# ECMWF Copernicus Procurement

**Invitation to Tender** 



## **Copernicus Atmosphere Monitoring Service Volume II**

## User interaction activities

## ITT Ref: CAMS\_94

ISSUED BY: ECMWF Administration Department Procurement Section

Date: 5 April 2018

Version: Final



Implemented by



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## 1 Introduction

Some of today's most important environmental concerns relate to the composition of the atmosphere. The increasing concentration of the greenhouse gases and the cooling effect of aerosol are prominent drivers of a changing climate, but the extent of their impact is often still uncertain.

At the Earth's surface, aerosols, ozone and other reactive gases such as nitrogen dioxide determine the quality of the air around us, affecting human health and life expectancy, the health of ecosystems and the fabric of the built environment. Ozone distributions in the stratosphere influence the amount of ultraviolet radiation reaching the surface. Dust, sand, smoke and volcanic aerosols affect the safe operation of transport systems and the availability of power from solar generation, the formation of clouds and rainfall, and the remote sensing by satellite of land, ocean and atmosphere.

To address these environmental concerns there is a need for data and processed information. The Copernicus Atmosphere Monitoring Service (CAMS) has been developed to meet these needs, aiming at supporting policymakers, business and citizens with enhanced atmospheric environmental information.

The Service consolidates many years of preparatory research and development and delivers the following operational services:

- a) Daily production of real-time analyses and forecasts of global atmospheric composition
- b) Reanalyses providing consistent multi-annual global datasets of atmospheric composition with a stable model/assimilation system
- c) Daily production of real-time European air quality analyses and forecasts with a multi-model ensemble system
- d) Reanalyses providing consistent annual datasets of European air quality with a frozen model/assimilation system, supporting in particular policy applications
- e) Products to support policy users, adding value to "raw" data products in order to deliver information products in a form adapted to policy applications and policy-relevant work
- f) Solar and UV radiation products supporting the planning, monitoring, and efficiency improvements of solar energy production and providing quantitative information on UV irradiance for downstream applications related to health and ecosystems
- g) Greenhouse gas surface flux inversions for  $CO_2$ ,  $CH_4$  and  $N_2O$ , allowing the monitoring of the evolution in time of these fluxes
- h) Climate forcing from aerosols and long-lived (CO<sub>2</sub>, CH<sub>4</sub>) and shorter-lived (stratospheric and tropospheric ozone) agents

This Invitation to Tender (ITT) spans across all CAMS service elements (items a-h above).

### 2 Contract Summary

This ITT, entitled "User interaction activities", is for activities to support the Entrusted Entity, ECMWF, with the management of the relationship between CAMS and its users, with the overarching goal to ensure the best possible use of the products by the users and to their full satisfaction.

In more detail, the objectives are to:

- facilitate understanding of the requirements of users and translate these user requirements into specifications for the service lines and the supporting upstream processing, product delivery, and web facilities,
- organize user workshops and,

• maintain the CAMS User Requirements Data Base (URDB) that keeps a record of all user requirements and their analysis.

This will be achieved by gathering and analysis of user requirements, user feedback and user statistics for all service elements. The successful Tenderer will have to demonstrate expertise in the field of interaction with users and gathering of user requirements and feedback.

## 3 Technical Specification

#### 3.1 General Objectives

The aim of the activities covered by this ITT is to facilitate understanding of the requirements of users with a focus on operational user needs, and translate these user requirements into specifications for the core service lines and the supporting upstream processing, product delivery and web facilities. While this ITT is embedded in the general user interaction strategy of CAMS, which is outlined in section 4.5.2, it addresses only specific elements of the user interaction, described in the work packages below. More specifically, the successful Tenderer shall gather and document CAMS user requirements, not provide direct user support.

## 3.2 Work package 9410 – Development and maintenance of User Requirements Data Base and Monitoring of Service Product Portfolio against Requirement Analysis Document

As described in section 4.5.2, CAMS will continually collect and analyse feedback from users in order to maintain requirements that meet their evolving needs. One important aspect of this is the collection of all user requirements in a User Requirements Data Base (URDB) in a structured and traceable way. The URDB, which tracks all requirements emanating from a wide variety of user forums, surveys, support panels and the CAMS user support at ECMWF, will be complemented by a Requirements Analysis Document (RAD) that will capture the stratification of User Requirements per domain, importance and feasibility.

