Interreg Baltic Sea Region

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

daimon
Decision Aid for Marine Munitions
PRACTICAL APPLICATION

EU STRATEGY FOR THE BALTIC SEA REGION
FLAGSHIP

DAIMON2
Decision Support System (DSS)

Jann Wendt – EGEOS GmbH (Germany)

15.06.2021

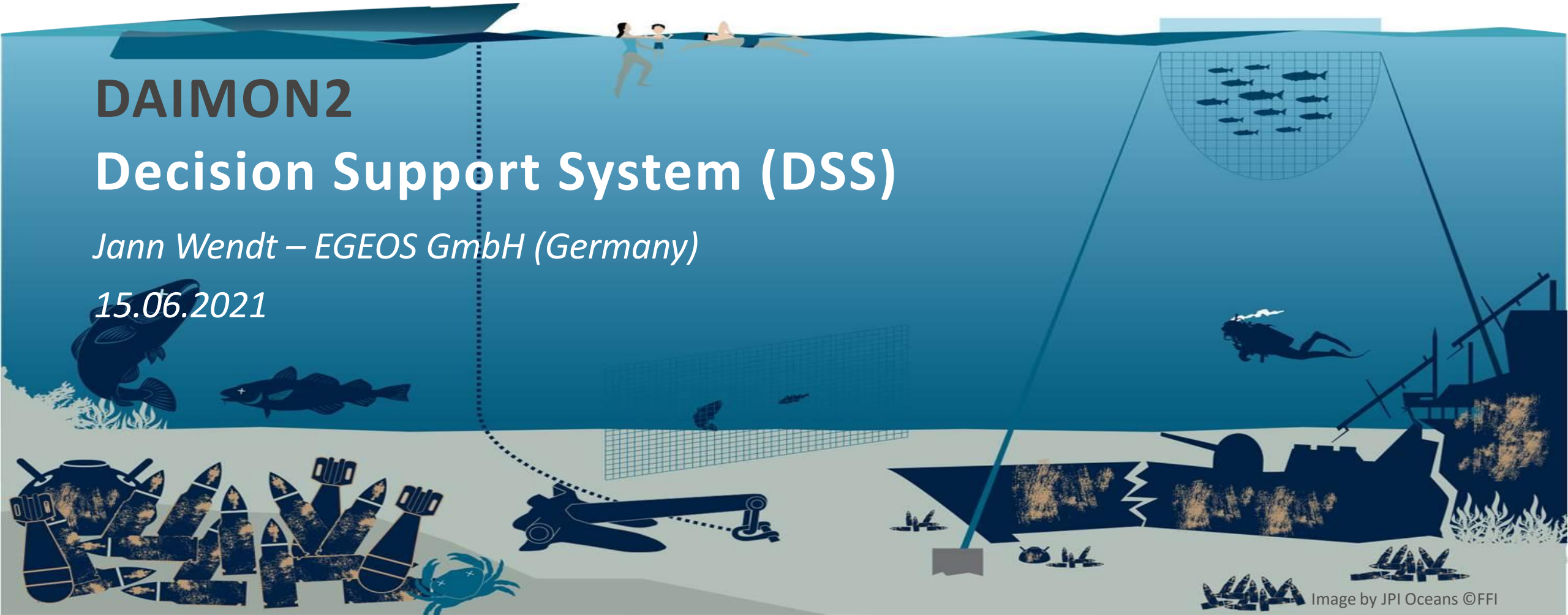

Image by JPI Oceans ©FFI

Decision Support System for Marine Munitions

- 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

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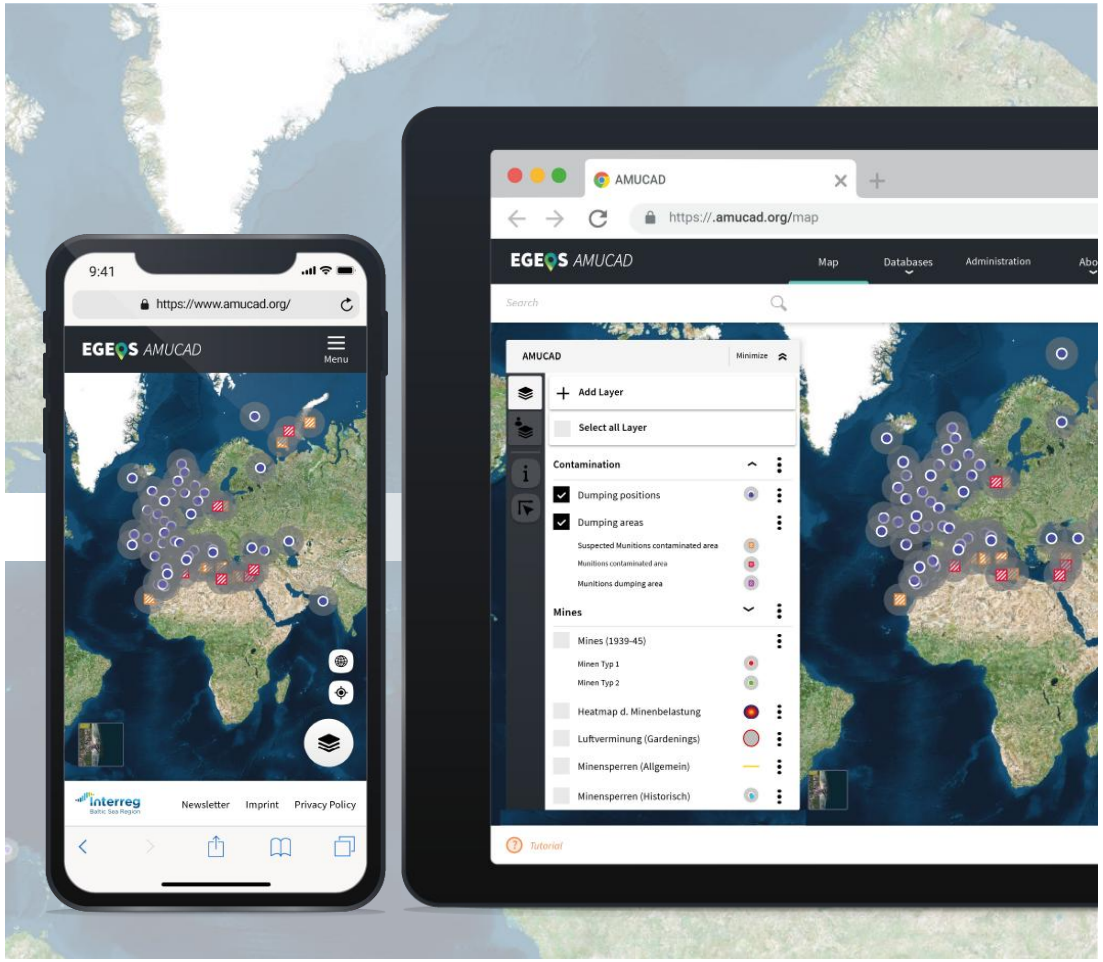
Ammunition Cadastre Sea – AmuCad.org

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



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Ammunition Cadastre Sea – AmuCad.org

