Issued by: KNMI

Date: 06/04/2016

REF.: CAMS84\_2015SC1\_D84.0.6-2016Q1\_201604

Version 0.1.0

Status: in review

Quarterly report  
Q1/2016

CAMS\_84 / Validation

# Performance of the Service Contract

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.1 | **Validation of CAMS Near-Real-Time Global Products** |
| **Performance of tasks** | Tasks, repeated every 3 months:   * Retrieve forecast and analyses fields from the global service provider. Retrieve information on model and assimilation (datasets) upgrades and evolution, information on availability. * Generate a set of routine validation plots for a core set of validation observations. * Generate specific validation plots for all observational datasets and plots to be included in the validation reports by individual partners. KNMI is responsible for the general sections and the final editing. * Discuss the results and conclusions with all CAMS-84 colleagues involved. * Assemble the draft validation report. * Incorporate feedback and publish final report.   Achieved during Q1 2016:   * All the above tasks were achieved. The report is publicly available at http://atmosphere.copernicus.eu/quarterly\_validation\_reports. * The content of the second report includes new activities. For the new Arctic and Mediterranean themes, corresponding sections have been added. The greenhouse gas results will be added in the third report.   The project started one month late (first week of November). Nevertheless, the second report was delivered according to the original schedule included in the proposal. Effectively we have been able to gain one month. | |
| **Deliverables** | * D84.1.1: (M2) Validation report of the MACC near-real time global atmospheric composition service; **delivered** * D84.1.2: (M5) Validation report of the MACC near-real time global atmospheric composition service; **delivered** | |
| **Milestones** | * M84.1.1: (M2) Availability of draft validation report two weeks before publishing; **reached** * M84.1.2: (M5) Availability of draft validation report two weeks before publishing; **reached** | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.2 | **Verification of CAMS Near-Real-Time Global Products through provision of routine validation graphics** |
| **Performance of tasks** | Tasks:   * Continuous: maintain the validation websites available in the MACC-III validation subproject with up-to-date content, and include development activities from WP 2 and 8 when they become available. Websites are reviewed every 3 months. * Development (led by S&T): The development of an improved processing chain for verification/validation plots, including acquisition of the model fields and the measurements. Improved presentation of verification plots on the websites. * At PM4: Delivery of the Specification & Design document, including a development plan for the first development phase.   Achieved during Q1 2016:   * The MACC-III websites have been kept up-to-date. * Monitoring of the up-time of the websites has been installed. This is a KPI to be reported monthly. * A template for the new CAMS website was received from ECMWF and was iterated a few times to incorporate feedback from CAMS-84. * A complete set of newly formatted websites (with CAMS template) was delivered at the end of February, as agreed with ECMWF. * A series of interviews were conducted by S&T with all partners during December and January, resulting in an inventory of requirements and practices of the individual partners. The S&T work was delayed due to the late start and due to the contract negotiations. A draft Specification and Design document is now available, to be discussed further in April. | |
| **Deliverables** | * D84.2.1: (M2) Initial set of verification websites with up-to-date content (continuity from MACC-III); **delivered** * D84.2.2: (M3, M6) Up-to-date websites. As agreed, the new CAMS template was included in all websites by the end of February 2016; **delivered** | |
| **Milestones** | * M84.2.1: (M3, M6) Review of content of the websites; **reached** * M84.2.2: (M4) Availability of the Specification and Design document; Draft document is now available. **delayed** | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.3 | **Validation and assessment of upgrades of the CAMS global production system** |
| **Performance of tasks** | This work-package involves the assessment of model upgrades, or the "e-suite"  Tasks: • Download of e-suite model fields. • Collection of measurement data. • Production of verification plots • Quick-look feedback to the service provider and modellers involved. • Set up a schedule for delivery, together with the global service provider. • Assemble plots, formulate conclusions, and write the "upgrade verification note".  Achievements during Q1 2016: **work is on time**   * The first CAMS e-suite was announced by ECMWF on 1 March. * A schedule for the e-suite evaluation was announced. * All partners have started with the evaluation. * Quick-look feedback was provided to ECMWF on 1 April. * The first e-suite report is expected by the end of April. | |
| **Deliverables** | * (none) | |
| **Milestones** | * (none) | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.4 | **Specific validation of CAMS Near-Real-Time Global Products for the Arctic and Mediterranean areas** |