The successful Tenderer shall set up and maintain the URDB taking into account input from ECMWF to meet the needs of supporting the maintenance and evolution of the Requirements Analysis Document, Service Product Portfolio, and Service Evolution Strategy (see section 4.5 for more details). While these latter three documents will be maintained by ECMWF, the successful Tenderer shall provide a first screening of the new entries in the URDB every three months to assess whether these user requirements are within the scope of CAMS services and not already been addressed by existing CAMS services and their development plans. The successful Tenderer shall also document the CAMS response, as provided by the relevant service provider and approved by ECMWF, to each user requirement in the URDB. In addition, the successful Tenderer shall provide brief feedback on the status of a user requirement to the respective user, once the requirement has been analysed.

A significant element of the URDB input will be provided by the user support service desk managed by ECMWF. The Successful Tenderer shall agree with ECMWF on a routine information exchange mechanism to ensure all relevant user information that is logged as part of the service desk activities is transferred to the URDB.

All user requests will be tracked in the URDB in order to provide full traceability of the original user expression; actions taken as a result (e.g., introduction in the RAD under a new or an already existing item, quick fix or addition on the CAMS website) will also be documented in the URDB. The successful Tenderer shall for this purpose set up and maintain a URDB document, ideally based on open-source

software. If the successful Tenderer decides to use commercial software, it shall ensure that the content of the URDB, including links and references, can be exported in a general format that can be imported in existing open-source software without loss of information at the end of the contractual agreement that results from this ITT. The URDB shall at least contain the information contained in the current CAMS URDB as described in Annex 1.

The successful Tenderer shall be the administrator of the URDB and as such support the CAMS service providers with populating the URDB with the relevant content. The content of the URDB as of 31 December 2018, which will be provided by ECMWF, shall form the basis of the URDB and shall be imported in the proposed URDB within the proposed ramp-up phase.

The Service Product Portfolio (SPP) provides the Service Specification and Service Level of all CAMS products. The successful Tenderer shall continually assess the specifications of all CAMS products in the SPP against the analysed user requirements in the URDB and RAD. The successful Tenderer shall interact with the relevant CAMS service providers to discuss the potential evolution of the services for each individual product and the feasibility of such an evolution. The successful Tenderer shall report on a quarterly basis to ECMWF on these assessments, which ECMWF can take into consideration as part of the management of current and future contracts with CAMS service providers.

The tables below provide templates to be used by the contractor to describe the complete list of deliverables, milestones and schedules for this work package. All milestones and deliverables shall be numbered as indicated. All document deliverables shall be periodically updated and versioned as described in the tables. Tenderers shall provide preliminary versions of the completed tables, which include the deliverables and milestones already indicated in the tables below, as part of their bid.

WP9410 Delive	WP9410 Deliverables Template						
# Type Title Due							
D1.y.z <sup>1</sup> -YYYY	Data base	URDB implementation	M3 Year 1				
D1.y.z- YYYYQx	Report	Quarterly requirements summary and analysis – QQ YYYY	Quarterly				

WP9410 Milestones Template					
# Title Means of verification Due					
M1.y.z					

<sup>&</sup>lt;sup>1</sup> Deliverables (and Milestones) shall be numbered as per the following format DX.Y.Z (MX.Y.Z), where X is the WP number, Y is the task number and Z is the Deliverable (Milestone) number in this task. Deliverables delivered annually should be numbered DX.Y.Z-yyyy, where yyyy is the year the Deliverable refers to (e.g. DX.Y.Z-2016, DX.Y.Z-2017). Deliverables delivered quarterly should be numbered DX.Y.Z-yyyyQx, where yyyyQx is the quarter of the year the Deliverable refers to (e.g. DX.Y.Z-2016Q1, DX.Y.Z-2016Q2). The same numbering format shall be applied for Milestones. Continuous deliverables at higher frequency can be labelled in the same way as quarterly deliverables.

#### Work package 9420 - Organisation of user meetings 3.3

Experience has shown that sustained interaction between users and providers can be a very fruitful source of service improvement. The successful Tenderer shall organize a regular sequence of informal national user workshops that provide a platform for showing the CAMS portfolio and interact with users.

