Appendix B to
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INTERNATIONAL CIVIL AVIATION ORGANIZATION

EUR OPMET DATA MANAGEMENT HANDBOOK

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EUR OPMET Data Management Handbook	
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Document Change Record

Due to the size of the Change Record, it was decided to host it as a separate document on the ICAO Paris website. It can be found together with the main document.

Due to SPAM-protection, all contact information has been removed from this document. Contact details for the DMG are provided via the ICAO-Portal.

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1 Introduction

1.1 Purpose of this document

1.1.1 The purpose of the "EUR OPMET Data Management Handbook" is to be the main guidance material aimed at providing detail on the procedures for OPMET exchange under the EUR RODEX (Regional OPMET Data Exchange) scheme for OPMET data users. The Handbook defines the responsibilities and the procedures to be followed by the different OPMET Centres. It defines also the content and the data formats of the OPMET bulletins.

1.2 History

1.2.1 The MOTNE system was originally implemented on a pair of low speed telegraphic loops connecting a number of centres in the EUR Region. The centres, known as MOTNE Centres, were each allocated specific time slots during which they inserted meteorological data for their area of responsibility onto the loops. Each MOTNE Centre monitored the on the loops received meteorological data which could then be disseminated to within its own area of responsibility.

1.2.2 The MOTNE Regional Planning Group (RPG) planned the structure and administration of this mechanism. In 1995 the MOTNE RPG was replaced by the Meteorological Operational Telecommunications Network Europe Group (MOTNEG) as a sub-group of the EUR Aviation Systems Planning Group (EASPG).

1.2.3 The required volume of OPMET data within the EUR Region increased to the extent that there was not sufficient bandwidth on the loops to support this increase. Dissemination of the data was then transferred to the AFTN/CIDIN network, thus removing the bandwidth and timing restrictions. The loops were finally closed in December 1996.

1.3 Bulletin Management Group

1.3.1 The BMG was formed in 1996 by the MOTNEG as it was identified the need for a working group to provide bulletin management of OPMET data within the EUR Region, based upon existing requirements and to respond, in a controlled way, immediately to changing requirements. The Terms of Reference were as follows:

- to examine the existing EUR requirements and any new requirements and assess the feasibility of satisfying these requirements, taking into account the availability of the data;
- if necessary, to re-organise bulletins through the change of existing bulletins or addition of new bulletins, based on the validated requirements;
- to route all bulletins to SADIS and to the existing MOTNE Centres;
- the States should be informed 1 month in advance about changes in the programme by notification from the ICAO Office in Paris.
- the group should report its activities to the MOTNEG

1.3.2 In 2001 the MOTNEG group was dissolved and the BMG moved under the umbrella of the Meteorology Group (METG).

1.4 Review of MOTNE Exchange

1.4.1 In 2007, the BMG reviewed the MOTNE exchange system in order to increase and ensure the efficiency. The results were presented to METG/17 leading to the decision that the MOTNE schema shall be transferred to the EUR RODEX. The new EUR Regional OPMET Data Exchange (RODEX) scheme consists of 3 Regional OPMET Centres (ROC), also functioning

as inter-regional gateways (IROG), 3 regional OPMET databanks (RODB) and a large number of National OPMET Centres (NOC) within the region. More details can be found in Chapter 3 “Composition of the RODEX”.

1.4.2 In 2010 the BMG was replaced by the DMG.

1.5 Data Management Group reporting lines

1.5.1 The initial members of the BMG were MOTNEG participants from Austria, Belgium, Denmark, France, the United Kingdom, Algeria and the Russian Federation. Since the dissolution of the MOTNEG in 2001, it was approved by the EANPG/43 that the BMG continues with its work but reporting instead to METG.

1.5.2 In accordance with METG Decision 20/06, the BMG was replaced by the Data Management Group (DMG). Concurrently, the functional needs and composition of the DMG were revised. The DMG is limited to members from Algeria, Austria, Belgium, Denmark, France, Romania, the Russian Federation and the United Kingdom; however, a limited number of experts from States beyond this DMG membership may, at times, be necessary to support complex DMG activities.

1.5.3 Starting in mid-2016, a project was raised to investigate on the possible implementation of a fourth ROC, namely Moscow. The implementation of ROC Moscow was realized after 4 ½ years of work in the beginning of 2021.

