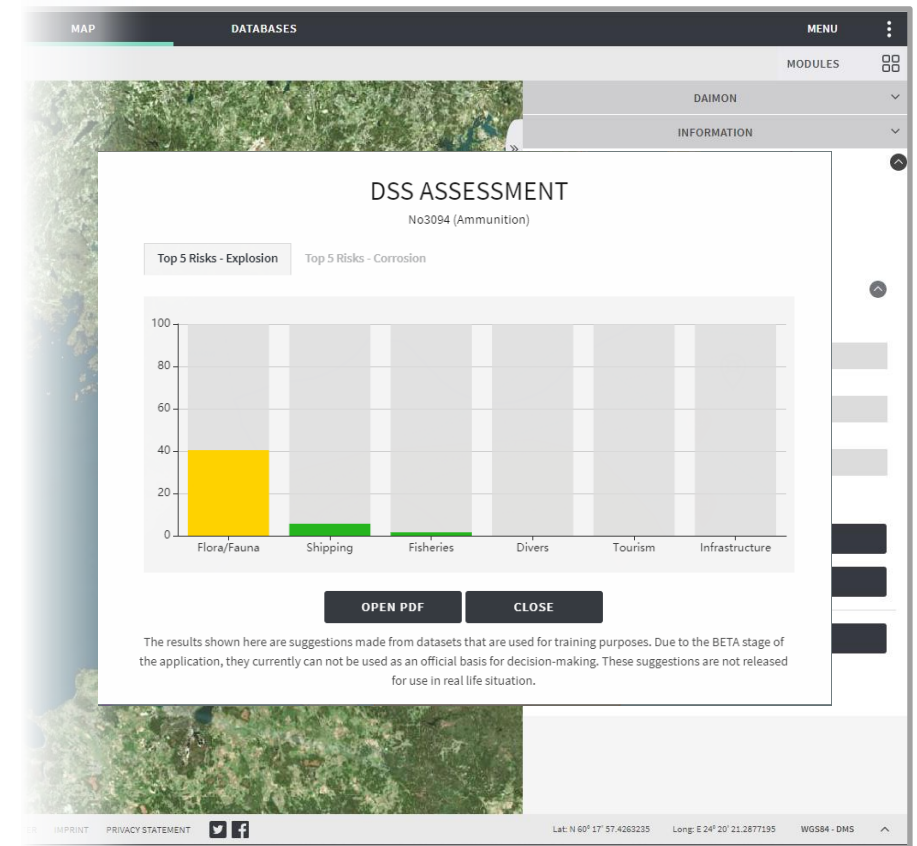
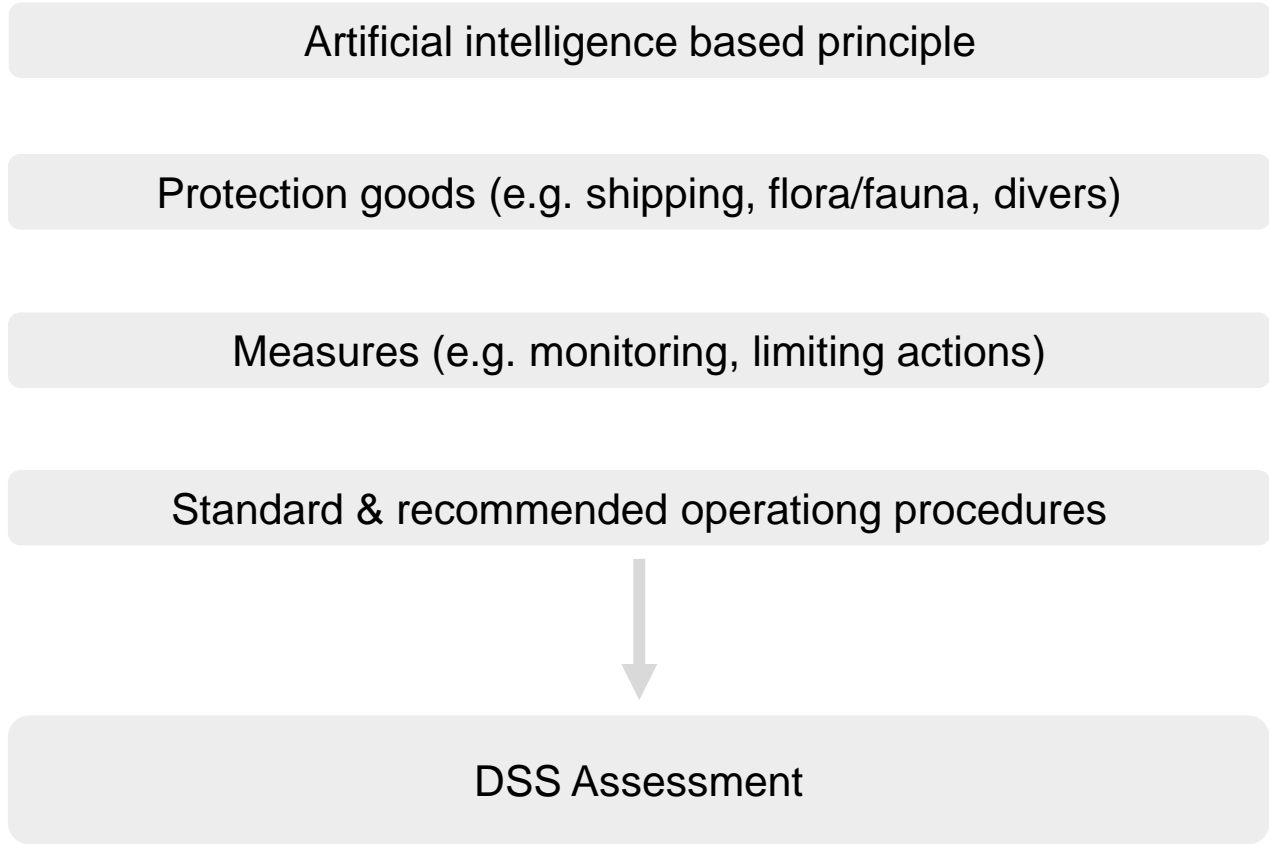
Lat: N 54° 51' 40.4179647 Long: E 13° 28' 9.1339950 WGS84 - DMS

