



Royal Netherlands
Meteorological Institute
*Ministry of Infrastructure
and Water Management*

Information Memorandum no. 2

associated with

Public European Tender

Delivery of a MET/ANSP OPMET system (including user license, support and maintenance)

Reference no. TN-397421

Date of Publication of Memorandum of Information: March 21st 2023

(In this document both the questions for clarifications of Memorandum of Information 1 and Memorandum of Information 2 have been included.)

This Memorandum of Information is an integral part of the Descriptive Document. The questions included in this Memorandum of Information are taken verbatim as they were asked.

The Memorandum of Information has been/will be made available at www.tenderned.nl

Please note!

Deadline for submission of Tenders, no later than: **April 4th 2023 (Tuesday), 12.00 CET** (local The Hague time)



Question Form

For the public European tender procedure Replacement of MET-ANSP OPMET System for KNMI (TN-397421)

- **Memorandum of Information 1 (published on February 28th 2023, questions 1 to 5) -**

Question number	Document	Question	Answer
1	Descriptive Document / 3.2 Final products in scope of the assignment	When is the delivery of the provided system expected? Can we propose a phased delivery of the product with the installation first of an IOC (initial operational capability) version and the installation later of the FOC (full operational capability) one, provided that the installed version is compliant with current SADIS requirements? Of course, an additional session of training and acceptance test would be arranged.	It is a wish of the Contracting Authority that a working version of the system will be delivered before the end of this year (2023). If the Tenderer needs more time to deliver the system, this can be discussed and if needed adjusted in the final version of the Agreement in Annex 2. A phased delivery with an initial version and a final full operational version is possible within the agreed timeline of delivery. In case of phased delivery the conditions of the Site Acceptance Test as stated in the Draft Agreement Annex 2, are based on the final full operational version. If additional training is to be provided, this should be calculated in the pricing sheet. The pricing sheet, or the amount of training-sessions remain the same. It is for Tenderer to decide whether training-sessions should be divided into multiple parts. The Contracting Authority requests one integral price for the Training-session.



Question number	Document	Question	Answer
2	Annex 2 - Draft Agreement, Article 5.1 Delivery, Installation and Configuration of the OPMET system.	How hard is the deadline of delivery of the OPMET system within 5 months after signing of the contract.	Annex 2 is a Draft of the final Agreement. If the Tenderer needs more time to provide the system, this can be discussed and if needed adjusted in the final version of the Agreement.
3	Annex 10 - SLA OPMET system	What means does the Client provide to Contractor to monitor system performance? Obviously system uptime is not dependent on software performance alone and in order to avoid penalties and allow for proper Service Level Reporting we need insight into all components.	In case of a SaaS solution, the Tenderer is responsible for monitoring the system performance (including its cloud en network infrastructure) and providing the Contracting Authority with logging information, so that the Contracting Authority can also (remotely) monitor the performance of the system. In the case of an on-premise AWS solution, the Contracting Authority monitors the performance of the delivered system, including the cloud and network infrastructure in which the system runs. The Contracting Authority uses Grafana for this. In the event of system malfunctions, the Contracting Authority will make an initial diagnosis and provide the Tenderer with all available logging information and further details necessary to solve the problem. Solving the problem is a joint responsibility. Post mortem, a joint analysis we be made to determine the causes of problem.



Question number	Document	Question	Answer
4	Annex 9 - Sub award criteria criterion 2	To what future WAFC developments is KNMI referring?	In the near future WAFC will no longer produce finished weather charts (SIGWX and/or UWT) but will only provide base data for the production of such charts. KNMI will then need a capability to produce charts.
5	Annex 2 and 10	Up to what moment in time and to what extend can Tenderer propose changes to the Agreement and SLA to be drafted between parties?	In case of unattainable, unreasonable or unacceptable conditions, the Contracting Authority invites the Tenderer to submit proposals for changes to the Agreement and/or the SLA. Proposed changes must be submitted no later than during the second round of questions. Proposed changes may not conflict with the requirements as stated in Annex 5 "Program of Requirements".