Databases	
Documents	Maps
Munitions	Ships
Chemicals	
Locations	

AmuCad.org

Research Projects
DAIMON
NorthSeaWrecks
BASTA
ERPAD
*CONMAR

Research Project Associations	
UDEMM	EXPLOTECT

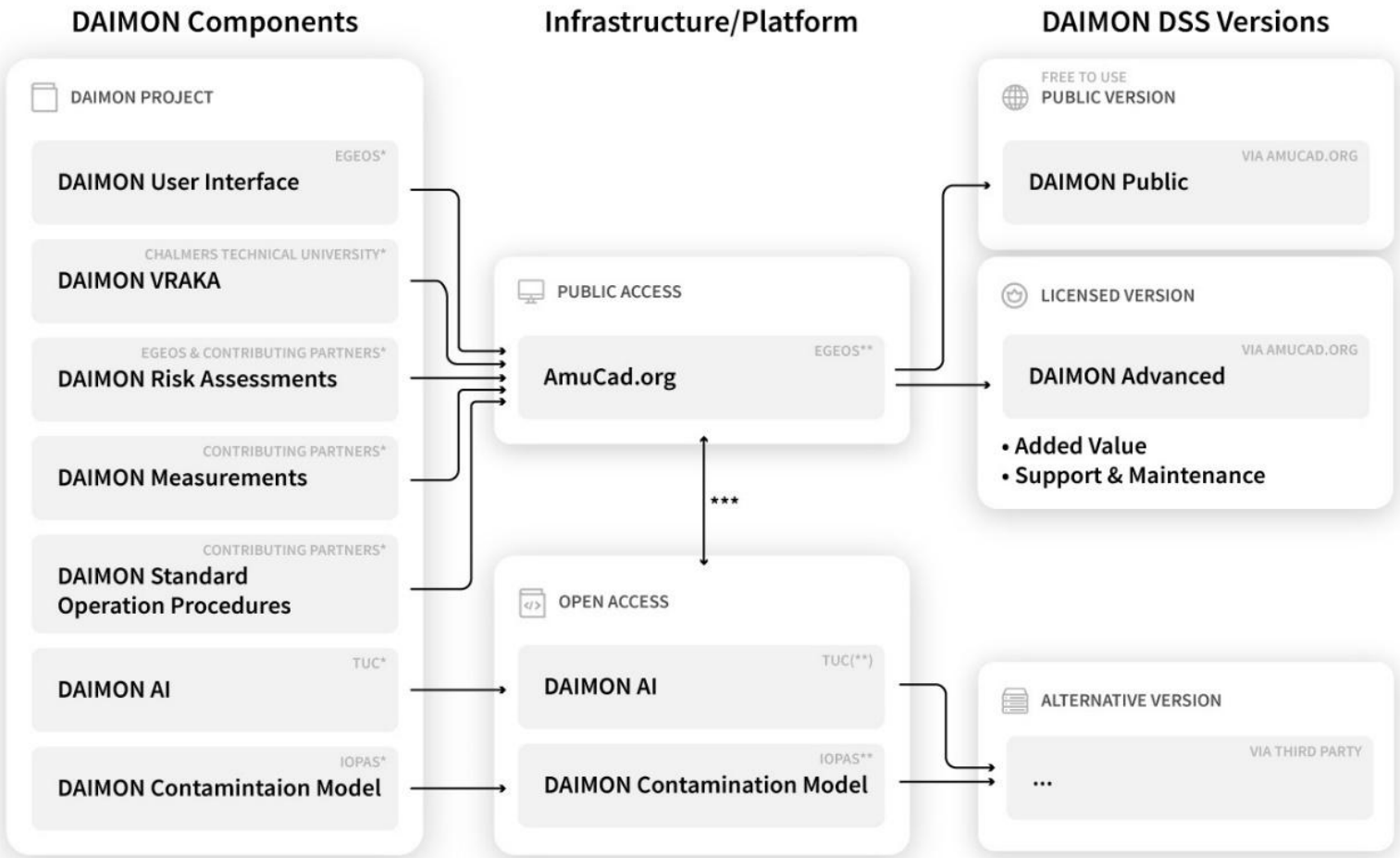
www.AmuCad.org

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



Input Datasets

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	

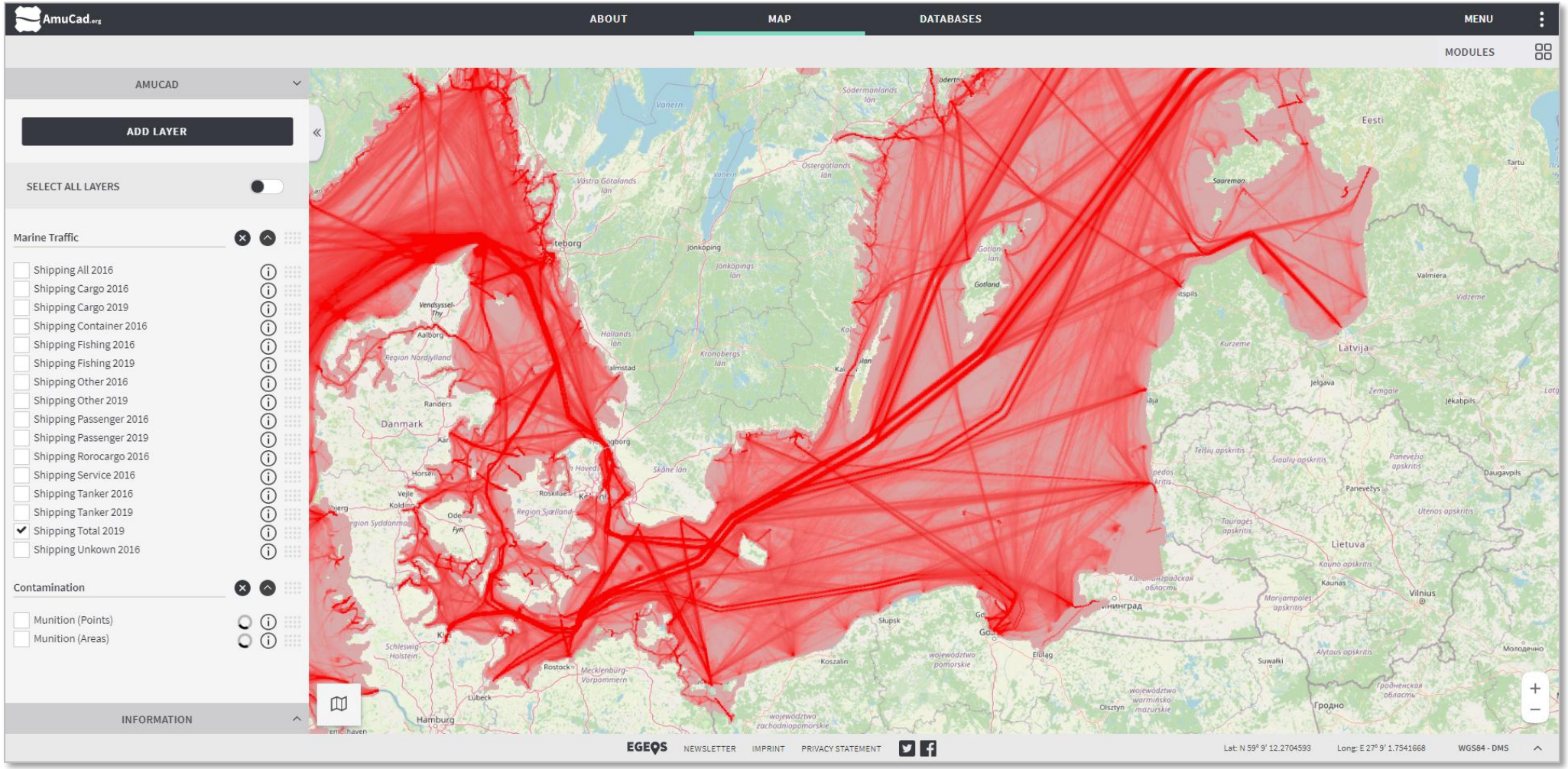
Group: Pipelines

unknown: 4949.33 m

Group: Cables

Denmark-Poland 2: 7597.57 m

Input Datasets



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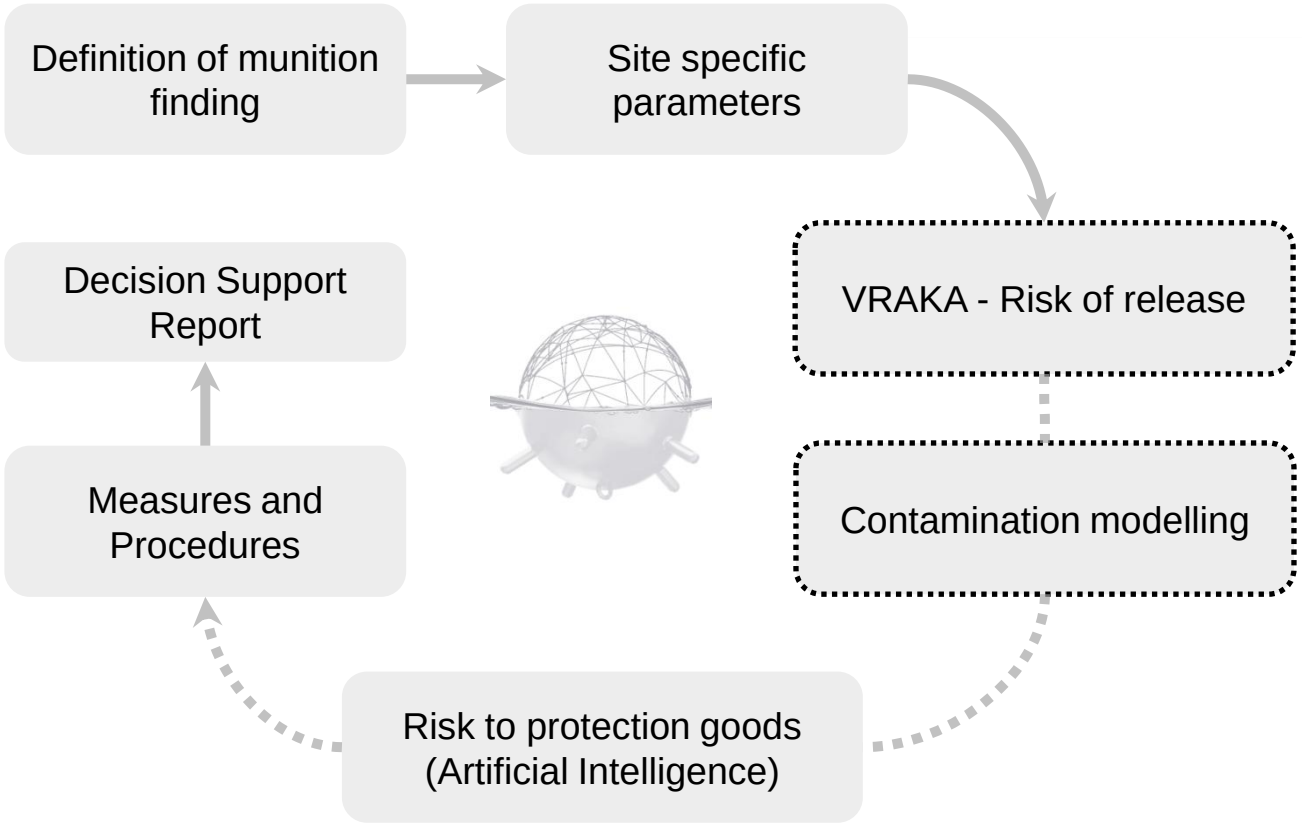
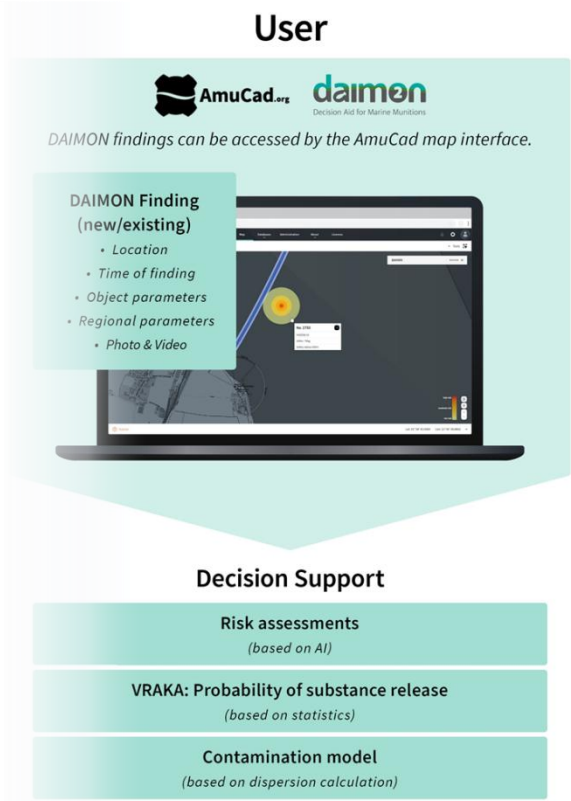
DAIMON Decision Support System