VRAKA-CWA

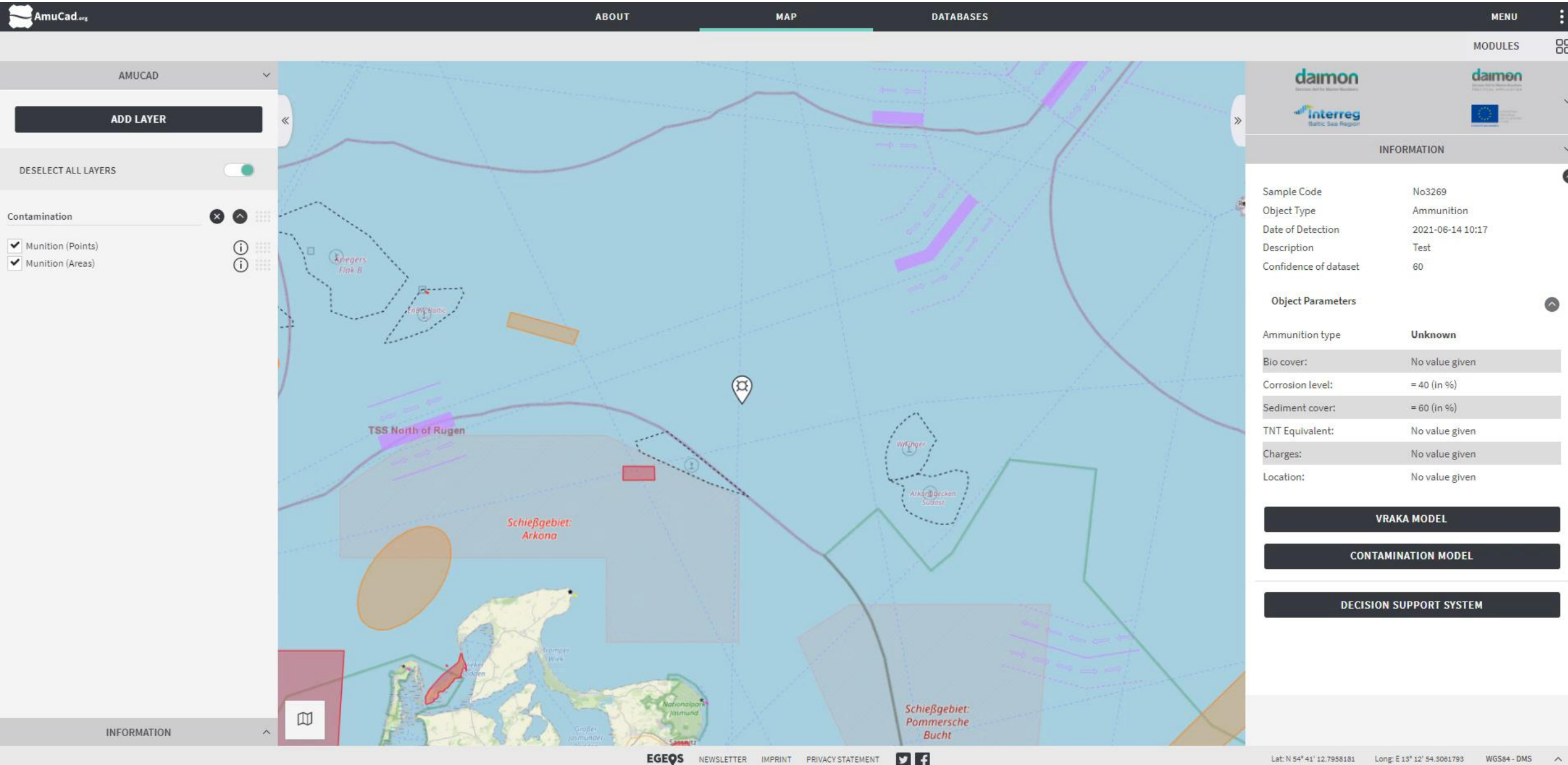
Contamination Model

Risk assessment & Measures





Risk Assessments (Clausthal University of Technology)



The screenshot displays the AmuCad web application interface. The top navigation bar includes 'ABOUT', 'MAP', 'DATABASES', and 'MENU'. The left sidebar contains a layer management panel with an 'ADD LAYER' button, a 'DESELECT ALL LAYERS' toggle, and a 'Contamination' section with checkboxes for 'Munition (Points)' and 'Munition (Areas)'. The main map area shows a coastal region with various colored overlays: a large grey area labeled 'TSS North of Rugen', a red area labeled 'Schießgebiet: Arkona', and a brown area labeled 'Schießgebiet: Pommersche Bucht'. Other labels include 'Kriegers Flak B', 'Arkona Becken Südost', and 'Nationalpark Jasmund'. The right sidebar features logos for 'daimon' and 'interreg', an 'INFORMATION' section with a table of metadata, and three large buttons: 'VRAKA MODEL', 'CONTAMINATION MODEL', and 'DECISION SUPPORT SYSTEM'. The bottom of the page contains a footer with 'EGEOS', 'NEWSLETTER', 'IMPRINT', 'PRIVACY STATEMENT', social media icons, and coordinates: 'Lat: N 54° 41' 12.7958181 Long: E 13° 12' 54.3061795 WGS84 - DMS'.