Memorandum of Information 2

Question number	Document	Question	Answer
1	Annex 5 - Program of Requirements TN-397421 A.3 General requirements	Is it possible to offer a solution that meet the information security requirements as specified in NEN-ISO/IEC 27002-2017 without being certified?	Yes, as long as Tenderer demonstrates how the solution meets the described requirements.
2	Annex 5 - Program of Requirements TN-397421 A.7 General requirements	Is it possible to offer a solution that meet the information security requirements as specified in NEN-ISO/IEC 27002-2017 without being certified?	same answer as 1 (question does not pertain to requirement A.7)



Question number	Document	Question	Answer
3	Annex 5 - Program of Requirements TN-397421 A.7 General requirements	Could you provide more detail upon "KNMI relevant Systems"?	The KNMI relevant systems the solution needs to connect with are; 1. the MSS for retrieval of OPMET messages (at least the domestic set), 2; the file distribution system (Vivid) for delivery of system output files to clients and 3; the Aviationweather website back-end to allow aviation users access to the system functions (data selection and PFBD production). Also see the Descriptive document chapter 3.1 for further detail.
4	Annex 5 - Program of Requirements TN-397421 B.1 Operations requirements	Could the results of resilient tests plan to be performed by another client in Europe, be used as an evidence that we meet this requirement?	Yes, provided that the implementation model for said client is comparable to the one for KNMI.
5	Annex 5 - Program of Requirements TN-397421 D.4 SaaS solution	Could you provide more details upon "The System connects with all relevant KNMI systems in a Production Environment"?	See answer to question 3 of Memorandum of Information 2. In addition it is relevant to take into account all the network security elements when connecting a SaaS solution to an largely on-premise KNMI landscape.
6	Annex 5 - Program of Requirements TN-397421 H.9; H10; H11; H12 & H13 System Input	Is it possible to offer partial compliance for SWIM for a first version? If yes, have there some priority criterias?	This depends which part of SWIM compliance the Tenderer is referring to. KNMI views 3 aspects with regard to SWIM compliance: 1) content, 2) connectivity and 3) registration of services. As for content KNMI demands compliance in the sense that all OPMET data should be available both in TAC and IWXXM formats. With regards to connectivity and registration we understand that there is an amount of flexibility required on our side. For a first version compliance w.r.t. content is acceptable. The final version should however also



Question number	Document	Question	Answer
			be compliant with connectivity and registration of services requirements.
7	Annex 5 - Program of Requirements TN-397421 J.2 System output & J.5 System output	OPMET messages are generated in the PDF flight folder. Does the option to generate OPMET messages apply to any users or only to KNMI staff or specific users having dedicated roles and rights? Do you expect an automatic PDF generation or a manual PDF generation?	We do not understand the reference to the PDF flight folder. With regard to requirements J2 and J5 KNMI insists that this applies to users with applicable rights in the system. Aviation users are represented as a single user (the aviation website back-end system). The selection of data is manual but the PDF output file should be produced without further user action.
8	Annex 5 - Program of Requirements TN-397421 J.15 System output	Do you have examples?	Yes. See attachments; Annex 1 of MoI-2 - Explanation on Grafana logfile and example and Annex 2 of MoI-2 -Examples of fixed data reports.
9	Annex 5 - Program of Requirements TN-397421 K.2 Pre-flight Briefing Document	Is it possible to offer partial compliance for SWIM for a first version? If yes, have there some priority criterias?	Please see answer to question 6 of Memorandum of Information 2.
10	Annex 5 - Program of Requirements TN-397421 K.5 Pre-flight Briefing Document	Does KNMI have a subscription for this type of data with regular updates?	KNMI has an up-to-date list in its current system but is not currently subscribed to a provider for this data. KNMI is looking forward to proposals from Tenderer on how to incorporate this into the new solution.
11	Annex 5 - Program of Requirements TN-397421 K.7, K.8; K.9, K.10; K.11, K.16 & K.17 Pre-flight Briefing Document	Can predefined flightpaths (IFR and VFR) be prepared manually by an operator and then selected in a list to be duplicated and used as needed?	We are not clear on what you mean by 'operator'. Flightpaths can be pre-defined by the system administrator and stored in the system. Aviation users can request a PFBF by selecting a pre-defined flightpath on the aviation website.