| **Performance of tasks** | Task 1: Arctic (Partner: AU)   * To collect and prepare data from IASOA, AMAP and other datasets mentioned in WP 84.1 and 84.7. To use results from the DEHM model for evaluation. To deliver sections for the reports of WP 84.1, 84.3 and 84.7. To act as contact point for the IASOA and AMAP communities.   Task 2: Mediterranean (Partners: BSC/AEMET and AA)   * NRT validation of aerosols, PM10 and AOD (Task 2.1) * NRT validation of reactive gases, O3, CO, NOx, HCHO (Task 2.2) * Case studies and extreme events (Task 2.3) * Delivery of sections for the reports of WP 84.1 and 84.7.   Achieved during Q1 2016:   * Results were obtained for both tasks. Separate sections on these two new themes have been introduced in the second NRT report of WP 1. These sections will be further expanded in the upcoming validation reports. * CAMS-84 has participated in two meetings (aerosol and ozone) of the IASOA community and presented the CAMS activities and need for real-time data. | |
| **Deliverables** | * D84.4.1: (M5) Validation results for the Arctic and Mediterranean, in the form of sections that have been included in the validation reports of WP 84.1; **delivered** | |
| **Milestones** | * M84.1.2: (M5) Availability of draft validation report two weeks before publishing. **reached** | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.5 | **Validation of CAMS Regional Products above the surface** |
| **Performance of tasks** | Tasks for first 3 months:   * Update the discussion note developed during MACC-II. * Organise a meeting with CAMS-50 to find an optimal compromise between the output requested and the extra output that can be delivered by all models, and to discuss data transfer/storage.   On a 3-monthly basis:   * Collect forecast/analysis data from the regional models. * Collect measurements. * Generate validation plots for all observational datasets and plots to be included in the validation reports. * Individual partners will provide the text and figures for the sections in the validation reports. The responsibilities and contributions of the individual partners are listed in table 2.1 and table 3.3. Input from WP 84.1 will be included. KNMI is responsible for the general sections and the final editing. * Discuss the results and conclusions with all CAMS-84 colleagues involved. * Assemble the draft validation report, distribute to the regional teams. * Incorporate feedback and publish final report.   On a yearly basis: A similar set of tasks will be performed for the yearly reanalyses. The report will be finished 3 months after the model outputs become available. These reports have been tentatively put on M14 and M26 although the moment of availability of the reanalyses is not known.  Achievements during Q1, 2016:  Due to the late contract signature for both CAMS-50 and CAMS-84, this task is somewhat delayed. A meeting of the two subprojects took place on 2 February 2016 in Paris. An updated and detailed plan for WP 5 was presented and reviewed by CAMS-50. CAMS-84 has incorporated the feedback and the final plan was finished in March.  The dowload and processing of data was discussed to optimise the number of ftp requests to the Meteo France data server. Scripts have been developed and are run centrally to extract regional model forecasts at the locations of the surface stations identified in the plan. About 6 weeks of data is now (5 April) available for the validation work. The first report will be presented in month 8. | |
| **Deliverables** | * D84.5.1: (M2) Validation plan for the regional services; **delivered with delay** * D84.5.1: (M5) Validation report for the regional services; **this deliverable is shifted to month 8** | |
| **Milestones** | * M84.5.1: Availability of the validation plan; **reached with delay** | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.6 | **Validation of the interface between CAMS global and regional production systems** |
| **Performance of tasks** | Task 1. Comparison of CAMS regional and global model products.   * Model-to-model comparisons for O3, CO and aerosol. * Analysis of major events (dust, fire, and photochemical pollution events). * Evaluation of long-range transport.   Task 2. Evaluation of CAMS global and regional products.   * Comparison of regional and global products with observations, using results from WP 84.1 and WP 84.5.   The "consistency reports" will be issued yearly. However, the WP will also contribute the 3- monthly reports of WP 84.5 with short summary and list of possible major inconsistencies.  Achievements during Q1 2016 (partner AUTH):  The processing scripts to download the data, pre-process, and compare the global and regional model outputs have been developed and are in place. The work has focused on ozone and CO for the first report.  The first verification report has become available (first draft end of February, reviewed version end of March), and was submitted to the CAMS-50 management and modelling teams for review (deadline 12 April). | |
| **Deliverables** | * D84.6.2 (M6): Reports on the monitoring of global CAMS BCs. **delivered** | |
| **Milestones** | * M84.6.2: (M5) Availability of draft validation report two weeks before publishing. **reached** | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.7 | **Validation of CAMS Global Reanalysis Products** |
| **Performance of tasks** | This work-package involves the validation of the CAMS global reanalysis products delivered by the global data provider ECMWF.  Tasks:   * No tasks in the first 6 months (there is no reanalysis data available at this moment; start of the reanalysis is planned for Summer 2016) | |
| **Deliverables** | * (none) | |
| **Milestones** | * (none) | |