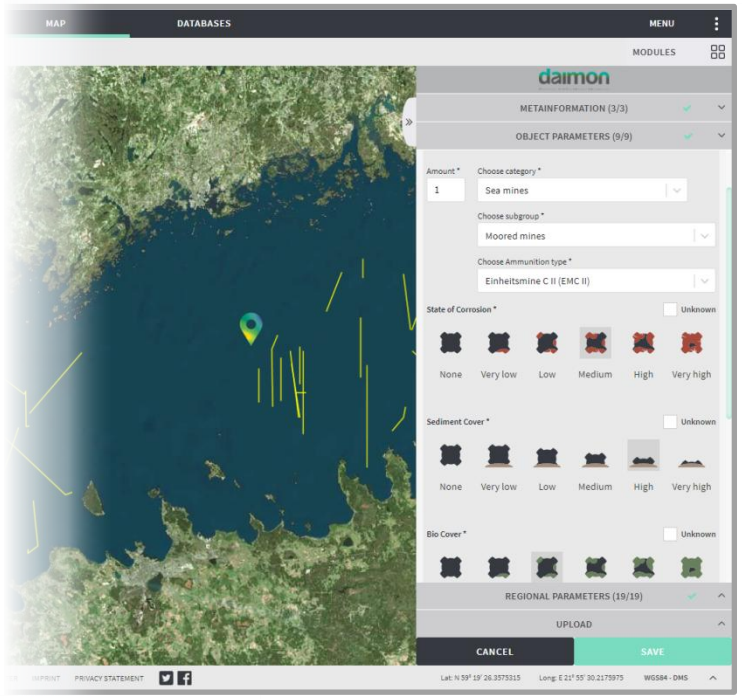


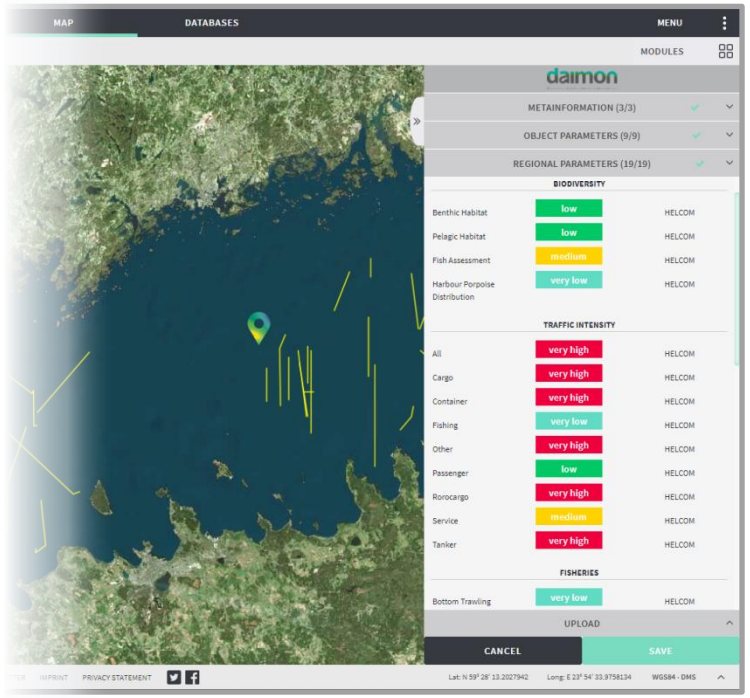
Munition findings

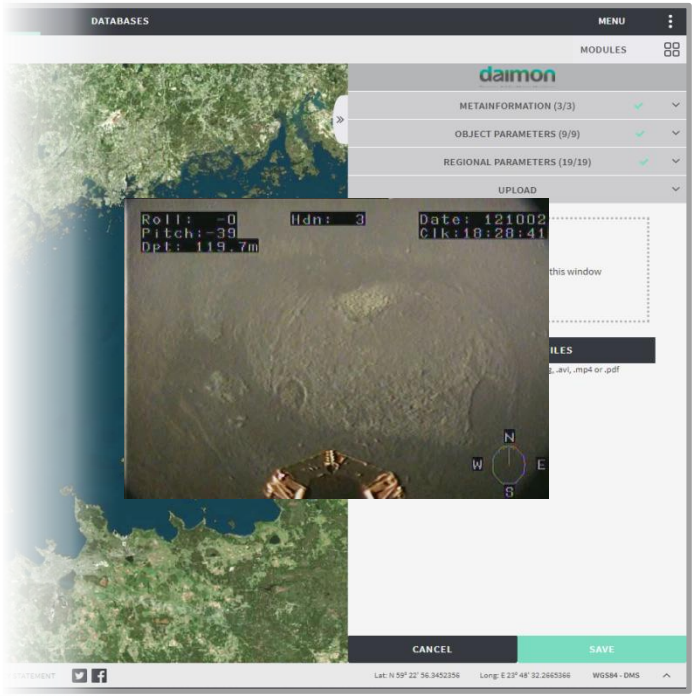
Finding type, location & condition

Site specific parameters

Visual material







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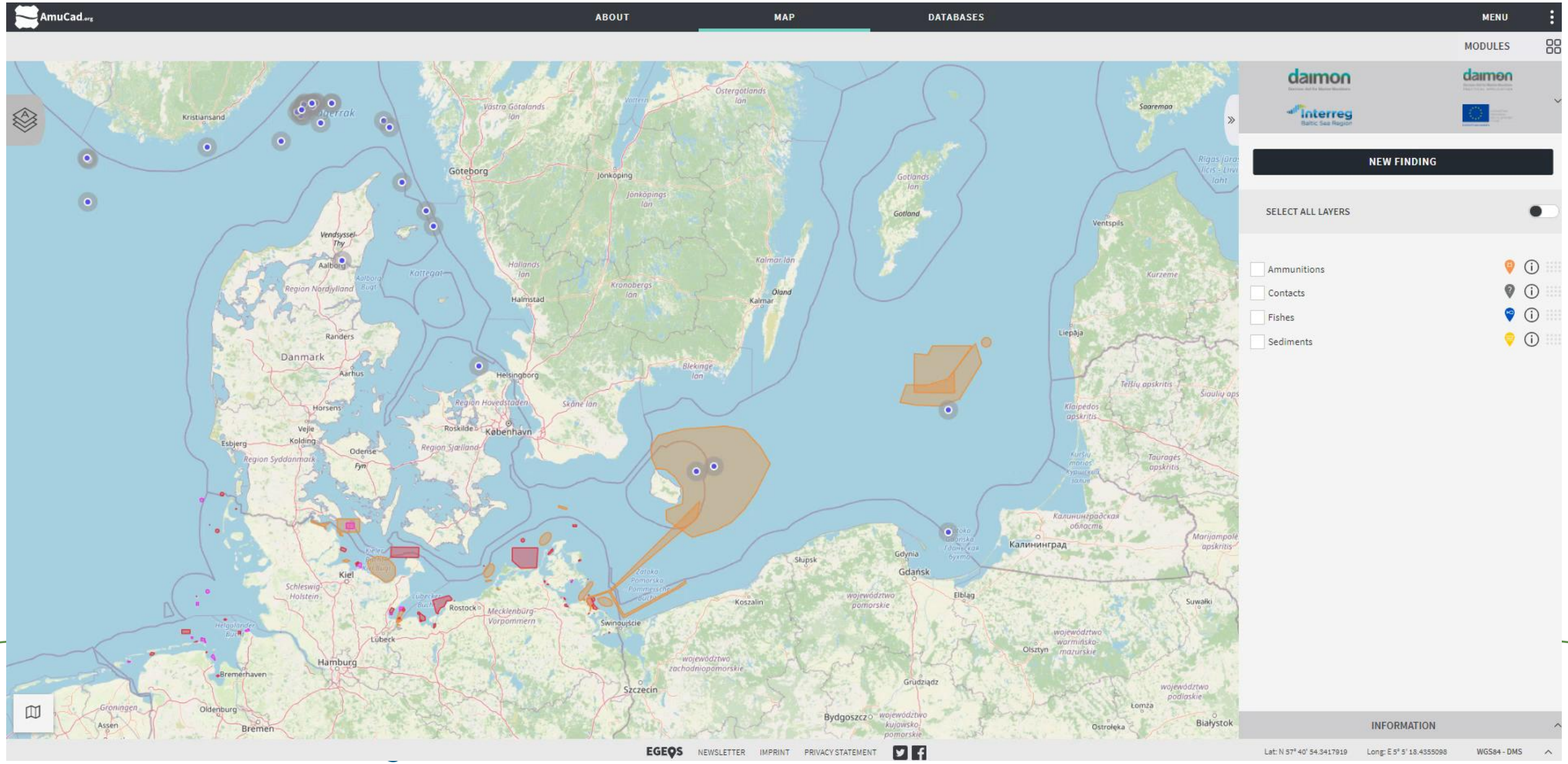
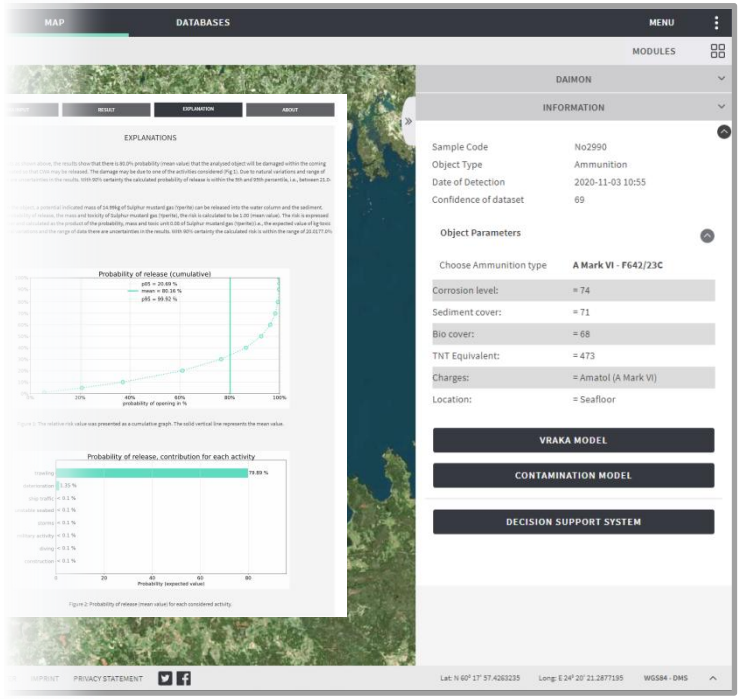
Munition findings