Question number	Document	Question	Answer
12	Annex 5: B4	Are these data requests already in a fixed format and can you please provide representative examples of the requests?	Requirement B4 aims at guaranteeing system-performance under load. If for instance a 100 different users are logged on the KNMI Aero website and request a function (e.g. a selection of OPMET messages or a flightdoc) from the system, the system should be able to handle this without the response time growing significantly. (The type of data/function request ranges from selecting a single OPMET message to production of a complete pre-flight briefing document for a long route).
13	Annex 5: C3	Do you have examples of what kind of logging you expect to go to Grafana?	Yes, please see attachment Annex 1 of MoI-2 - Explanation on Grafana logfile and example.
14	Annex 5: H12	Is it acceptable if these are set and changed in a configuration file - no UI?	Yes but Tenderer needs to explain how such configuration files are maintained (text editor?) and used in the system. An example of the configuration file must be provided.
15	Annex 5: J1	We assume that you will still develop the software that will use the BREMS/OPMET replacement API, i.e. no existing software. Is it correct?	Requirement J1 in Annex 5 means that we expect that the Tenderer provides a SWIM compliant API that can be used to retrieve data from the System.
16	Annex 5: J6	Will these output files be available to all users? Should it be selectable by BREMS/OPMET web interface or on external interface or API?	The system produced output files (scheduled) are to be placed on an SFTP server for distribution to the intended clients. Distribution is handled by the KNMI Vivid system. Produced output files are not selectable by end-users.
17	Annex 5: J7	Will different settings apply to different users or is it a global limit?	Data selection constraints are global settings.



Question number	Document	Question	Answer
18	Annex 5: J10	Will the content of the zip or tar files be determined independently by any end-user, or set-up by the administrator as a rule?	Archiving of OPMET messages is a process determined solely by the system-administrator. The selection criteria can only be changed by that role either via UI or in a config file.
19	Annex 5: J11	Can you please explain where the FTP/SFTP requests will originate/triggered from, e.g. on-demand from a web page, or scheduled, or ...?	The output files the system produces are to be placed on an (S)FTP server for pick-up by the KNMI distribution system. (Please also refer to the answer for question 16 of Memorandum of Information 2.)
20	Annex 5: K2	Are the files to be delivered part of a fixed configuration (IP, user, ...) or does it change continuously ? Why can your MSS for instance not deliver the data via SFTP ?	Requirement K2 means that together with the System, the Tenderer must provide a SWIM compliant API, that can be used to produce PreFlightBriefing-Documents (PFBD). In the deployment foreseen, the PFBD API will be called from the KNMI aviation website (fixed end-point). An aviation user is logged on to the website and not to the new system. On the website the user requests a PFBD for a certain route/flightpath. The website back-end will translate the request to one or more calls to the new system's API. The request for a PFBD should be handled by the website and the API, not by our MSS.
21	Annex 5: K14	Is this selection on advisory centre or do you want to use other criteria and if so please list them?	Selection of advisories should be on advisory type. Advisories are incorporated into a PFBD if the flightpath crosses the area to which the advisory applies. The Tenderer can provide details about their approach in Annex 9 – Sub Award Criteria number 7.



Question number	Document	Question	Answer
22	Annex 5: K17	How will the pre-defined flight paths be used - i.e. should it be available to all users, or only a selected few? We assume that users select these flight paths from BREMS/OPMET replacement web pages, is it correct?	Pre-defined flightpaths should be available for all users to request production of a PFBD. Users must make use of the aviation website to select or create their desired flightpath. Selection is from the predefined list. Creation is done by entering start- and endpoint and intermediate waypoints.



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Annex 1 of MoI-2 -Explanation on Grafana logfile and example

Explanation on Grafana logfile and example.

The log consists of columns separated by @ and contains the following items:

Column 1 Storetime in format 'YYYYMMDD HH24:MI:SS'

Column 2 Type: 'VE' = Succes 'WA' = Warning

Column 3 Bulletin header

Column 4 WMO code

Column 5 ICAO code

Column 6 FIR code

Column 7 East West indication

Column 8 Longitude

Column 9 North South indication

Column 10 Latitude

Column 11 Error text

Column 12 Function

Column 13 Date/Time of the Bulletin/Report in format 'DDHHMI'

Column 14 Valid period in format 'DDHHMI'/'DDHHMI'