|  |  |  |
| --- | --- | --- |
| **Work package #** | CAMS\_84.8 | **Improvement of validation methodology** |
| **Performance of tasks** | There are four objectives for this work package:  1. Deliver a report to characterise the measurements used.  2. Develop scoring methods.  3. Report on "data mining"  4. Publish results.  Activities during Q1 2016:  - A completely revised and reviewed version of the "Observations characterisation document for validation" has been written, based on new input from all partners, including the activities which are new compared to MACC.  The revised document D84.8.1 is intended to be published on the CAMS website, and provides important traceability background information to the reports of WP 84.1. | |
| **Deliverables** | * D84.8.1: (M3) Observations characterisation document for validation; **delivered** * D84.8.1b: (M6) First (major) update of the observations characterisation document for validation (note that this is a deliverable not explicitly mentioned in the CAMS-84 contract); **delivered** * D84.8.2: (M3) Validation scoring methods document; **delivered** | |
| **Milestones** | * M84.8.2: (M3, M6) Review of draft document, updated work plan; **reached** | |

Other points:

* Sub-contract status: 9 out of 13 sub-contracts have been signed. For the following sub-contractors the contract has not been signed yet, pending closure of discussions on some sub-contract details: CEA-LSCE, DWD, IUP and UBC. KNMI is still targeting for getting the four remaining sub-contracts signed in April 2016.
* Financial status: after receiving from ECMWF the Notice of Acceptance for Payment 1 of 2015/CAMS\_84/SC1, KNMI has send an invoice (with number 1800011153) to ECMWF. KNMI has also started the invoice process for the subcontractors.
* On request of ECMWF, KNMI is writing a short summary of the main discussion items that showed up during the sub-contract negotiations and that were related to the content of the ECMWF-KNMI framework contract. This summary will be released to ECMWF in April 2016.
* KPI 3 “User satisfaction”: discussion on KPI is still ongoing. DLR/Thomas Popp has issued a document to trigger discussion.