1.5.4 Besides the ToRs, defined by the parent group (METG) for the DMG, dedicated tasks are also coordinated with the MOG/SADIS, mostly regarding data monitoring. As OPMET data exchange uses the AFTN/AMHS network, close co-ordination is also kept with the ~~AFSG~~AST-TF/PG (AFS to SWIM Transition Task Force / Planning Group [former AFSG/PG]).

2 EUR Regional OPMET Data Exchange (RODEX) Scheme – General

2.1 Objective

2.1.1 The main purpose of the EUR Regional OPMET Data Exchange (RODEX) scheme is to

- Use the ICAO AFS (Aeronautical Fixed Services) to ensure the most efficient exchange of OPMET data within the EUR Region as well as with the other ICAO Regions to meet the user requirements for OPMET data; and
- ensure the implementation of the OPMET-related SARPs in Annex 3 and Annex 10, and the relevant provisions of the EUR electronic Air Navigation Plan (eANP) in a highly efficient and standardized way.

2.2 Structure

2.2.1 The above objective is achieved by implementing four regional collecting and disseminating centres (Regional OPMET Centres – ROC), having also the task of an inter-regional gateway, three Regional OPMET Databanks (RODB) and 59 national OPMET Centres (NOC). At present, this structure is part of a larger global OPMET exchange, which should ensure seamless exchange of the required meteorological information to fulfil the needs of the aviation users in conducting their activities.

2.3 Products

2.3.1 The EUR RODEX scheme provides guidelines on the production of OPMET data in predefined bulletins in order to ensure a flawless delivery to the aviation users. The scheme handles all types of OPMET data in TAC (Traditional Alphanumeric Code) and IWXXM (ICAO Weather Exchange Model) format and provides facilities and services for scheduled and non-scheduled delivery of OPMET information.

2.4 IWXXM Data exchange

2.4.1 The ICAO Annex 3 Amendments 77 – 78 provides first steps to the transition of Traditional Alphanumeric Code formatted OPMET data towards XML formatted data in compliance with the ICAO Meteorological Information Exchange Model (IWXXM).

- Amendment 76 enabled the bilateral exchange of XML data for those States in a position to do so.
- Amendment 77 recommended the international exchange of XML-formatted METAR/SPECI, TAF, AIRMET and SIGMET, VAA and TCA from November 2016.
- Amendment 78 requires the international exchange of METAR/SPECI, TAF, AIRMET and SIGMET, VAA and TCA in IWXXM format as a standard with an applicability date of November 2020.

2.4.2 The phased transition of TAC OPMET data to IWXXM OPMET data is to be considered as a first step towards the ICAO System Wide Information Management (SWIM)-concept.

2.5 OPMET data provision and requirements

2.5.1 The determination of the OPMET data to be promulgated for international exchange by each States is a responsibility of the respective meteorological authority in consultation with the aviation users concerned. The user requirements should be as far as possible covered by the provided OPMET data. The agreed requirements for AOP OPMET data are included in the electronic EUR Air Navigation Plan (DOC 7754) in the following tables.

2.5.1.1 eANP Volume II Table MET II-2, Aerodrome Meteorological Offices, provides the requirements for the international airports listed in the AOP table of Volume I of the EUR eANP. The table provides *inter alia* the requirements for METAR/SPECI, state of runway, TREND forecast, TAF period of validity and minimum and maximum temperatures.

2.5.1.2 eANP Volume II Table MET II-1, *Meteorological Watch Offices, Service to be provided for FIR or CTA*, lists all MWOs in the EUR regions. Thus, it provides the requirements for SIGMET and AIRMET messages.

2.5.2 Additional requirements can be found in the ICAO Doc 9766, Handbook on the International Airways Volcano Watch (IAVW), which describes the areas of responsibility of Volcanic Ash Advisory Centres (VAAC) and a list of EUR MWOs and ACCs to which advisory information should be sent.

2.5.3 Besides the above mentioned, the DMG also manages the exchange of agreed non-AOP OPMET. A list of agreed non-AOP aerodromes is made available on the ICAO Paris website.

2.6 Management

2.6.1 Monitoring of the OPMET exchange under the EUR RODEX scheme, planning for improvements and preparation of proposals for any changes of the scheme, which may become necessary, are carried out by the EUR Data Management Group.

2.7 Documentation

2.7.1 Global ICAO and WMO documents

2.7.1.1 The ICAO Annex 3, *Meteorological Service for International Air Navigation* contains the global standards and recommended practices (SARP) on the content and format of operational meteorological messages. The provisions contained in Annex 3 are, except for a few minor editorial differences, identical with those in the WMO No. 49, *Technical Regulations*, Volume II – *Meteorological Service for International Air Navigation*.