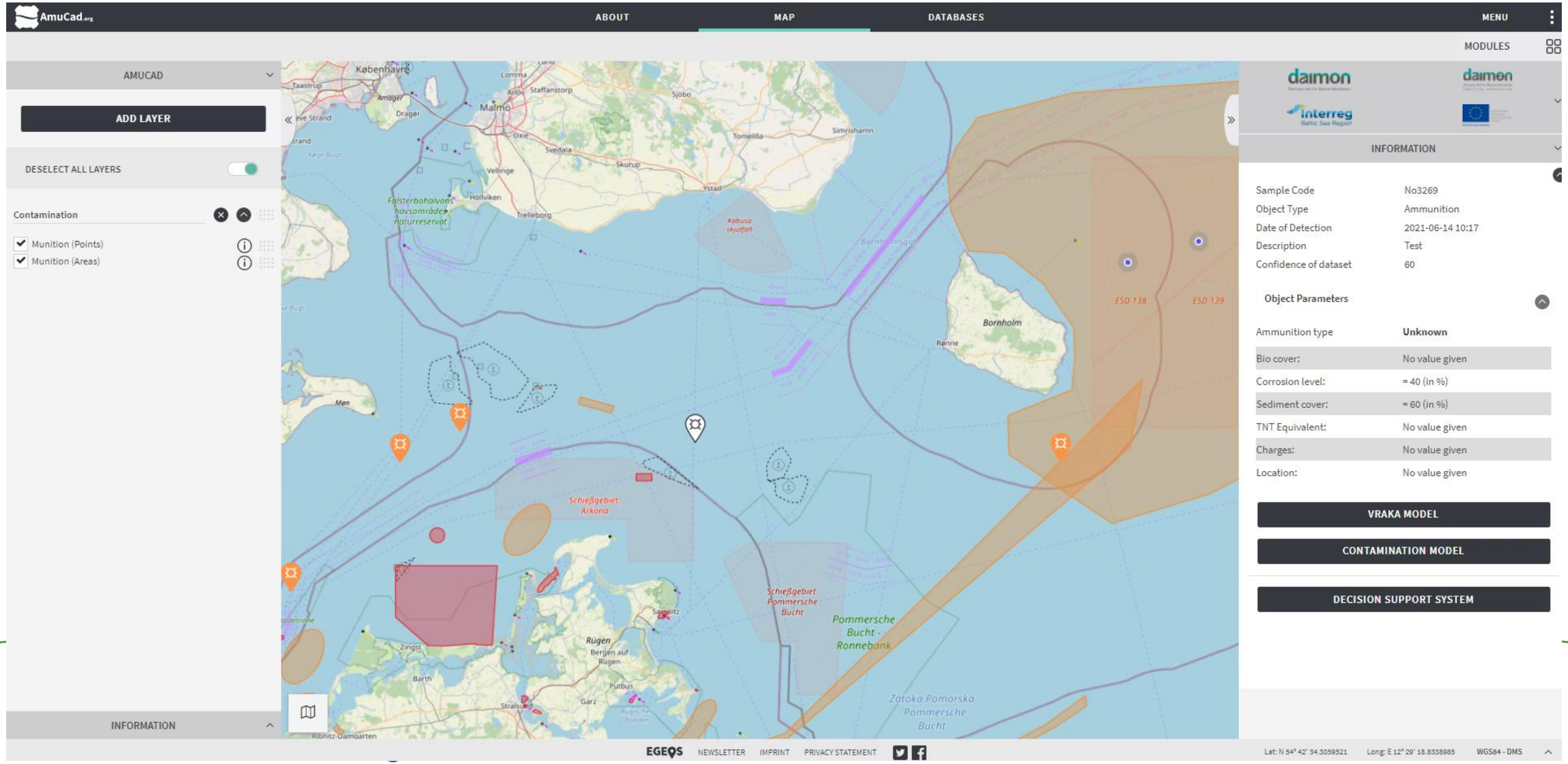
Assessments

VRAKA-CWA



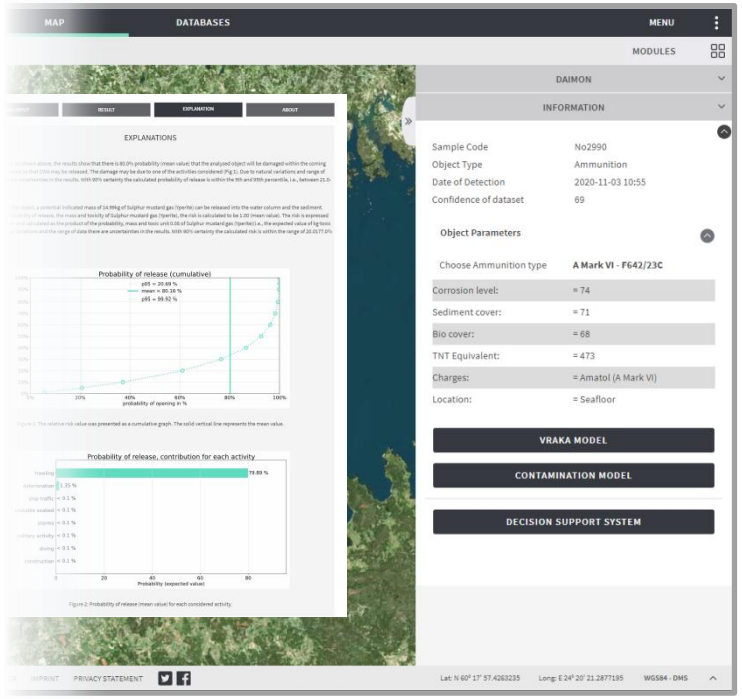
VRAKA-CWA (Chalmers University of Technology)