The successful Tenderer shall organize a minimum of two user workshops (1-2 days each) each year to interact with CAMS user communities throughout Europe. The location (covering various parts of Europe throughout the duration of the contractual agreement that results from this ITT) and timing of these user workshops will be agreed between the successful Tenderer and ECMWF each year. Once agreed, the successful Tenderer will propose one or more potential venues easily reachable by public transport where the event might take place. The successful Tenderer will interact with the user community of the chosen country to draft a programme including presentations from CAMS service providers and CAMS users as well as discussions between service providers and users. The successful Tenderer can use their own creative input to define the exact format of the workshop. The budget proposed for the organization of the CAMS user workshops must include all aspects: venue hire, coffee and lunch breaks for all attendees, engagement, and the organization of the event itself. In the case of a 2-day workshop, covering dinner and accommodation costs of participants is not mandatory. It is not expected that travel costs of participants shall be covered under this ITT other than possibly for invited speakers. The Tenderer can use an indicative number of 50 attendees for each event to estimate the budget. The successful Tenderer shall provide reports documenting the acquired user feedback.

The tables below provide templates to be used by the contractor to describe the complete list of deliverables, milestones and schedules for this work package. All milestones and deliverables shall be numbered as indicated. All document deliverables shall be periodically updated and versioned as described in the tables. Tenderers shall provide preliminary versions of the completed tables, which include the deliverables and milestones already indicated in the tables below, as part of their bid.

WP9420 Delive	WP9420 Deliverables Template						
#	# Type Title						
D2.y.z-YYYY	Other	User Workshop 1 - YYYY	Annually				
D2.y.z-YYYY	Other	User Workshop 2 - YYYY	Annually				
D2.y.z-YYYY	Report	Minutes and summary of user Workshop 1 - YYYY	Annually within 2 months of workshop				
D2.y.z-YYYY Report		Minutes and summary of User Workshop 2 - YYYY	Annually within 2 months of workshop				

WP9420 Miles	WP9420 Milestones Template								
#	Title	Means of verification	Due						
M2.y.z	Proposed dates and locations for User Workshops - YYYY		Annually in February						

#### 3.4 Work package 9430 - Analysis of CAMS users

CAMS is a user-driven programme and it is therefore important to have a good overview of its user base at all times. The successful Tenderer shall therefore provide quarterly reports documenting a statistical analysis of CAMS users. The reports shall describe users in terms of at least user segments (e.g., health, policy making), user types (e.g., commercial, scientific), geographical distribution, user requirements (e.g., near-real-time data access, policy products), service types (e.g., regional products, global products, solar radiation products), and activity level (e.g., daily access to data, occasional access to data). The reports shall also provide the CAMS KPIs that are described in section 4.4. The reports shall be based on the information documented in the URDB, all available data usage statistics for the CAMS web portal and CAMS Data Store, and the access statistics of the CAMS web site, and potential other statistical user information. The successful Tenderer shall acquire the relevant user information from ECMWF and the CAMS service providers. Due to the strict timeliness requirements of the quarterly reporting to the European Commission, the successful Tenderer shall provide the quarterly user statistics two days before the end of the month following the respective calendar quarters.

The tables below provide templates to be used by the contractor to describe the complete list of deliverables, milestones and schedules for this work package. All milestones and deliverables shall be numbered as indicated. All document deliverables shall be periodically updated and versioned as described in the tables. Tenderers shall provide preliminary versions of the completed tables, which include the deliverables and milestones already indicated in the tables below, as part of their bid.

WP9440 Deliverables Template							
# Type Title Due							
D3.y.z- QQYYYY	Report	User statistics for Q4 YYYY User statistics for Q1 YYYY User statistics for Q2 YYYY User statistics for Q3 YYYY	Annually on 29 January Annually on 28 April Annually on 29 July Annually on 28 October				

WP9440 Milestones Template						
# Title Means of verification Due						
M3.y.z						

#### 3.5 Work package 9400 - Management and coordination

The following management and coordination aspects shall be briefly described in the bid:

- Contractual obligations as described in the Framework Agreement Clause 2.3 on reporting and planning.
- Meetings:

- ECMWF will organise annual CAMS General Assemblies within EU member states. The successful Tenderer is expected to attend these meetings with team members covering the various topics that are part of this ITT;
- ECMWF will host monthly teleconference meetings to discuss CAMS service provision, service evolution and other topics. The Prime Investigator appointed by the successful Tenderer will represent the successful Tenderer in such meetings;
- ECMWF will organise six-monthly project review meetings (linked to Payment milestones);
- Tenderers should propose additional project internal meetings (kick-off meeting, annual faceto-face meeting and monthly teleconferences) as part of their response;
- Quality assurance and control: the quality of reports and Deliverables shall be equivalent to the standard of peer-reviewed publications. The final quality check of the deliverables should be made by the prime contractor (contents, use of ECMWF reporting templates for deliverables and reports (Microsoft Word), format, deliverable numbering and naming, typos...); all reports in this project shall be in English. Unless otherwise specified the specific contract Deliverables shall be made available to ECMWF in electronic format.
- Communication management (ECMWF, stakeholders, internal communication).
- Resources planning and tracking using the appropriate tools.
- Implementation of checks, controls and risk management tools for both the prime contractor and subcontractors.
- Subcontractor management, including conflict resolution, e.g. the prime contractor is responsible for settling disagreements, although advice/approval from ECMWF may be sought on the subject.
- A list of subcontractors describing their contribution and key personnel shall be provided, as well as back-up names for all key positions in the contract. The Tenderer shall describe how the Framework Agreement, in particular Clause 2.9 has been flowed down to all their subcontractors.
- Personal data management (name, ID and contact details of prime contractor's data controller in line with Clause 2.8).

The tables below provide templates to be used by the contractor to describe the complete list of deliverables, milestones and schedules for this work package. All milestones and deliverables shall be numbered as indicated. All document deliverables shall be periodically updated and versioned as described in the tables. Tenderers shall provide preliminary versions of the completed tables, which include the deliverables and milestones already indicated in the tables below, as part of their bid.

WP9400 Deliverables Template						
#	Responsible	Nature	Title	Due		
D0.y.z-YYYYQQ	Tenderer	Report	Quarterly Implementation Report QQ YYYY QQ YYYY being the previous quarter	Quarterly on 15/01, 15/04, 15/07 and 15/10		
D0.y.z-YYYY	Tenderer	Report	Annual Implementation Report YYYY YYYY being the Year n-1	Annually on 28/02		
D0.y.z	Tenderer	Report	Final Implementation Report, including letter from auditor specific to CAMS contract YYYY YYYY being the last year of the contract	60 days after end of the last service contract		
D0.y.z-YYYY	Tenderer	Report	Draft Implementation Plan YYYY YYYY being the Year n+1	Annually on 28/02		
D0.y.z-YYYY	Tenderer	Report	Finalised Implementation Plan YYYY YYYY being the Year n+1	Annually on 31/10		
D0.y.z-YYYY	Tenderer	Other	Copy of prime contractor's general financial statements and audit report	Annually		

			YYYY YYYY being the Year n-1	
D0.y.z-YYYY	Tenderer	Other	Letter auditor's opinion specific to CAMS most recent Annual Implementation Report YYYY YYYY being the Year n-1	Annually
D0.y.z	Tenderer	Other		One year after start of contract

WP9400 Milestones Template						
#	Responsible	Title	Means of verification	Due		
M0.y.z	Tenderer	CAMS General Assembly	Participation to the meeting	Annually		
M0.y.z	Tenderer	Monthly teleconference meetings with ECMWF	Participation to meeting	Monthly		
M0.y.z	Tenderer	Progress review meetings with ECMWF / Payment milestones		~ Every 6 months		
M0.y.z	Tenderer	Kick-Off meeting	Minutes of meeting	Month 1		
M0.y.z	Tenderer	Internal face to face project meetings	Minutes of meeting	Annually		
M0.y.z	Tenderer	Internal project monthly teleconferences	Meetings happened	Monthly		

### 4 General Requirements

#### 4.1 Implementation schedule

The Framework Agreement will run from 1 January 2019 to 31 December 2021. The Tenderer shall provide a detailed implementation plan of proposed activities for the period until 30 June 2021. However, note that by Q4 2019 the level and duration of activities for the full year of 2021 will be communicated by ECMWF to the successful Tenderer based on the Copernicus programme review by the European Commission.