2.7.1.2 The ICAO Annex 10, *Aeronautical telecommunications*, Volume II, *Communication Procedures*, contains the SARPs related to the Aeronautical Fixed Service (AFS).

2.7.1.3 The ICAO Doc 9880 ATS Message Handling Service (ATSMHS).

2.7.1.4 The ICAO Doc 10003, Manual on the Digital Exchange of Aeronautical Meteorological Information specifying the IWXXM data model.

2.7.1.5 WMO No. 386, *Manual on the Global Telecommunication System*, is the main document defining the structure of the abbreviated header of an OPMET bulletin. It also defines the filename structure for OPMET data in IWXXM format, transported via the extended Aeronautical Message Handling System (AMHS) as File Transfer Body Part (FTBP).

2.7.1.6 Some aeronautical meteorological codes, such as METAR, SPECI and TAF are defined in WMO No. 306, *Manual on Code* (Volume I.1 Part A, *Alphanumeric Codes* and Volume I.3 Part D, Representation in Extensible Markup Language) and IWXXM schema is described in WMO No. 306,

Manual on Code (Volume I.3 Part D, *Representations derived from data models*).

2.7.2 Regional Documents

2.7.2.1 The ICAO Doc 7754, *EUR electronic Air Navigation Plan (eANP),* which includes Volume II, contains the regional procedures related to the production and exchange of OPMET information in the European Region. The regional procedures are regularly reviewed by the Meteorology Group (METG) of the EASPG and proposals for amendment endorsed by the EASPG are processed in consultation with all States and international organizations concerns according to the amendment procedure established by the ICAO Council.

2.7.2.2 The *EUR OPMET Data Management Handbook*, ICAO EUR Doc 018, is based on all documents listed above and provides the main guidance material related to the EUR RODEX scheme. It is kept up to date by the EUR DMG. The Handbook contains several Appendices, as follows:

2.7.2.2.1 The *RODB Interface Control Document* (ICD) *(App. A)* provides users with guidance on the interrogation procedures and the content of the RODBs. It can be found as Appendix A to this document and should be kept up-to date by the EUR DMG.

2.7.2.2.2 The *EUR OPMET Data Update Procedure* *(App. B)* gives information on the update procedure for OPMET data as well as on the procedure to be used for requesting new (not available) data. This document can be found as Appendix B to this document and is kept up to date by the EUR DMG.

2.7.2.2.3 The *EUR OPMET Data Monitoring Procedure* *(App. C)* provides information on the DMG monitoring activities, dates and procedures. This document can be found as Appendix C to this document and is kept up to date by the EUR DMG.

2.7.2.2.4 The *EUR OPMET Data Monitoring Tool Specification* *(App. D)* specifies the standards and data validation requirements for OPMET data monitoring tools used by OPMET Centres participating to the DMG monitoring exercises. This is necessary to facilitate centralized analyse of the results generated. This document can be found as Appendix D to this document and is kept up to date by the EUR DMG.

2.7.2.2.5 The *Distribution Determination for OPMET Data* *(App. E)* provides information on the distribution criteria and responsibilities within the EUR-Region. This document can be found as Appendix E to this document and is kept up to date by the EUR DMG.

2.7.2.2.6 The *Calculation of the Performance Indices* *(App. F)* provides information on how the different indices are calculated and how the results can be interpreted. This document can be found as Appendix F to this document and is kept up to date by the EUR DMG.

2.7.2.2.7 The *EUR RODEX Backup Procedure* *(App. G)* provides information about the procedure to be applied in case of an outage of a ROC and the possible implications.

2.7.2.3 The *EUR SIGMET and AIRMET Guide*, EUR Doc 014, is a supplementary document, which provides users with guidance on the rules for SIGMET and AIRMET issuance as well as on the format of the SIGMET and AIRMET header and content. The EUR SIGMET and AIRMET Guide is available from the website of the ICAO Office Paris. This document should be kept up to date by ICAO Regional Office Paris.

2.7.2.4 The ICAO EUR Doc 020 EUR AMHS Manual provides guidance on the AMHS. This document should be kept up to date by ICAO Regional Office Paris.