CHALMERS UNIVERSITY OF TECHNOLOGY

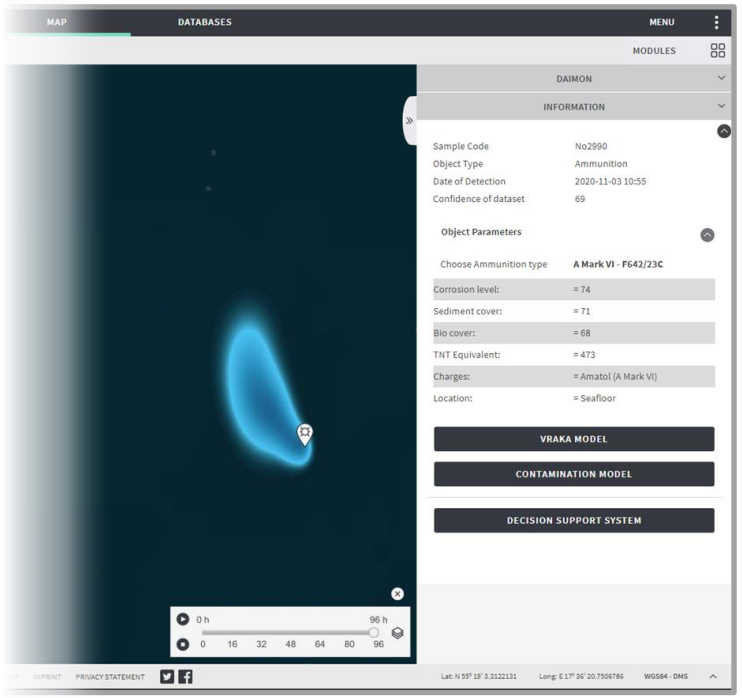


Assessments

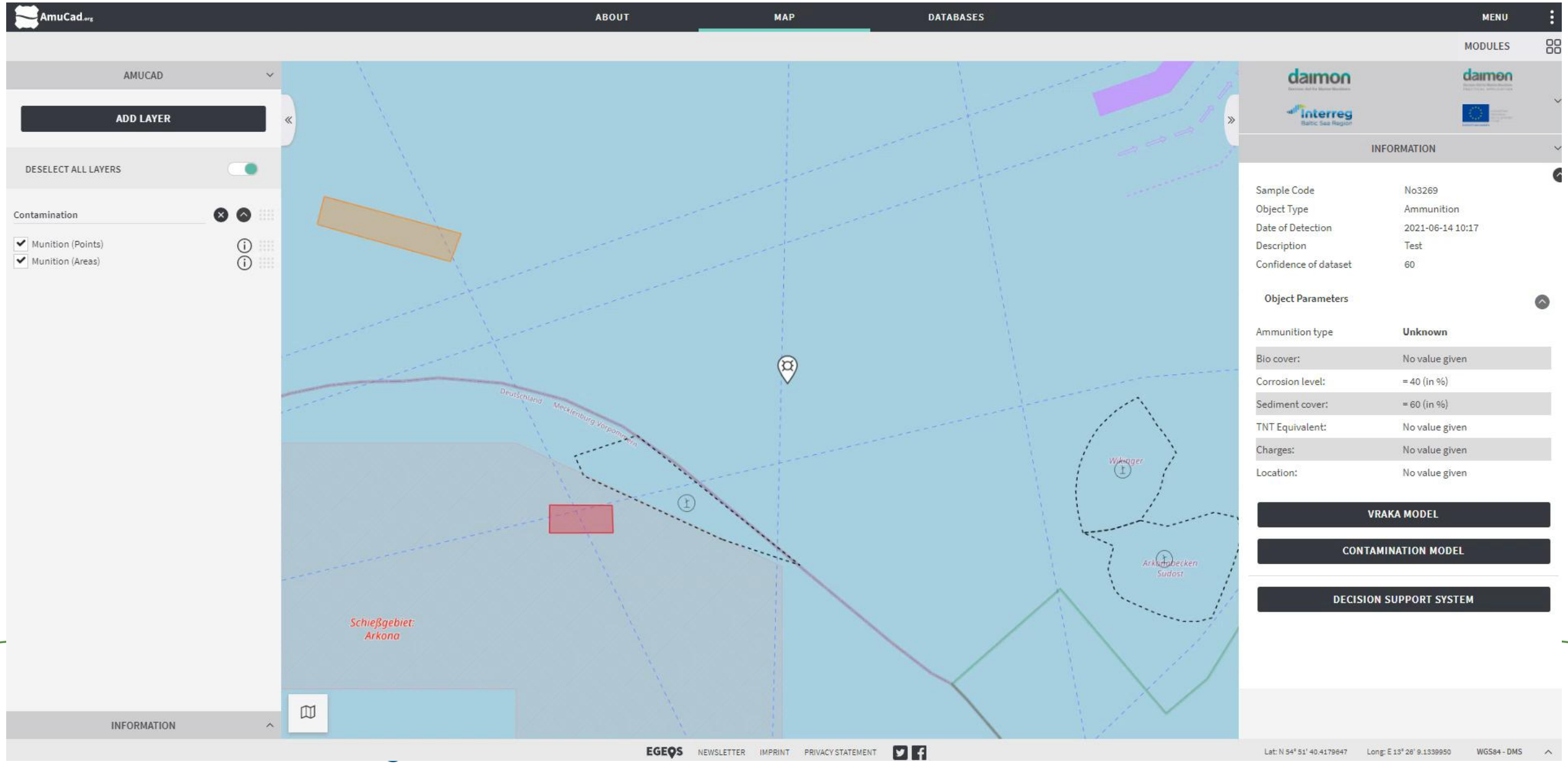
VRAKA-CWA



Contamination Model

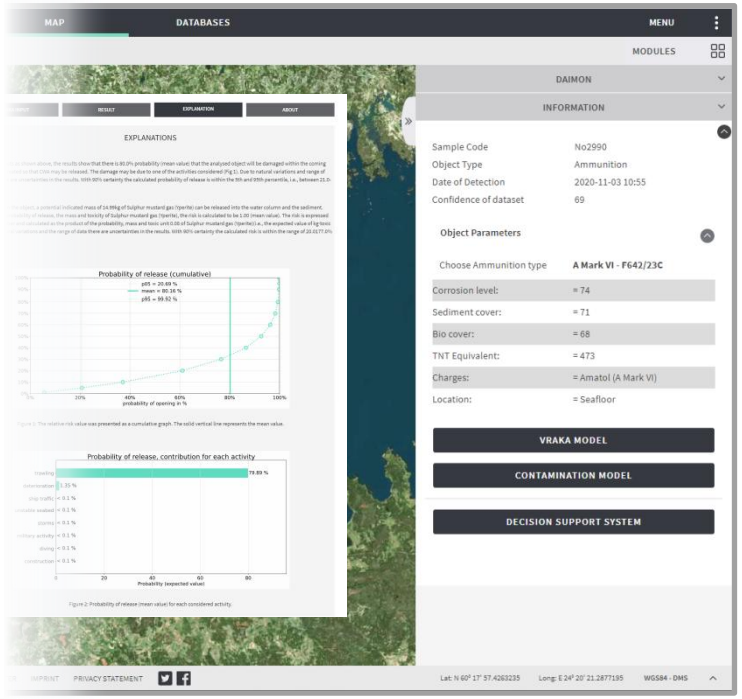


Contamination Model (IOPAN)

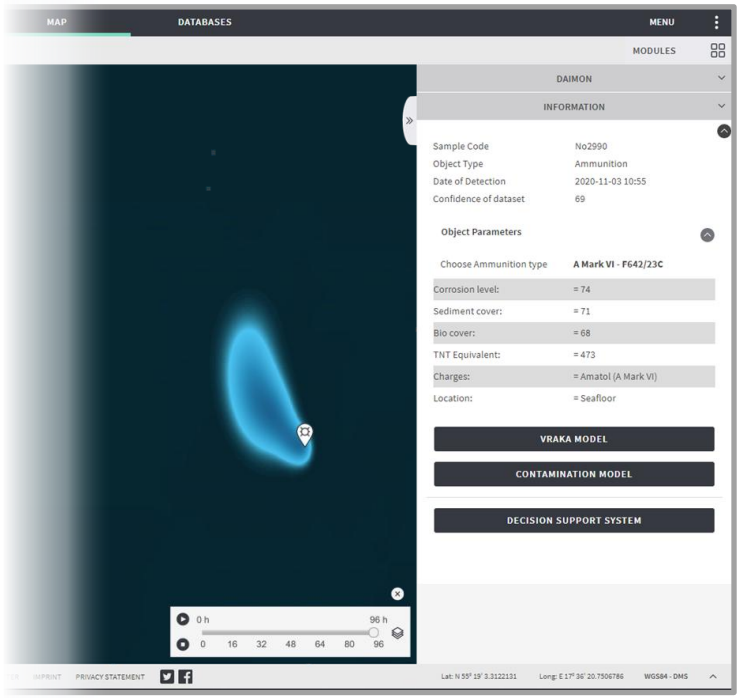