#### 4.2 Deliverables and milestones

Deliverables should be consistent with the technical requirements specified in section 3.

All contract reports shall be produced in English. The quality of reports and deliverables shall be equivalent to the standard of peer-reviewed publications and practice. Unless otherwise specified in the specific contract, deliverables shall be made available to ECMWF in electronic format (PDF/Microsoft Word/Microsoft Excel or compatible) via the Copernicus Deliverables Repository portal.

Each Deliverable shall have an associated resource allocation (person-months and financial budget). The total of these allocated resources shall amount to the entire requested budget.

Milestones should be designed as markers of demonstrable progress in service development and/or quality of service delivery. They should not duplicate deliverables.

Adjustments to the proposed implementation plan can be made on an annual basis depending on needs for service evolution, changed user requirements, or other requirements as agreed between the European Commission and ECMWF.

#### 4.3 Communication

The successful Tenderer shall support ECMWF in its communication activities for the CAMS services, where they are related to the activities described in this ITT. Examples are contributions to the Copernicus State of the Climate report, CAMS web site news items, and CAMS brochures and flyers.

#### 4.4 Key performance indicators

Contractors shall report to ECMWF on a set of Key Performance Indicators (KPIs) suitable for monitoring various aspect of service performance. These will be used in the overall monitoring of the CAMS programme for which the following KPI categories have been identified:

- KPI1 Service availability
- KPI2 Products usage
- KPI3 Products quality
- KPI4 User support
- KPI5 User statistics
- KPI6 Service audience
- KPI7 User engagement
- KPI8 User satisfaction
- KPI9 Contracts
- KPI10 Deliverables
- KPI11 data usage

The table below provides the template to be used by the Tenderer to describe the KPIs, relevant for this ITT, together with performance targets, delivery schedules and explanations if needed. Please note that the listed KPIs form part of the overall set of KPIs comprising the full CAMS service portfolio; the successful Tenderer therefore might have to provide KPI values for a KPI in support of services outside this ITT.

All KPIs shall be labelled and numbered as indicated. All KPIs shall be periodically updated as described in the tables. Tenderers shall provide preliminary versions of the completed tables as part of their bid.

The list of KPIs shall be reviewed with ECMWF in the second year of the contract and updated if necessary.

Service availability KPI #	KPI Title	Performance Target and Unit of Measure	Frequency of Delivery	Explanations / Comments
KPI_94.5.1	Number of users segmented by main service product lines	%/year	Quarterly	
KPI_94.5.2	Number of active users by main service product lines	%/year	Quarterly	
KPI_94.5.3	Number of new users	%/year	Quarterly	

KPI_94.5.4	Number of users per country	Number/year	Quarterly	
KPI_94.5.4	Number of active users per country	Number/year	Quarterly	
KPI_94.5.5	Number of new users per country	Number/year	Quarterly	
KPI_94.6.1	Number of website visitors (overall and unique)	%/year	Quarterly	
KPI_94.6.2	Number of new unique visitors	%/year	Quarterly	
KPI_94.7.1	Number of user events organised	2/year	Annually	
KPI_94.10.1	% of deliverables delivered on time or with short delay	> 90%	Annually	

#### 4.5 URDB requirements

#### 4.5.1 Use of existing URDB information

For the set-up of the User Requirements Data Base (URDB), the successful Tenderer shall take into account the existing URDB and its content. The current structure of the URDB is available in Annex 1 and the up-to-date content will be made available at the start of the Framework Agreement. The successful Tenderer shall ensure no existing information is lost in the proposed set up of the URDB.

#### 4.5.2 CAMS user requirements management

As part of CAMS, the database and three documents described below will be maintained. The successful Tenderer shall develop and maintain the URDB but also provide input to the RAD, SPP, and SES documents regarding user requirements that are directly related to activities covered by this ITT.

#### User Requirements Database (URDB) and Requirement Analysis Document (RAD)

User requirements are collected in this database in a structured and traceable way, and links to entries in the Service Product Portfolio (see below) are provided, when appropriate. The URDB, which tracks all requirements emanating from a wide variety of user fora, surveys, and support panels, is complemented by a Requirements Analysis Document (RAD) which captures the stratification of user requirements per domain, importance and feasibility. The RAD constitutes the basis for distilling, filtering and translating user requirements into technical specifications for the Service. The URDB and RAD are maintained and continually updated by ECMWF and its contractor for CAMS\_94 (User Interaction).