2.7.2.5 The ICAO EUR Doc 033 (Guidelines for the Implementation of OPMET data exchange using IWXXM in the EUR Region) describing the intended activities for the transition of TAC OPMET data towards IWXXM OPMET data production and the exchange provided by the EUR RODEX scheme.

3 Composition of the EUR RODEX

3.1 General

3.1.1 The EUR RODEX scheme involves several aeronautical meteorological stations, aeronautical telecommunication stations, aerodrome meteorological offices and other operational units as well as the ICAO AFS. The following operational units should be considered as components of the EUR RODEX scheme, necessary for the regional and interregional OPMET exchange of regular and non-regular OPMET data (*see 4.3*).

3.1.2 For each of the defined components of the EUR RODEX scheme, the IWXXM functions are conveyed with reference to the ICAO EUR Doc 033, *Guidelines for the Implementation of OPMET data exchange using IWXXM in the EUR Region*, latest version available on the ICAO Paris website.

3.2 Originating station

3.2.1 These are operational units where OPMET data is produced and issued, such as

- an aeronautical meteorological station
- an aerodrome meteorological office
- an MWO (Meteorological Watch Office)
- a TCAC (Tropical Cyclone Advisory Centre)
- a VAAC (Volcanic Ash Advisory Centre)
- a SWXC (Space Weather Centre)

3.2.2 The function of an Originating station is to provide information both as TAC and IWXXM formatted OPMET data in accordance with ICAO Annex 3. The production of IWXXM OPMET data, by translating TAC OPMET data, can be delegated to the National OPMET Centre (NOC) or, if the state signs a translation agreement, by the responsible Regional OPMET Centre (ROC). A Letter of Agreement between the State and its ROC can be found on the ICAO Paris website (*https://www.icao.int/EURNAT/Pages/welcome.aspx => EUR/NAT Documents => EUR ==> EUR Documents => MET Guidance => TAC to IWXXM translation services request form*). Issued IWXXM formatted OPMET data shall be validated against the latest IWXXM ~~model~~ schema by the Originating Unit.

3.2.3 The tasks, responsibilities and IWXXM function of an originating station should be defined by the State's Meteorological Authority.

3.3 National OPMET Centre (NOC)

3.3.1 Each state shall establish one dedicated NOC, being responsible to provide below functionalities.

~~3.3.1~~3.3.2 The ~~role~~ responsibility of the NOC is to collect all OPMET messages generated by the State's originating stations, compile national bulletins and send them to the responsible Regional OPMET Centre (ROC).

~~3.3.2~~3.3.3 The NOC is also responsible to provide regional and inter-regional OPMET data, received via the ICAO AFS (ROC, SADIS,..), to aviation users (ATS, airlines, pilots,..) within the State ~~received from their responsible ROC~~via the ICAO AFS (ROC, SADIS,..).

~~3.3.3~~3.3.4 For the OPMET data exchange with the ROC the ICAO AFS must be used. It is up to the state to define the communication means used nationally to exchange data.

~~3.3.4~~3.3.5 The ~~NOC's~~ IWXXM function of a NOC is that of a Data Aggregator, meaning to validate and to collect IWXXM and TAC formatted OPMET data and to compile them as an IWXXM respectively TAC bulletin for the exchange of information with the designated ROC following the RODEX scheme.

~~3.3.4.1~~3.3.5.1 A NOC can act as an IWXXM Data Producer (National Data Translation~~or~~ Centre), on behalf of its national TAC Data Producer(s), generating IWXXM formatted OPMET data from the national TAC formatted OPMET data and validated it against the latest IWXXM schematrons.

~~3.3.4.2~~3.3.5.2 A NOC can delegate translations of the national TAC formatted OPMET data to a Data Translation Centre or the designated ROC. Information about the ~~designated~~ Area of Responsibility of a ROC can be found in Appendix E (*Distribution Determination for OPMET Data*) or on the DMG-website.

~~3.3.5~~3.3.6 A NOC has to operate~~s~~ in close conjunction with the State's national AFTN/AMHS Telecommunication (COM) centre/switch in order to fulfil the requirement to use the ICAO AFS for international OPMET data exchange.

~~3.3.6~~3.3.7 The necessary procedures ~~in order~~ to fulfil the responsibility of a NOC ~~for the~~to validat~~e~~ion and ~~the~~ exchange ~~of~~ OPMET data within its own State are beyond the planning responsibilities of ICAO.