Column 15 Remark

Example of log:

```
20230317 11:00:09@VE@SANU31 TNCA 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@SANU31 TNCA 171100 @78982@TNCA@ @W 70.01N 12.3@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171100@ @METR

20230317 11:00:09@VE@FCUK52 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@FCUK52 EGRR 171100 @03462@EGXT@ @W .27N52.36@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171056@1712/1718@

20230317 11:00:09@VE@FCUK53 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@FCUK53 EGRR 171100 @03414@EGOS@ @W 2.39N52.47@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171050@1712/1718@

20230317 11:00:09@VE@FCUK53 EGRR 171100 @03302@EGOV@ @W 4.32N53.15@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171056@1712/1719@

20230317 11:00:09@VE@FCUK53 EGRR 171100 @03658@EGUB@ @W 1.05N51.37@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171029@1712/1718@

20230317 11:00:09@VE@FCUK53 EGRR 171100 @03590@EGUW@ @E .57N52.07@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171020@1712/1719@

20230317 11:00:09@VE@FCUK54 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @
```

20230317 11:00:09@VE@FCUK54 EGRR 171100 @03749@EGVP@ @W 1.34N51.08@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171045@1712/1717@

20230317 11:00:09@VE@FCUK54 EGRR 171100 @03257@EGXE@ @W 1.31N54.17@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171052@1712/1718@

20230317 11:00:09@VE@FCUK54 EGRR 171100 @03379@EGYD@ @W .3N53.01@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171028@1712/1718@

20230317 11:00:09@VE@FCUK54 EGRR 171100 @77499@EGYE@ @W .34N52.58@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171028@1712/1718@

20230317 11:00:09@VE@FCUK55 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@FCUK55 EGRR 171100 @03746@EGDM@ @W 1.45N51.09@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171041@1712/1718@

20230317 11:00:09@VE@FTUK51 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@FTUK51 EGRR 171100 @03068@EGQS@ @W 3.19N57.42@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171053@1712/1806@

20230317 11:00:09@VE@FTUK51 EGRR 171100 @03649@EGVN@ @W 1.34N51.45@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171048@1712/1812@

20230317 11:00:09@VE@FTUK51 EGRR 171100 @03672@EGWU@ @W .25N51.32@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171058@1712/1806@

20230317 11:00:09@VE@FTUK51 EGRR 171100 @03377@EGXW@ @W .31N 53.1@Successfully completed
@BRM_INVOER.OPSLAAN_REPORT @171057@1712/1806@

20230317 11:00:09@VE@FTUK52 EGRR 171100 @ @ @ @ @Successfully completed
@BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@VE@FTUK52 EGRR 171100 @03761@EGVO@ @W .56N51.14@Successfully completed
 @BRM_INVOER.OPSLAAN_REPORT @171058@1712/1724@

20230317 11:00:09@VE@FTUK53 EGRR 171100 @ @ @ @ @Successfully completed
 @BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@WA@FTUK53 EGRR 171100 @ @ @ @ @Invalid station
 @BRM_INVOER.OPSLAAN_REPORT @ @ @

20230317 11:00:09@VE@USUK02 EGRR 171000 @ @ @ @ @Successfully completed
 @BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@WA@USUK02 EGRR 171000 @03743@ @ @W 1.48N51.12@Report already exists and previous report <> NIL
 @BRM_INVOER.OPSLAAN_REPORT @ @ @

20230317 11:00:09@VE@UAIN01 VOMM 171057 @ @ @ @ @Successfully completed
 @BRM_INVOER.OPSLAAN_BULLETIN @ @ @

20230317 11:00:09@WA@SAUS70 KWBC 171100 @ @K10G@ @ @Invalid station
 @BRM_INVOER.OPSLAAN_REPORT @171055@ @

20230317 11:00:09@WA@SAUS70 KWBC 171100 @ @KACB@ @ @Station does not exist in the metadata
 @BRM_INVOER.OPSLAAN_REPORT @171055@ @

20230317 11:00:09@WA@UAIN01 VECC 171054 @ @ @ @ @Bulletin already exists



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Annex 2 of MoI-2 -Examples of fixed data reports

Examples of fixed data reports

I. An airport list:

Consists of the following columns (fixed length) :

Airport name, ICAO name, WMO code, Airport type, Latitude, Longitude, North South indication, East West indication, ICAO code, IATA code, Height, Country, FIR code, Civil, Runway length, IFR navigation, Metar, Taf, ICAO IFR, ICAOVFR, UIR code.