Assessments

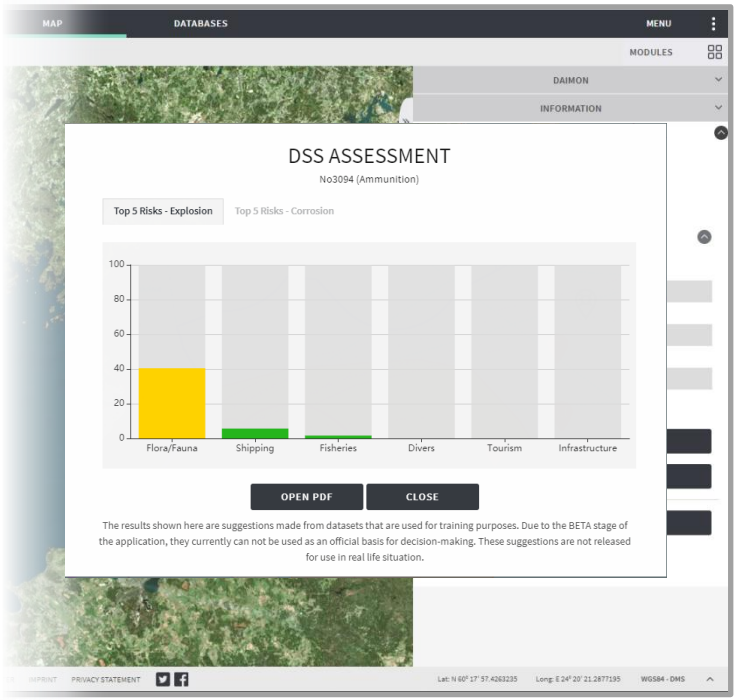
VRAKA-CWA



Contamination Model



Risk assessment & Measures



Risk Assessments

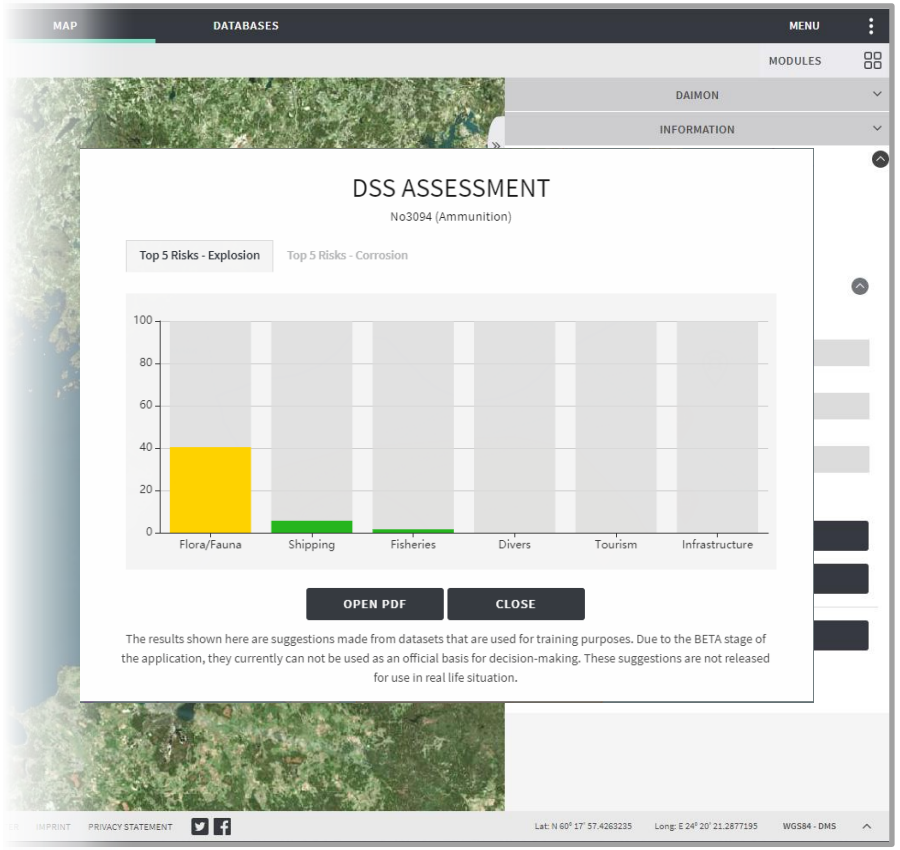
Artificial intelligence based principle

Protection goods (e.g. shipping, flora/fauna, divers)