3.4 Regional OPMET Centre (ROC)

3.4.1 A Regional OPMET Centre is a specified Meteorological Message Switching Centre in the EUR Region responsible for the collection, validation and dissemination of OPMET messages from its Area of Responsibility (AoR) that extends beyond the own national boundaries in order to meet the objectives of the EUR Regional OPMET data exchange scheme (RODEX). The ROCs as well as their respective AoR are listed in the "Distribution Determination for OPMET Data" (Appendix E). Normally, a ROC also acts as the NOC for its State.

3.4.2 The ROCs must use the ICAO AFS for the exchange of OPMET data.

3.4.3 The ROCs are responsible for the collection of OPMET messages from the originating NOCs in their AoR.

3.4.4 The ROCs are responsible for the dissemination of the bulletins received from ICAO Regions within their AoR, from the other ROCs and from NOCs in their AoR to:

- The other ROCs, according to predefined distribution lists, specific for each bulletin;
- The EUR RODBs;
- The other NOCs in their AoR, as agreed between the ROC and the NOC and the States' authorities concerned.

3.4.5 Furthermore a ROC is responsible for the quality control of the bulletins in their AoR (see Section 12) with regard to the Abbreviated Header Line (Bulletin AHL = TTAAii CCCC) on a 24 hours / 7 days a week basis. This is necessary to ensure that messages are routed correctly and in a timely manner by the Message Switching Systems.

3.4.6 The ROCs should minimize the duplication of OPMET data from within their AoR.

3.4.7 A ROC should monitor the reception of OPMET data for national and international dissemination. ROCs shall participate to the scheduled DMG OPMET monitoring exercises announced in the *EUR OPMET Data Monitoring Procedure (App. C).*

3.4.8 The ROC IWXXM function is that of an International Aggregator and Data Translation Centre.

3.4.9 In compliance with the ICAO Annex 3, Amendments 76 till 78 regulations and timeframe:

3.4.9.1 As an International Aggregator, a ROC collects validated IWXXM OPMET data from its EUR AoR and – where necessary for compliance with the EUR OPMET distribution standards - (re-)compile (aggregate) them in IWXXM bulletins for dissemination in accordance with the RODEX Schema.

3.4.9.2 A ROC, as an International Data Translation Centre, can translate EUR Regional TAC OPMET data to IWXXM on explicit request of States within the EUR AoR not able to function as an IWXXM Data Producer and wishing to do so. The translated

3.4.9.3

3.4.9.4 3.4.9.2 ROC/IROG IWXXM produced OPMET data should be in compliance with the latest IWXXM schematrons and schemas officially adopted by WMO, supporting ANNEX 3 SARPs.

3.4.10 The following principles are applied for the regional OPMET data exchange:

- A ROC should be associated with AFS relay COM-centres capable of handling efficiently the volume of traffic anticipated.
- A ROC should at least be capable of handling all OPMET data types as described in paragraph 4.1.

3.4.11 In order to avoid duplication of the OPMET traffic and information, all regional OPMET exchange should be directed through the ROCs. Direct addressing of OPMET data from the originator or NOC to recipients in the regions should be avoided, except in case of bilaterally agreed data exchange of non-AOP data.

3.5 Interregional OPMET Gateway (IROG)

3.5.1 An IROG is responsible for the Inter-Regional OPMET data exchange with specific ICAO Regions.

3.5.2 In the EUR-Region, the RODEX Scheme defines three ROCs functioning additionally as an IROG:

- London (EGGY), responsible for the NAT, NAM, SAM, CAR, PAC and ASI Regions
- Toulouse (LFPW), responsible for the AFI-Region
- Vienna (LOWM), responsible for the MID-Region

3.5.3 The Inter-Regional OPMET exchange between the IROG(s) for each ICAO Region must use the ICAO AFS.

3.5.4 The EUR IROG's main responsibilities for the Inter-Regional OPMET exchange are defined as follows:

- Collect the required OPMET data from the ICAO Region(s) it is responsible for;
- Disseminate the collected data to the other three ROCs and to the NOCs in the area of responsibility; and
- Send required OPMET data from the ICAO EUR-Region to the ICAO Region(s) it is responsible for.

3.5.5 Furthermore, an IROG is responsible for the quality control of these bulletins in their AoR with regard to the Abbreviated Header Line (Bulletin AHL = TTAAii CCCC) on a 24 hours / 7 days a week basis. This is necessary to ensure that messages are routed correctly and in a timely manner by the Message Switching Systems.