D15-FA-1		06201 N 54.19 2.56 n e EHDV	42 NLD EHAA	Y N EUR EUR NLVF
P11-B		06203 N 52.21 3.20 n e EHPG	41 NLD EHAA	Y N EUR EUR NLVF
K14-FA-1C		06204 N 53.16 3.37 n e EHKV	41 NLD EHAA	Y N EUR EUR NLVF
A12-CPP		06205 N 55.23 3.48 n e EHAK	48 NLD EHAA	Y N EUR
F16-A		06206 N 54.07 4.00 n e EHFZ	43 NLD EHAA	Y N EUR EUR NLVF
L9-FF-1		06207 N 53.36 4.57 n e EHMG	44 NLD EHAA	Y N EUR EUR NLVF
AWG-1		06208 N 53.29 5.56 n e EHMA	40 NLD EHAA	Y N EUR EUR NLVF
VALKENBURG AWS	LEIDEN/VALKENBURG NAVY	06210 N 52.10 4.25 n e EHVB LID	0 NLD EHAA	J 080 Y Y N EUR EUR NLVF
J6-A		06211 N 53.49 2.56 n e EHJA	45 NLD EHAA	Y N EUR EUR NLVF
HOORN-A		06212 N 52.55 4.09 n e EHQE	50 NLD EHAA	Y N EUR EUR NLVF
DE KOOIJ VK	DE KOOY/DE KOOY	06235 F 52.55 4.46 n e EHKD DHR	1 NLD EHAA	J 041 Y Y N EUR EUR NLVF
F3-FB-1		06239 N 54.51 4.41 n e EHFD	50 NLD EHAA	Y N EUR EUR NLVF
AMSTERDAM AP SCHIPHOL	AMSTERDAM/SCHIPHOL	06240 F 52.19 4.47 n e EHAM AMS	-3 NLD EHAA	Y 124 Y Y Y EUR EUR NLVF

VLIELAND		06242 N 53.14 4.55 n e EHVL	10 NLD	Y Y EUR
K13-A		06252 N 53.13 3.13 n e EHJR	37 NLD EHAA	Y N EUR EUR NLVF
LELYSTAD AP	LELYSTAD/LELYSTAD	06269 F 52.27 5.31 n e EHLE LEY	-3 NLD EHAA	Y 041 Y N Y EUR EUR NLVF
LEEWARDEN	LEEWARDEN/LEEWARDEN	06270 F 53.13 5.45 n e EHLW LWR	1 NLD EHAA	M 078 Y Y Y EUR EUR NLVF
DEELEN	ARNHEM/DEELEN	06275 F 52.03 5.52 n e EHDL	48 NLD EHAA	M 078 Y Y Y EUR EUR NLVF
GRONINGEN AP EELDE	GRONINGEN/EELDE	06280 F 53.07 6.35 n e EHGG GRQ	5 NLD EHAA	Y 082 Y Y N EUR EUR NLVF
TWENTE AWS	ENSCHDE/TWENTHE	06290 F 52.16 6.53 n e EHTW ENS	34 NLD EHAA	M 078 Y Y N EUR EUR NLVF
ROTTERDAM THE HAGUE AP	ROTTERDAM/THE HAGUE AIRPORT	06344 F 51.57 4.26 n e EHRD RTM	-5 NLD EHAA	Y 072 Y Y Y EUR EUR NLVF
GILZE RIJEN	GILZE-RIJEN/GILZE-RIJEN	06350 F 51.33 4.56 n e EHGR GLZ	14 NLD EHAA	M 083 Y Y Y EUR EUR NLVF
EINDHOVEN AP	EINDHOVEN/EINDHOVEN	06370 F 51.26 5.22 n e EHEH EIN	22 NLD EHAA	J 098 Y Y N EUR EUR NLVF
VOLKEL	VOLKEL/VOLKEL	06375 F 51.39 5.42 n e EHVK	21 NLD EHAA	M 090 Y Y Y EUR EUR NLVF
MAASTRICHT AACHEN AP	MAASTRICHT/MAASTRICHT-AACHEN	06380 F 50.54 5.45 n e EHBK MST	114 NLD EHAA	Y 090 Y Y Y EUR EUR NLVF

II. A selection of table routes.

Columns are separated by tabs and contain ICAO codes.

Column 1 Destination

Column 2 Departure

Columns 3-X ICAO codes from airports en route ordered by distance from the departure airport.

[illegible]