**NATO MARITIME GEOSPATIAL, METEOROLOGICAL & OCEANOGRAPHIC CENTRE OF EXCELLENCE**

| | |
|---|---|
| *Our Reference* | NU/MGEOMETOC COE/083/DIR |
| *Date* | 10 December 2025 |
| *To* | TO WHOM IT MAY CONCERN |
| *Subject* | **LETTER OF INVITATION FOR THE "RAPID ENVIRONMENTAL ASSESSMENT SUPPORT TO MARITIME OPERATIONS" COURSE, 02-06 MARCH 2026** |
| *Enclosures* | A. Course syllabus for the Rapid Environmental Assessment support to Maritime Operations Course<br>B. Application Form |

1. The NATO Maritime Geospatial, Meteorological & Oceanographic Centre of Excellence (Maritime GEOMETOC COE) is pleased to invite NATO and Partner Nations to participate in the **INT-MO-37111 Rapid Environmental Assessment (REA) support to Maritime Operations Course**. This course is held once per year, and the upcoming second edition will take place in person at the Centre's premises in Lisbon, Portugal, from **02 to 06 March 2026.** The course will be delivered with the support of the School of Hydrography and Oceanography of the Portuguese Hydrographic Institute.
2. This course is published in the Education and Training Opportunity Catalogue (ETOC) as "Listed" and is designed to provide Meteorological and Oceanographic (METOC) and Geospatial personnel with a better knowledge and understanding of REA activities in support of maritime operations. On completion of the course, participants will be able to:
   a. Identify NATO doctrine governing REA support, as well as geospatial and METOC support for military activities.
   b. Understand the impact of environmental conditions on maritime operations.
   c. Identify critical environmental parameters affecting different naval warfare areas.
   d. Recognize numerical modelling, in situ observations & remote sensing strategies, and technology.
   e. Identify, produce and disseminate REA products to support military decision-making.

Rua das Trinas 49
1249-093 Lisbon
Portugal

https://www.mgeometoc-coe.org/
info@mgeometoccoe.org
(+351) 210 737 693

3. The course is designed for NATO and national METOC and Geospatial personnel, as well as other military personnel who may be called upon to provide REA support to maritime operations.
4. This one-week course, will be delivered by Subject Matter Experts from the Maritime GEOMETOC COE, the Portuguese Navy, and invited guest speakers, consists of interactive lectures and practical exercises covering the topics outlined in the course syllabus provided at Enclosure A.
5. The course will start on Monday, 02 March, and ends on Friday, 06 March 2026. Daily sessions will run from 09:10 to 17:00. On Friday the course will end earlier, at 13:00.
6. The course will be conducted at NATO UNCLASSIFIED and will be delivered in English with no translation services available. Participants must have a language proficiency equivalent to English SLP 2222 or above.
7. Participants are encouraged to complete the following Advanced Distributed Learning (ADL) modules prior to attending this course: ADL 037 - Introduction to NATO and ADL 223 - Introduction to NATO Geospatial Support.
8. Rank Requirements: Officers (OF-1 through OF-5) and NCOs (OR-5 through OR-9).
9. To apply for the course, interested personnel must complete the **Application Form** at Enclosure B and email it to info@mgeometoccoe.org no later than **30 January 2026**. Upon successful submission, candidates will receive a confirmation email acknowledging receipt of their application. The selection process will follow shortly thereafter, and all candidates will be notified of their acceptance status. Administrative instructions – including details on accommodation, payment procedures, location, and other relevant information - will be send to selected students after acceptance.
10. **The course fee is €120 per student**. Students are responsible for their own travel and accommodation expenses and arrangements.
11. The Maritime GEOMETOC COE POC for this course is: LTJG Mauro Silva (OF-1) PRT N, Public Affairs Officer, mauro.silva@mgeometoccoe.org.

Director,

Assinado por: **Luís Miguel dos Reis Arenga**
Num. de Identificação: 08474349
Data: 2025.12.11 14:03:41+00'00'
Certificado por: **Secretaria-Geral do Ministerio da Defesa Nacional**
Atributos certificados: **{DIRECTOR e NATO-MARITIME GEOMETOC COE}**
CHAVE MÓVEL