3.5.6 An IROG can recompile OPMET data from other ICAO Regions in order to comply with the EUR communication and format standards: bulletin size, ICAO DOC 7910 Location Indicators, for their distribution in its AoR and the EUR Region.

3.5.7 Detailed OPMET distribution arrangements should be developed by each IROG for the Inter-Regional OPMET exchange in coordination with users and originators concerned. Such arrangements should be based on the requirements indicated in eANP Volume II Table Met II-2 (formerly known as the Table MET 2A, also SADIS USER Guide Annex 1), covering the basic operational requirements and the notified addressing by the other regions.

3.5.8 The ~~ROC/~~IROG IWXXM function is that of an International Aggregator~~ and Data Translator Centre~~.

3.5.9 In compliance with the ICAO Annex 3, Amendments 76 till 78 regulations and timeframe:

3.5.9.1 As an International Aggregator, an IROG collects validated IWXXM OPMET data from other ICAO Regions – where necessary for compliance with the EUR OPMET distribution standards - to (re-)compile (aggregate) them in IWXXM bulletins for dissemination in accordance with the RODEX Schema.

~~3.5.9.2 A IROG, as an International Data Translator Centre can function as an International Data Translator Centre for inter-regionally received TAC formatted OPMET Data for the distribution within its EUR AoR in accordance with the RODEX Schema.~~

~~3.5.9.3 IROG IWXXM produced OPMET data should be in compliance with the latest IWXXM schematrons and schemas officially adopted by WMO, supporting ANNEX 3 SARPs.~~

3.5.10 The following principles are applied for the Inter-Regional OPMET exchange:

- An IROG should be associated with AFS relay COM-centres capable of handling efficiently the volume of traffic anticipated.
- An IROG should at least be capable of handling all OPMET data types as described in paragraph 4.1.

3.5.11 In order to avoid duplication of the OPMET traffic and information, all inter-regional OPMET exchange should be directed through the IROGs. Direct addressing of OPMET data from the originator or NOC or ROC not responsible for this area to recipients in the other ICAO Regions should be avoided.

3.6 Regional OPMET Databanks (RODB)

3.6.1 There are three Regional OPMET databanks in the EUR Region situated at Brussels (EBBR), Vienna (LOWM) and Toulouse (LFPW). According to the EUR eANP, Volume II, Part V, 2.8 the ROCs in the EUR-region are taking care to disseminate all OPMET-data to the RODBs. Data originator and/or NOCs shall not send their OPMET data directly to the RODBs.

3.6.2 The main responsibilities of the RODBs are defined, as follows:

- Collection of OPMET data from the ROCs as required in the respective eANP Volume II Table MET II-2 and storage in the database;
- Maximizing the amount of available OPMET data by using the DMG mechanism for requesting additional data (EUR OPMET Data Update Procedure ➔ Appendix B);
- Maintain the content in case of changes (location indicator, updated reference) according to the established procedures;
- ~~Maintain catalogue of stations and introduce changes when necessary and according to the established procedures;~~
- Provide request/response facilities for authorized users to obtain non-regular or occasional information ICD (Appendix A of this Handbook);
- Regularly monitor to check availability and timeliness of OPMET data and the possible misuse or abuse of the OPMET databanks; report to the ICAO Office on the result.

3.6.3 The service is established for aeronautical users only holding a valid AFTN- or AMHS-address, e.g. ATS, AIS, MET services or airlines. The commercial use by non-aviation users is not allowed.

3.6.4 The RODBs should be ready for the transition of TAC formatted OPMET data to the IWXXM format by fulfilling the following provisions.

3.6.4.1 The RODBs are accessible over AFS AFTN and/or AMHS via their national AFTN/AMHS COM Centre.

3.6.4.2 The RODBs shall store at the least the Table MET II-2 required OPMET data and the agreed non-AOP OPMET data exchanged via the RODEX

- in TAC format, and
- in IWXXM format, if available

3.6.4.3 Details on the procedures for RQM-(TAC) and RQX-(IWXXM) queries can be found in the ICD (Appendix A of this Handbook).

3.6.4.4 There will be no TAC to IWXXM translation undertaken by the RODBs. Therefore, RODB RQX queries result in IWXXM replies that will only contain requested OPMET data available in the RODB IWXXM database. Even if the OPMET data is available in TAC format, the RODB does not perform any translation to IWXXM format to reply to the RQX query.