# Key Performance Indicators

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| KPI | Target end of contract | Status previous quarter  (Q4/2015) | Current status  (Q1/2016) | Expected status  (Q2/2016) | Comments trend |
| KPI 1:  Timeliness.  Timeliness of the validation reports. |  | According to schedule. | According to schedule | According to schedule. | No delays in the WP1 deliverable. |
| KPI 2:  User Uptake:  The number of downloads for each of the validation reports. |  | Operational. This KPI is monitored by ECMWF. Results are reported to KNMI. | Operational | Operational. Better filtering for validation reports applied. | See KPI 2 table below.  NOTE: the table is based on ECMWF information resulting from monitoring websites using Google Analytics. However, it turned out to be quite difficult to filter specifically for validation reports in all the ECMWF information. Therefore, the provided numbers are rather uncertain. A discussion on how to improve the accuracy of these numbers has started with ECMWF/Eva Remete. |
| KPI 3:  User Satisfaction  Percentage /numbers of users that find sufficiently quantitative information in the validation reports for their area. |  | Not implemented yet. This will be discussed with CAMS-94, Thomas Popp. | Under discussion. | Probably not operational pending progress on KPI discussion. | A draft document has been released by DLR/Thomas Popp in which criteria for good KPI’s are discussed. Based on these criteria and to trigger a further discussion on the KPI definition, only two extreme KPI’s are currently proposed: one simple, easy, short, the other detailed and focused. No decision yet. |
| KPI 4:  Verification Websites.  Percentage of ‘uptime’ of the verification websites. |  | A choice has been made to use ‘Uptime Robot’ for monitoring the uptime of websites. This is a free online monitoring service.  Not operational yet. | The monitoring of the uptime of the CAMS and MACC (if still operational) verification websites is operational. | Operational. Based on the new CAMS-style websites that became available at the end of February 2016 | See KPI 4 table below. Both new (CAMS) and old (MACC if still operational) websites have been monitored. |

Results for KPI 2 “User Uptake”:

Note the remark made in the table above on the uncertainty in the KPI 2 input numbers provided by ECMWF.



Results for KPI 4 “Percentage of uptime verification websites”:

Note that the low percentage number for the Surface Ozone Evaluation website (row 04 in the table below) is related to the transition the new website in which now the CAMS-style template is applied.



# Financial reporting

## Use of Funds invoiced to ECMWF

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | **Duration** | **Amount (EUR)** |
| Price Framework Contract | | | | 36 months | 2 824 999.00 |
| **Price Service Contract 1** | | | | **15 months** | **1 222 259.00** |
| **Invoices issued during project** | | | | | |
| Payment number | Date request for payment | Period of activities /Milestone covered | Activities covered by payment | | Amount (EUR) |
| 1 | 31/12/2015 | Q4 2015 | Upon acceptance by ECMWF of the deliverables due for WP 84.1, 84.4, 84.5, 84.6, and upon acceptance by ECMWF of the progress made for WP 84.2, WP 84.3, WP 84.7 and WP 84.8 (including deliverables) | | 218 750.00 |
| 3 | 31/03/2016 | Q1 2016 | Upon acceptance by ECMWF of the deliverables due for WP 84.1, 84.4, 84.5, 84.6, and upon acceptance by ECMWF of the progress made for WP 84.2, WP 84.3, WP 84.7 and WP 84.8 (including deliverables) | | 218 750.00 |
| **TOTAL** | | | | | 437 500.00 |
| Remarks |  | | | | |

Summary of cost break-down for payments linked to **COST-REIMBURSEMENT activities\***:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WP** | **Name  (sub-)contractor** | **Personnel costs** (EUR)(incl. overhead) | **Travel costs** (EUR) | **Computing costs** (EUR) | **Other costs** (EUR) [specify] | **Total Amount** (EUR) | **Deliverables and milestones** |
| WP1 |  |  |  |  |  | [ ] |  |
| … |  |  |  |  |  |  |  |
| WPn |  |  |  |  |  |  |  |
| **TOTAL** | | | | | | | **[ ]** |

\* The selected payment procedures are specified in Annex 3C of the Service Contract. Details shall be in line with the Report on the Use of Resources as submitted for the Contract Performance Verification of the payment.

Not applicable for this Quarterly Report Q1/2016. Delay of the deliverable 84.2.3, expected in April 2016.