AMUCAD

ADD LAYER

DESELECT ALL LAYERS

Contamination

- Munition (Points)
- Munition (Areas)

ABOUT MAP DATABASES MENU

MODULES

daimon

interreg

INFORMATION

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VRAKA MODEL

CONTAMINATION MODEL

DECISION SUPPORT SYSTEM

INFORMATION

EGEOS NEWSLETTER IMPRINT PRIVACY STATEMENT

Lat: N 54° 41' 12.7958181 Long: E 13° 12' 54.3061795 WGS84 - DMS

Summary of all information

Risk assessments

Management options - Measures

Standard Operating Procedures

PDF – printable report



Public access



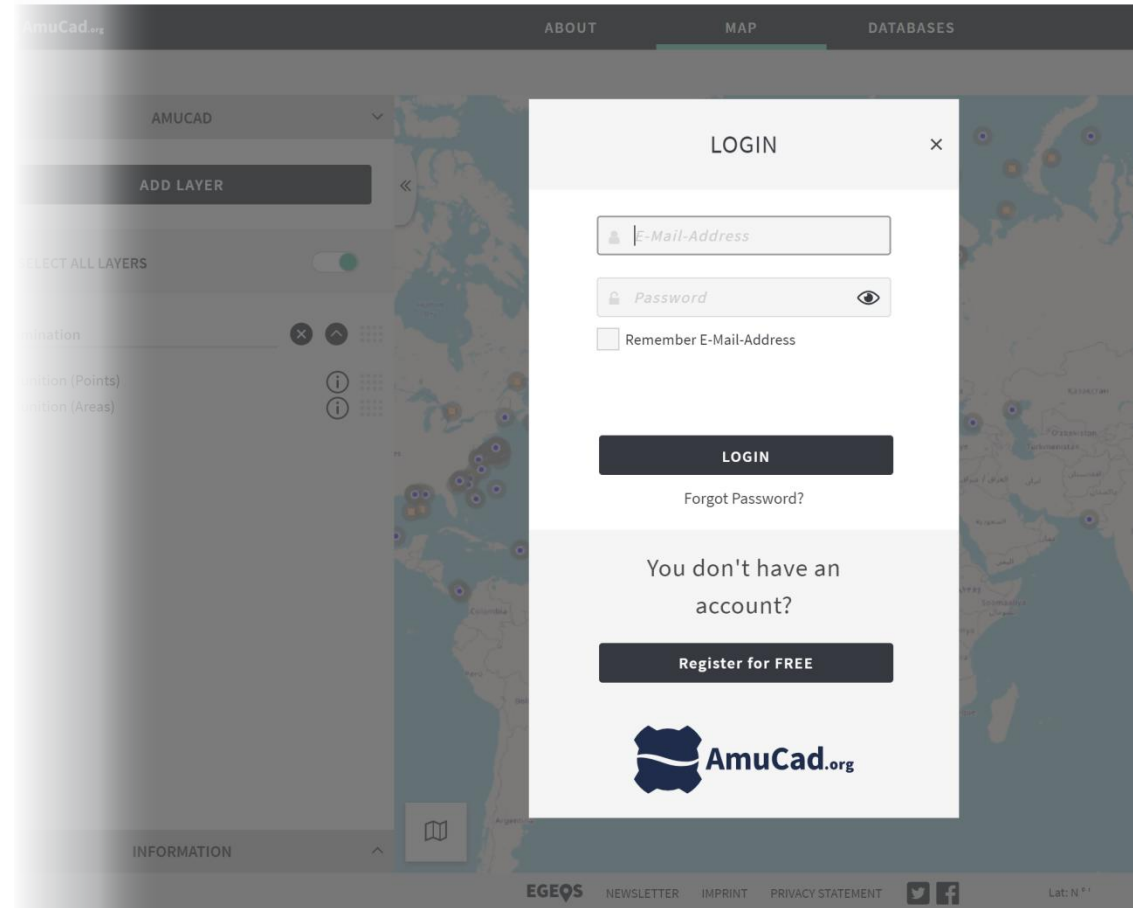
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Demonstrations & Trainings

Several trainings were conducted

Feedback was/is incorporated

Very valuable for the development



Until project end (31st of July 2021)

Implementation of storing munition objects for organizations

Stability and maintenance updates

Collection of expert assessments for better training of the artificial intelligence