Measures (e.g. monitoring, limiting actions)

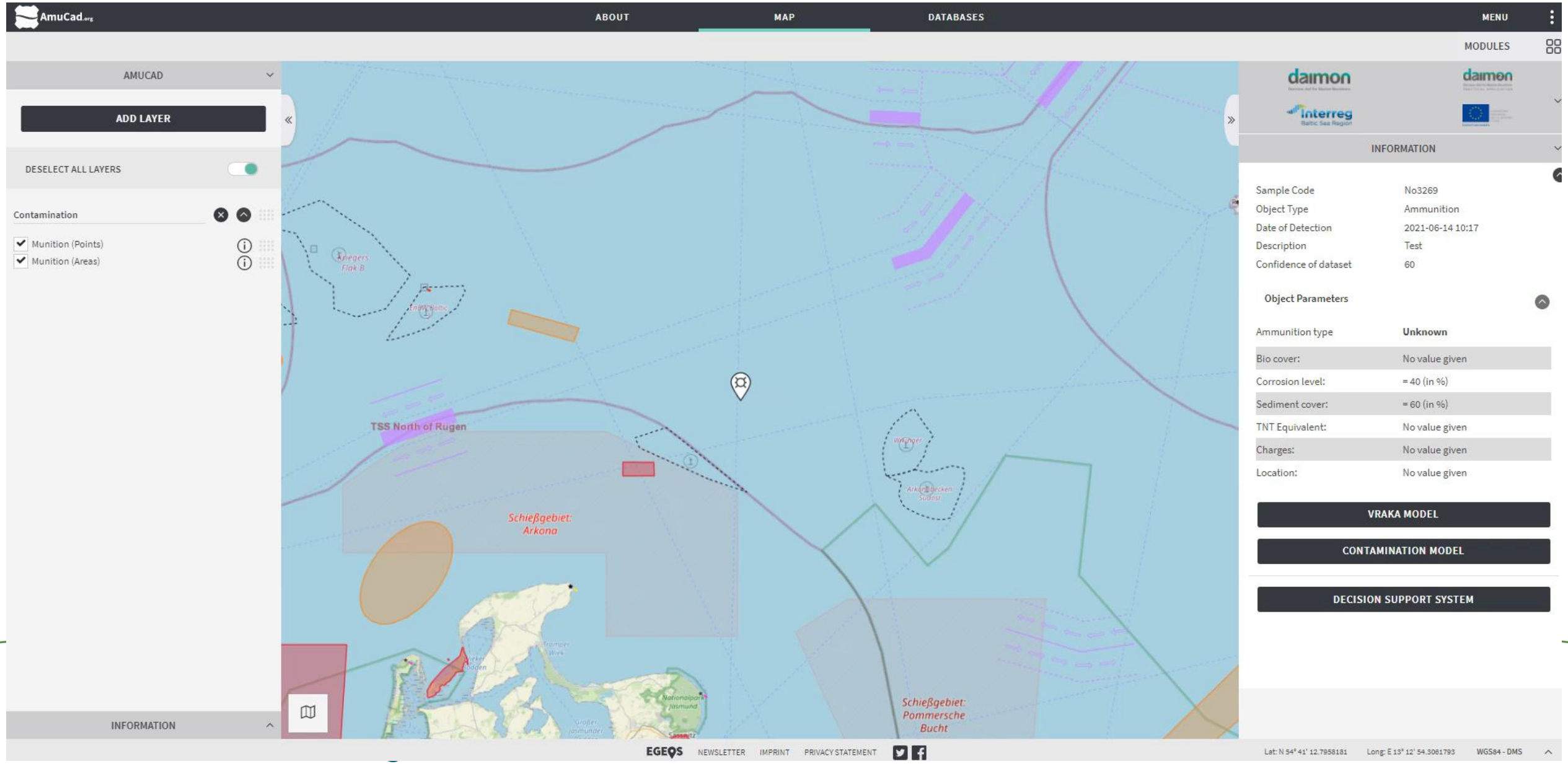
Standard & recommended operationg procedures

DSS Assessment



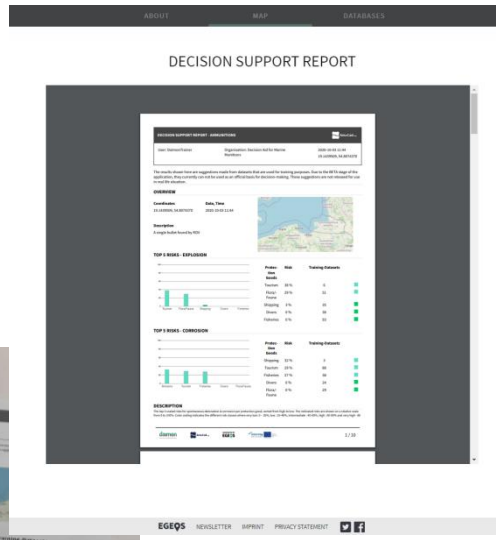
Risk Assessments (Clausthal University of Technology)

TU Clausthal
Clausthal University of Technology



Report

- Summary of all information
- Risk assessments
- Management options - Measures
- Standard Operating Procedures
- PDF – printable report



Access and Trainings

Public access

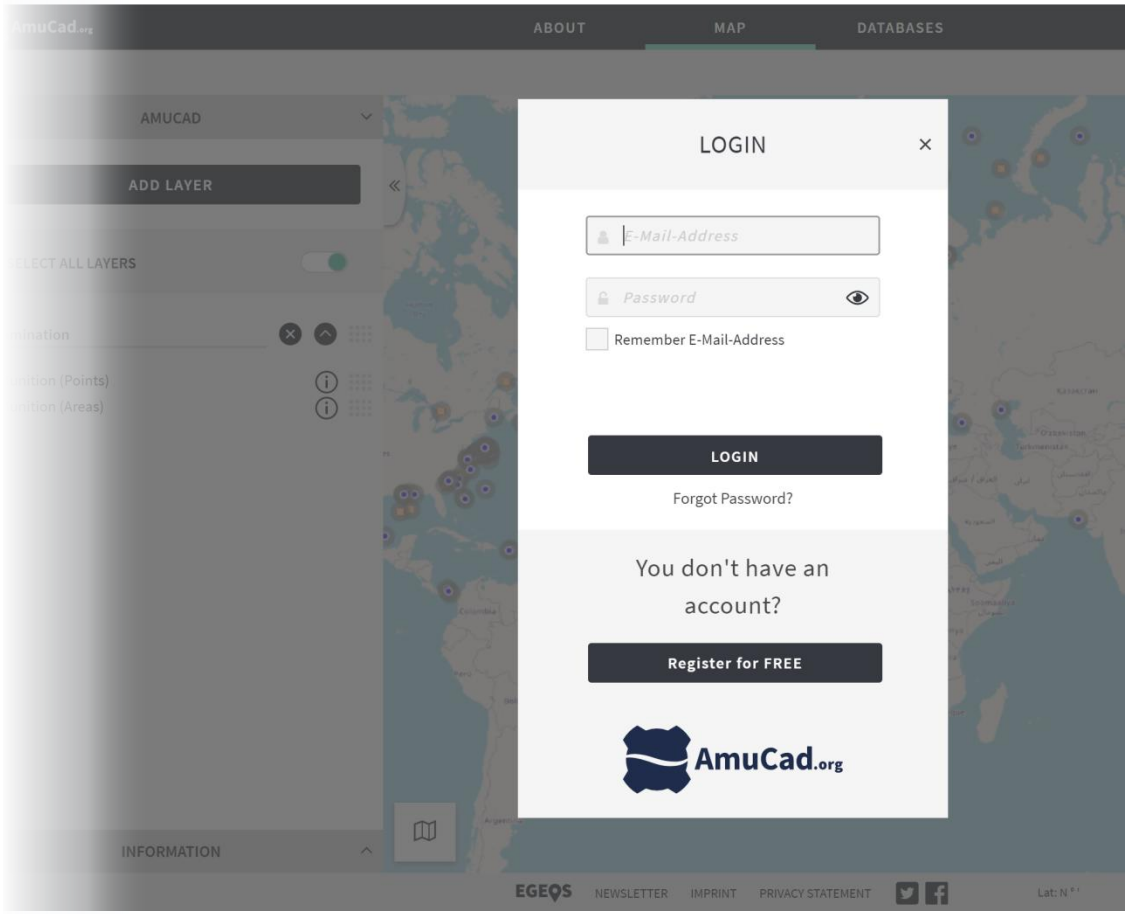
AmuCad.org www.AmuCad.org

Demonstrations & Trainings

Several trainings were conducted

Feedback was/is incorporated

Very valuable for the development



Outlook

Until project end (31st of July 2021)

