

# Terms of reference

## Technical Support for Testing and Evaluation of a New Copernicus Service

Annex II to the Invitation to Tender no

Frontex/OP/802/2017/KM

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## 1. Background and context

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On 10 November 2015 a Delegation Agreement was signed between the European Commission and the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union (Frontex), transformed in 2016 into European Border and Coast Guard Agency, on the 'Implementation of the Border Surveillance Component of the Copernicus Security Service'.

The objective of the border surveillance component of the security service is to 'provide increased situational awareness when responding to security challenges at the external border through detection and monitoring of cross-border security threats, risk assessment and early warning systems, mapping and monitoring'.

Frontex is the entity entrusted by the Commission to act as the single entry/exit point for the acquisition, fusion and delivery of Border Surveillance Component of the Copernicus Security Service in the period of time 2016-2020.

### 1.1. Introduction

Copernicus activities of the Agency consist primarily in the provision of Copernicus services to Frontex operational units, other Maritime EU Agencies, and to Member States via existing Frontex operational IT systems but also on the activities related to the Evolution of these services, including the decision making process to select, test, and introduce new or improved Copernicus Services.

Development of New Services includes the task of addressing the development and testing of innovative ways to use Copernicus resources by either creating new services (following technology evolution and/or emerging users' needs) or by modifying existing services (on the basis of new knowledge derived from lessons learned through the use of current services.)

New Services proving to have added value for operational purposes will be subsequently rolled out and incorporated into Frontex Copernicus Available Services Toolbox.

### 1.2. The Problem

Frontex has identified, as a potential New Copernicus Service, the automatic ship wake detection from a space-borne Synthetic Aperture Radar on specific Maritime Areas of Interest designated by Frontex. Wake detection may help identifying "go-fast" boats routes and the behavioral patterns of their use, both in space and time.

Fast boats used by smugglers crossing between Third Countries and the European coast are often capable of high speed ("go-fast" boats) and they have been adopted by smugglers to transport illegal goods from Third Countries to the EU. Their hulls are usually made of fiberglass, and they are typically 10 to 15 meter long, having a narrow beam and powerful engines delivering up to 1000 hp. This power gives the boats speeds greater than 80 knots in calm waters, 50 knots in choppy waters, and 25 knots with waves of 1.5 to 2 m. These speeds produce a wake which have a relatively long persistence and may be detected from a space-borne Synthetic Aperture Radar.

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## 2. Subject

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The service required under the contract is the provision of technical expertise for the execution of a pilot project to test and evaluate a New Copernicus Service described in this document, the test and evaluation to be carried out within a specified timeline.

### 2.1. General description

During the pilot project, the night time capture and analysis of radar imagery provided by a number of space-borne Synthetic Aperture Radar should allow Frontex to improve situational awareness and derive knowledge on the modus operandi of users of “go-fast” boats in specific areas of the Mediterranean Sea.

### 2.2. Service to be evaluated

The new Copernicus service to be tested and evaluated shall consist of the capacity to observe, analyze and report “go-fast” boats crossing between Third Countries and the coast of the European Union in two specific Mediterranean areas: the Alboran Sea, between Gibraltar and Melilla meridians; the Adriatic Sea, between the Albanian and Italian coasts, parallels 40° N-42° N.

The contracted expertise requires from the contractor the acquisition and automatic analysis of radar image scenes, from 50 km x 50 km up to 200 km x 200 km (part of the service development shall consist of the fine tuning of optimal scene size) to test and evaluate the capacity to observe and report the wake of “go-fast” boats.

### 2.3. Contract implementation

The prospective contract will cover the following steps and phases:

#### 2.3.1. Kick - Off Meeting.

At the kick off meeting, the contractor and Frontex will jointly decide specific details related to milestones and deliverable formats.

#### 2.3.2. Set-up Phase

This phase consists of the preparation by the contractor, together with Frontex, of the necessary tasks to carry out the new service test and evaluation. Including the planning of imagery acquisition, analysis, and reporting mechanism.

#### 2.3.3. Testing and evaluation Phase

This phase tasks consists of the actual provision of analysed imagery in the two Mediterranean areas of interest defined in point 2.2. above.

#### 2.3.4. Assessment Phase

This phase tasks consists of the evaluation of the results obtained, including the appraisal of the imagery analysis tool used and, if needed, recommendations to include the service into Copernicus services catalogue.