Miguel dos Reis Arenga
CAPTAIN (OF-5) PRT N

Rua das Trinas 49
1249-093 Lisbon
Portugal

https://www.mgeometoc-coe.org/
info@mgeometoccoe.org
(+351) 210 737 693

ENCLOSURE A TO
NU/MGEOMETOC COE/083/DIR
DATED 10 DEC 25

## COURSE SYLLABUS FOR THE REA SUPPORT TO MARITIME OPERATIONS COURSE 2026

| Lecture | Contents |
|---|---|
| **Lecture 0**<br>Course overview | · Welcome and participants introduction<br>· NATO Maritime GEOMETOC COE overview<br>· Course overview and learning outcomes<br>· References and bibliography<br>· Administrative remarks |
| **Lecture 1**<br>NATO Geospatial (GEO), Meteorology and Oceanographic (METOC) principles, concepts and doctrine | · NATO GEO Policy<br>· NATO GEO Doctrine<br>· NATO METOC Policy<br>· NATO METOC Doctrine |
| **Lecture 2**<br>NATO REA and REP concepts and doctrine | · Rapid Environmental Assessment (REA)<br>· Recognized Environmental Picture (REP) |
| **Lecture 3**<br>Maritime Operations<br>Weather Impacts | · Naval warfare vs Maritime operations<br>· ASW (underwater sound propagation)<br>· NMW (bottom type)<br>· AAW (wind, waves and cloud cover)<br>· ASUW (waves and currents)<br>· AMPHIBOPS (topo-bathymetry and waves)<br>· Submarine warfare (SVP, ocean currents)<br>· Seabed warfare (Bathymetry, bottom type) |
| **Lecture 4**<br>Environmental parameters impacting naval operations | · Introduction to the geophysical dimension of the maritime battlespace<br>· Environmental parameters impacting naval operations |
| **Lecture 5**<br>Operational modelling | · Introduction to numerical modelling<br>· Modelling models and strategies<br>· Modelling infrastructure and tools<br>· Products and services<br>· Information dissemination |
| **Lecture 6**<br>REA technology | · In situ and remote sensing strategies<br>· Underwater assets<br>· Surface assets<br>· Aerial assets<br>· Remote sensing techniques<br>· Manned vs unmanned survey platforms |
| **Lecture 7**<br>REA Plan | · REA planning and direction<br>· Types of survey<br>· Fundamental requirements<br>· Preliminary work and planning<br>· Field preparations<br>· Conduct of survey<br>· Miscellaneous tasks |
| **Lecture 8**<br>REA products 01 | · Mission Impact Diagrams (MID)<br>· Purpose and utility of MID<br>· Data sources for MID creation<br>· MID thresholds<br>· MID practical exercise |
| **Lecture 9**<br>REA products 01 | · Tactical Decision Aids (TDA)<br>· TDA practical exercise |
| **Lecture 10**<br>REA products 02 | · Additional Military Layers (AML)<br>· AML specification overview<br>· AML practical exercise |
| **Lecture 11**<br>REA products 03 | · Amphibious Operations Graphic (AOG)<br>· AOG specification overview<br>· AOG practical exercise |
| **Lecture 12**<br>REA Information dissemination | · NATO formats and standards<br>· Web Services (OGC)<br>· File exchange (GeoTiff, ShapeFile, AML, GRIB2, netCDF4) |

ENCLOSURE B TO
NU/MGEOMETOC COE/083/DIR
DATED 10 DEC 26

# APPLICATION FORM

**Course Title: REA support to Maritime Operations**

**Course Dates:** 26 - 30 May 2025

**Location:** MGEOMETOC COE, Lisbon, Portugal

Address: Rua das Trinas 49, 1249-093 Lisbon, Portugal (co-located with IHPT).

---

## 1. Personal Information

Full Name: _____

Rank (Including NATO Rank): _____

Nationality: _____

Service/Branch: _____

Organization/Unit: _____

Position/Function: _____

Official Email: _____

Phone (including country code): _____

Alternative Email (if applicable): _____

---

## 2. Desirable Pre-Training

Have you completed the recommended ADL modules?

- ADL 037 – Introduction to NATO ☐ Yes ☐ No
- ADL 223 – Introduction to NATO Geospatial Support ☐ Yes ☐ No

---

## 3. Course Requirements

The following language proficiency skills in English are required to attend: SLP 2222, level 2 in listening, level 2 in speaking, level 2 in reading, and level 2 in writing (self-assessment in accordance with STANAG 6001 Ed.5) ☐ Yes ☐ No

Other (please identify): _____

---

**4. Payment Information**

Course Fee: €120 per student.

☐ I confirm that my organization/unit will cover the course fee.

☐ I will personally cover the course fee.

---

**5. Additional Information**

How did you hear about this course?

☐ Maritime GEOMETOC COE Website

☐ NATO Internal Communication

☐ Colleague/Superior

☐ Other (please specify): _____

Do you have any dietary restrictions or special requirements?

☐ No

☐ Yes (please specify): _____

Any additional comments or requests, please let us know:

---

---

---

**6. Acknowledgment & Signature**

I confirm that the information provided above is accurate. I understand the course requirements and agree to comply with the registration and participation guidelines.

Signature: _____

Date: _____

---

**Application Information**

- Deadline for applications: January 30, 2026.
- Please complete and submit this form through the application email: info@mgeometoccoe.org.
- For more information, please contact the Maritime GEOMETOC COE Public Affairs Officer at mauro.silva@mgeometoccoe.org.