#### Service Product Portfolio (SPP)

Both data and value-added products are presented in this document in a structured way, providing key technical aspects, when appropriate, such as geophysical parameter, temporal resolution and coverage, spatial resolution and coverage, data formats, time availability, expected quality, data format together with a direct link to detailed information on methodology and quality monitoring for each specific product or services.

#### Service Evolution Strategy (SES)

The appropriateness of the list of emerging and existing user requirements, the routinely updated Requirement Analysis Document and the existing Service Product Portfolio, are continually monitored by ECMWF and feed into a Service Evolution Strategy (SES) document. The SES document is produced on an annual basis and provides, in addition to the annual implementation plan focussing on year n+1 service Deliverables, a proposed longer term (typically 4 years) perspective for forthcoming service upgrades and extensions, the expected benefits and costs, together with recommendations for potential research needs outside Copernicus operations. This document allows informed discussions to be opened on specific proposed service upgrades and extensions with the stakeholders.

## 5 Tender Format and Content

General guidelines for the tender are described in Volume IIIB. Specific requirements to prepare the proposal for this particular tender are described in the next sub-sections.

#### 5.1 Page Limits

As a guideline, it is expected that individual sections of the Tenderer's response do not exceed the page limits listed below. These are advisory limits and should be followed wherever possible, to avoid excessive or wordy responses.

Section	Page Limit
Executive Summary	2
Track Record	2 (for general) and 2 (per entity)
Quality of resources to be	2 (excluding Table 1 in Volume IIIB and CVs with a maximum
Deployed	length of 2 pages each)
Technical Solution Proposed	2 + 3 per Work package (Table 2 in Volume IIIB, the section on
	references, publications, patents and any pre-existing IPR is
	excluded from the page limit and has no page limit)
Management and	6 (excluding Table 3, Table 5, Table 6 and Table 7 in Volume IIIB) +
Implementation	2 per each Work package description (Table 4 in Volume IIIB)
Pricing Table	No limitation

Table 1: Page limits

#### 5.2 Specific additional instructions for the tenderer's response

The following is a guide to the minimum content expected to be included in each section, additional to the content described in the general guidelines of Volume IIIB. This is not an exhaustive description and additional information may be necessary depending on the Tenderer's response.

#### 5.2.1 Executive Summary

The Tenderer shall provide an executive summary of the proposal, describing the objectives, team and service level.

#### 5.2.2 Track Record

The Tenderer shall demonstrate for itself and for any proposed subcontractors that they have experience with relevant projects in the public or private sector at national or international level. ECMWF may ask for evidence of performance in the form of certificates issued or countersigned by the competent authority.

#### 5.2.3 Quality of Resources to be Deployed

The Tenderer shall propose a team that meets at least the following requirements:

- A senior team member (Prime Investigator) with more than 5 years of experience in managing activities related to this ITT;
- At least two additional senior team members with more than 5 years of experience on performing activities related to the various aspects of this ITT.

These team members shall be involved in the activities of this ITT at a minimum level of 10% of their total working time. The Tenderer shall also appoint a Service Manager, which will be its primary contact for contractual delivery and performance aspects.

#### 5.2.4 Technical Solution Proposed

The Tenderer is expected to provide a short background to the proposed technical solution to demonstrate understanding of the solution proposed. This should include background of the Tenderer's understanding of the Copernicus Atmosphere Monitoring Service and the current state of user interaction methods and strategies.

An exhaustive and detailed description of the proposed solution for all work packages described above, including any ramp-up or mobilization phase, shall be given. The Tenderer shall indicate its technical solution for setting up and maintaining the URDB and how this will address the requirements defined in the specific work package. The Tenderer shall also describe its proposed plan for organizing user meetings and what other means of interaction with users it will use. Finally, the Tenderer shall describe its proposed activities for the monitoring of the Service Product Portfolio against user requirements and provide a detailed proposal for the generation of user.

## Annex 1 URDB Structure

See separate Microsoft Excel file "CAMS\_94\_Volume II\_Annex 1.xlsx".