#### 2.3.5. End users cooperation and uptake

Through Frontex, the Spanish and Italian Border Control authorities shall be actively engaged in the activities, providing their expertise and feedback and exploiting the service results during the Production Phase.

### 2.3.6. Activity Timeline

The project initiation and setup is expected to take place during the first quarter of 2018, followed by operational trials and assessment along 2018.

- Set-up Phase: January- April 2018
- Production and Delivery Phase: May- August 2018
- Assessment Phase: September-October 2018

## 2.4. Deliverables

### 2.4.1. Set-up Phase

- a. Project plan including a schedule and work breakdown structure
- b. Imagery acquisition plan
- c. Analysis and reporting plan

### 2.4.2. Testing and Evaluation Phase

- a. Daily analysed information of the two Areas of Interest
- b. Weekly summary of the two Areas of Interest

### 2.4.3. Assessment Phase

- a. Final project report including assessment and recommendations
- b. Description of algorithms used and results obtained with each of them
- c. Steps to convert the Pilot into an operational service, if needed.

## 2.5. Quality requirements

Deliverables to this project will be evaluated using the following quality criteria:

- Coverage and suitability in satisfying the needs expressed in these Terms of Reference (ToR)
- up-to-date facts/data and information based on reliable, objective, accurate and traceable sources
- relevancy, credibility and comprehensiveness of the content of the deliverable

## 2.6. Experts

### A. Experts profiles

The tentative equivalent effort of the contract shall be not less than 2 Full Time Equivalent from the date of the kick-off meeting up to the scheduled finalization date of 30 October 2018.

Fundamental to the achievement of the contract purpose is the contractor's knowledge in the domain of Earth Observation, radar sensors, and imagery analysis. Therefore, the team of expert assigned to this contract should have demonstrable expertise (via CVs, publications, reports, etc.) in the following areas:

- Space technology
- Earth observation
- Radar sensors
- Imagery analysis

The curriculum vitae must contain information regarding the relevant experience of the expert in these fields and his/her role in any project or activity described must be clearly stated.

The expert shall also be in a position to fulfil the tasks described in these Terms of Reference without incurring in a conflict of interest with current or past employers, disclosing classified information, compromising or creating harm to third parties.

The expert will be required to sign a Declaration of Confidentiality (Appendix 1).

## **B. Replacement of experts**

### **Replacement of Experts requested by Contractor**

Replacement of experts requested by Contractor will be accepted only in exceptional situations, based on written explanation providing reasons for replacement and it will be subject to Frontex prior approval. Such situations may happen on account of death, sickness or accident, or if a member of staff is unable to continue providing his services or for other reasons beyond the Contractor's control (e.g. resignation).

Whenever a replacement occurs, the Contractor must ensure a high degree of stability of the services and a smooth transfer of the contractual obligations. The Contractor shall provide a timely replacement with at least equivalent qualifications and experience to the person proposed in the original offer and satisfying the minimum criteria indicated in point 2.6.A above.

### **Replacement of experts requested by Frontex**

Frontex reserves the right to request replacement of any person specified in the contract who is found by Frontex to be incompetent in discharging or unsuitable for the performance of his duties under the contract or if carrying out his tasks under the contract consistently prejudices the good and timely performance of the contract.

The replacement, regardless whether requested by the Contractor or by Frontex, shall not oblige Frontex to pay any additional remuneration, fees or costs other than those laid down in the initial contract. The Contractor shall bear all the additional costs arising out of or incidental to such replacement.

## **2.7. Reporting and Meetings**

The working language of this assignment is English and all the deliverables produced by the Contractor shall be produced in English. All documents shall be delivered in editable electronic form in MS Word (please note that all the accompanying drawings, tables, graphics and supporting data shall be provided in an editable source format agreed with Frontex).

The Contractor shall report to the assigned Frontex Point of Contact on a weekly basis, and ultimately to the Head of the Research and Development Unit on the progress of the work.

At least the following foreseen meetings are to be observed in the offer:

- Kick Off meeting to finalize and agree on the details of the tasks and time plan (to be held at Frontex premises in Warsaw)
- Monthly follow-up teleconferences to discuss work progress
- Final project meeting (to be held at Frontex premises in Warsaw.)

After each meeting, the contractor shall draft the minutes of the meeting and send them to Frontex for approval.

## **2.8. Intellectual property rights and Disclaimer**

The owner of all documentation and publications will be Frontex.