Implementation of storing munition objects for organizations

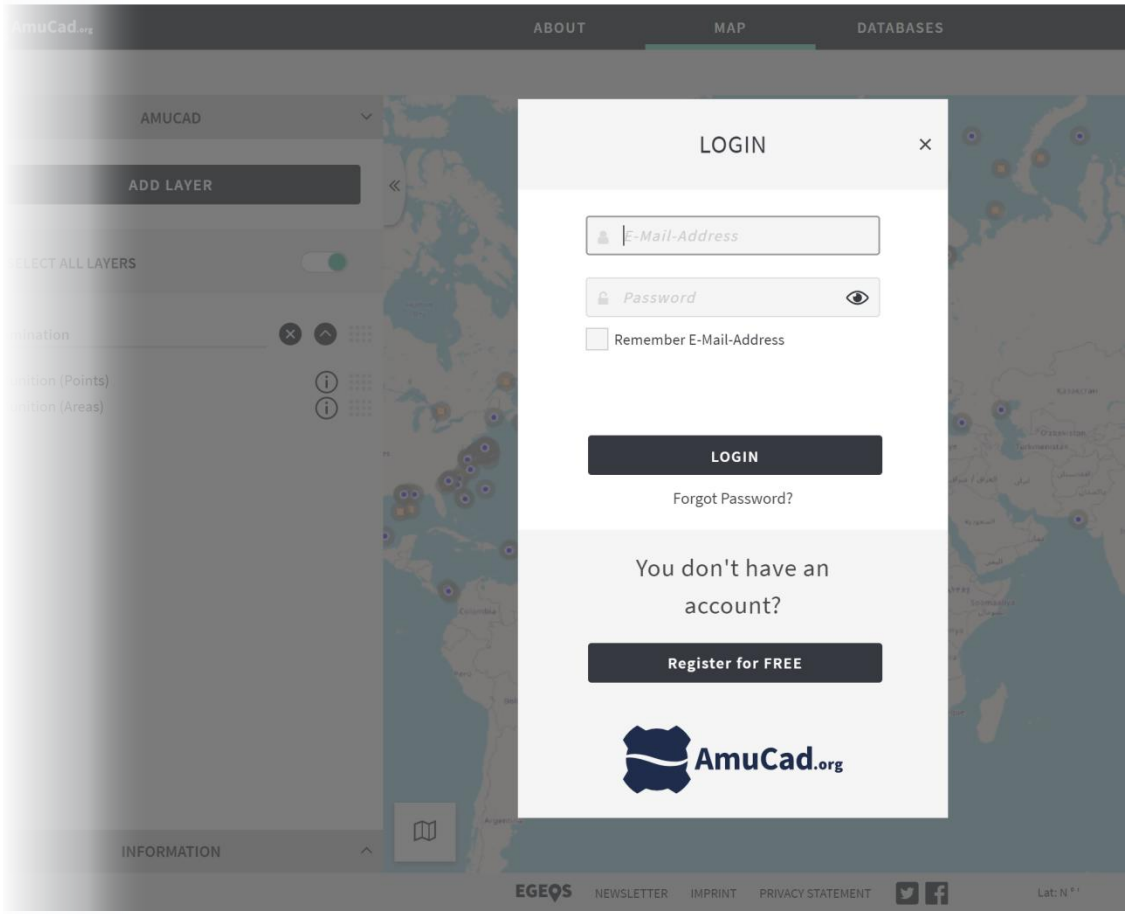
Stability and maintenance updates

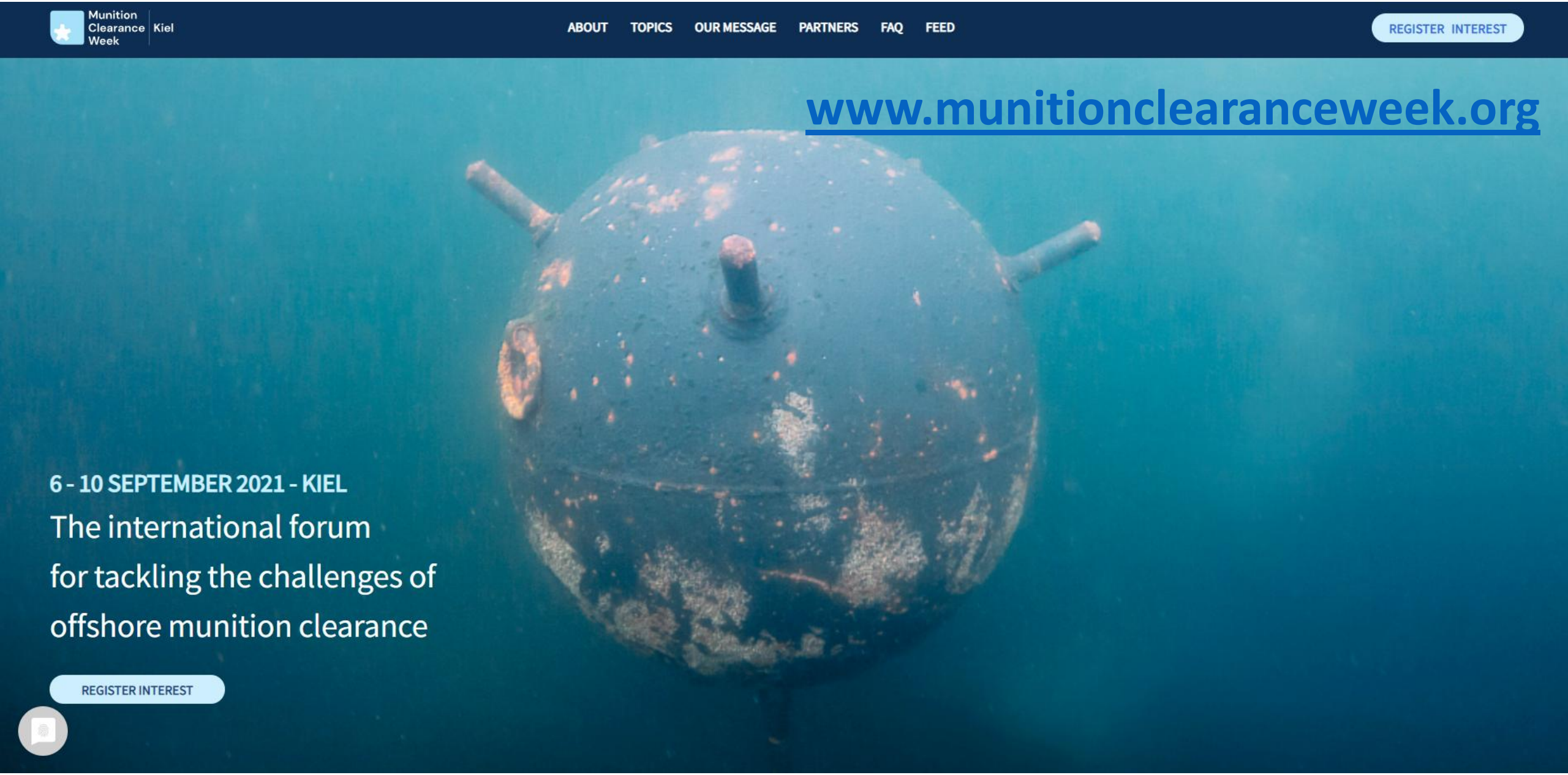
Collection of expert assessments for better training of the artifical intelligence

After project end

Development services around the free DAIMON DSS

- Training courses
- Maintenance & Support
- Customizations

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Thank you very much!