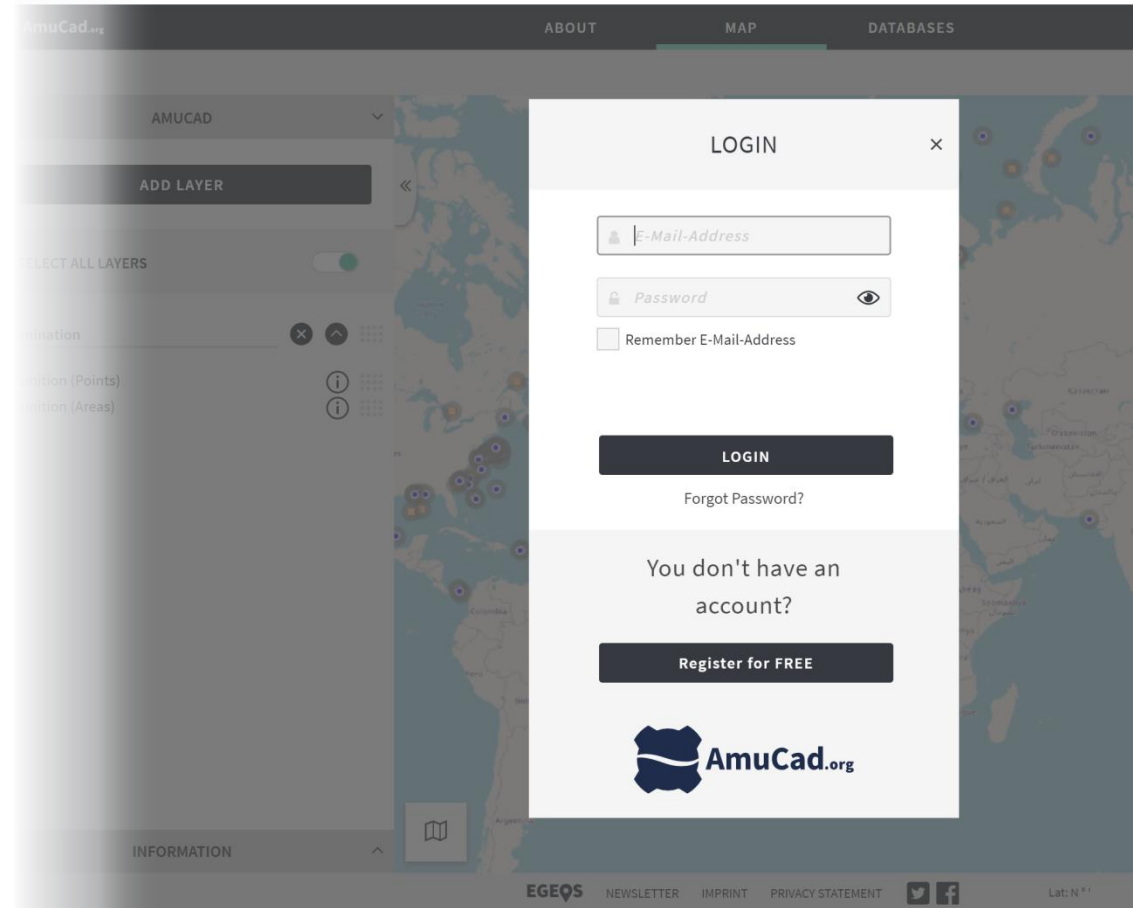
After project end

Development services around the free DAIMON DSS

Training courses

Maintenance & Support

Customizations



www.munitionclearanceweek.org



6 - 10 SEPTEMBER 2021 - KIEL

The international forum
for tackling the challenges of
offshore munition clearance

REGISTER INTEREST



daimon

Decision Aid for Marine Munitions
PRACTICAL APPLICATION

 **Interreg**
Baltic Sea Region



EUROPEAN UNION

EUROPEAN
REGIONAL
DEVELOPMENT
FUND

Thank you very much!