## Anticipated costs, expenses and price claims

Below an overview is given on the evolution of the use of Funds from the start of the service contract up to the next two calendar quarters.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **Duration** | **Amount (EUR)** | |
| Price Framework Contract | | | | | 36 months | 2 824 999.00 | |
| **Price Service Contract 1** | | | | | **15 months** | **1 222 259.00** | |
| **Calendar Quarter** | **Payment number** | **Date request for payment** | **Period of activities /Milestone covered** | **Activities covered by payment** | **Amount (EUR)** | **Percentage** | **Cumulative budget (EUR)** |
| Q1/2016 | 2 | 20/03/2016  delayed | Milestone 84.2.3 | Upon acceptance by ECMWF of the "specification and design" document of WP 84.2 | 25 000.00 | 2% | 25 000.00 |
| Q2/2016 | 4 | 30/06/2016 | Q2 2016 | Upon acceptance by ECMWF of the deliverables due for WP 84.1, 84.4, 84.5, 84.6, and upon acceptance by ECMWF of the progress made for WP 84.2, WP 84.3, WP 84.7 and WP 84.8 (including deliverables) | 218 750.00 | 18% | 243 750.00 |
| Q2/2016 | 5 | 30/06/2016 | Milestone 84.2.4 | Upon acceptance by ECMWF of the WP 84.2 report on development activities defined in the specification and design document, and acceptance of the corresponding software deliverables. | 50 000.00 | 4% | 293 750.00 |
| Q3/2016 | 6 | 30/09/2016 | Q3 2016 | Upon acceptance by ECMWF of the deliverables due for WP 84.1, 84.4, 84.5, 84.6, and upon acceptance by ECMWF of the progress made for WP 84.2, WP 84.3, WP 84.7 and WP 84.8 (including deliverables) | 218 750.00 | 18% | 512 500.00 |
| **TOTAL** | | | | |  |  | 512.500.00 |
| *Remarks* | | S&T WP 84.2.3 delay T+05 (April 2016) | | | | | |

# Checks, audits and risk management

## Checks and audits

According to section 4.7 “Control Mechanisms” of the CAMS-84 Financial Project Manual, which is part of all sub-contracts, twice per year costing details will be asked from two arbitrary sub-contractors.

Also, for every quarterly invoice from the sub-contractors KNMI will also ask for financial details.

Such regular checks/audits by the contractor KNMI have not taken place yet.

Ex-post audits are not relevant yet considering the current phase of the CAMS-84 project.

## Update on the risk and mitigation plan

The current risk map for is shown below. Based on discussions with CAMS-50 the likelihood of risk R2 “Availability of regional model data” has been lowered from 3 to 2.



# Assets inventory

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **List of assets** | **Asset description** | **Part Number** | **Serial Number** | **Date of acquisition** | **Acquisition value** | **Contract reference** | **Location** |
| **Intellectual Property Rights (IPRs)** | | | | | | | |
| NORS server SW | Software for browsing and viewing intercomparison reports that use remote sensing data. |  |  |  |  | Sub-contract KNMI-S&T | S&T |
| CODA SW | The Common Data Access toolbox (CODA) provides a set of interfaces for reading remote sensing data from earth observation data files. |  |  |  |  | Sub-contract KNMI-S&T | S&T |
| GECA SW | Generic Cal/Val Analysis Environment software |  |  |  |  | Sub-contract KNMI-S&T | S&T |
| HARP SW | Toolkit for ingesting, processing and inter-comparing satellite remote sensing data against correlative data. |  |  |  |  | Sub-contract KNMI-S&T | S&T |
| MUNINN SW | Generic 'product archive/catalogue' software solution for earth observation data products. |  |  |  |  | Sub-contract KNMI-S&T | S&T |
| DEHM | Chemical transport model. |  |  |  |  | Sub-contract KNMI-AU | AU |
| **Other intangible assets** | | | | | | | |
| None |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Fixed assets (equipment)** | | | | | | | |
| None | According to Table 5 in the Pricing Table, fixed assets will only be acquired by sub-contractor MET-NO for an amount less than 7000 euro’s. Therefore, details do not need to be provided here. | | | | | | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Note:

For all the IPR assets from sub-contractors S&T and AU as mentioned above, article 3.3.3 of the Prime Contract applies.