3.6.4.5 RODB behaviour on users sending erroneously an RQX OPMET data query for IWXXM formatted data via AFTN are subject to the implementation of the RODB.

3.6.5 More detailed information on the OPMET databanks, such as the data types and query language or the databank catalogue, can be found in the ICD (Appendix A of this Handbook).

3.7 SADIS and WIFS

3.7.1 Internet based services are maintained by the United Kingdom: Secure Aviation Data Information Services (SADIS) and the United States: WAFS Internet File Service (WIFS). These two systems are part of AFS and form additional types of OPMET dissemination.

3.7.2 According to the EUR eANP, Volume II, Part V, 2.8 the ROCs in the EUR-region are taking care to disseminate all OPMET-data to the SADIS and WIFS service providers.

4 OPMET Information and OPMET Exchange

4.1 OPMET data types

4.1.1 As described under 2.3.1~~2.3.1~~, all alphanumeric OPMET data is handled by the RODEX. The different data types can be found in the table below. The ICAO Annex 3 Amendments 76 – 78, as stated under 2.4.1, provide stepped regulations for the transition from alphanumeric (TAC) OPMET data to XML formatted OPMET data (IWXXM).

4.1.2 As a first phase towards SWIM enabled OPMET data, the current TAC OPMET data (observations, forecasts, warnings ,..) could be translated into the IWXXM equivalents in accordance to the latest available Data Model or produced natively at source in both formats.

4.1.3 Annex 3 amendment 78 requires the production of IWXXM formatted OPMET data from November 2020 onwards. TAC OPMET data will be produced in addition and disseminated in parallel.

4.1.4 OPMET Data subject to this document and its appendices are displayed in the following table. It contains the WMO data type designator (T_1T_2) for TAC as well as for the IWXXM formatted OPMET data type equivalents.

Data type	Abbreviated name	WMO data type designator	
		TAC Format	IWXXM Format
Routine, also Scheduled OPMET data			
Aerodrome reports	METAR SPECI	SA SP	LA LP
Aerodrome forecasts	TAF: up to 30-hours less than 12-hours	FT FC	LT LC
GAMET information	GAMET	FA	N/A
Non-Routine, also Non-Scheduled OPMET data			
SIGMET information	SIGMET SIGMET for TC SIGMET for VA	WS WC WV	LS LY LV
AIRMET information	AIRMET	WA	LW
Volcanic ash advisories Tropical cyclone advisories	VAA TCA	FV FK	LU LK
Space weather- advisory	SWXA	FN	LN
SPECIAL Air-reports	SPECIAL AIREP and Special AIREP for Volcanic ash	UA	N/A
Administrative	ADMIN	NO	N/A

4.2 OPMET bulletins

4.2.1 The exchange of OPMET data is carried out through bulletins containing one or more meteorological reports (METAR, SPECI, TAF or other OPMET information).

4.2.2 The content of an OPMET bulletin is defined by the $T_1T_2A_1A_2$ii CCCC YYGGgg of the WMO Abbreviated Header, where:

- T_1T_2 stands for the data type designator (e.g. SA for METAR in TAC format)
- A_1A_2 stands for the originating WMO country or territory designator (e.g. BX for Belgium)
- ii is the bulletin number also used to determine whether the bulletin is for global, inter-regional, regional or national distribution. The list of ii to be used in the EUR-region can be found on the ICAO Paris website.
- CCCC is the location indicator of the compiling centre
- YYGGgg is the date and time of the e.g. standard observation time or for the initially issued TAFs (non corrected/amended TAF) the full hour in UTC preceding the transmission time.

4.2.3 An OPMET report, contained within such a bulletin, is identified by the ICAO location indicator (CCCC) for METAR, SPECI, TAF, all types of SIGMET, GAMET, AIRMET. Additional prefixes are used for OPMET reports in TAC format.

4.2.4 A full Meteorological Message also consists of the AFTN envelope which encloses the bulletin.

4.2.5 Following are all documents providing guidelines and regulations for the production and exchange of OPMET reports via the ICAO AFTN-network are listed:

- ICAO Annex 10, Aeronautical telecommunications, Volume II as regards the AFTN envelope of the bulletin;
- WMO Manual on the Global Telecommunication System, WMO No. 386, as regards the WMO abbreviated heading of the bulletin, which provides information on data type, originator and time of issuance of the bulletin;
- ICAO Annex 3 and WMO-No.306, Manual on Codes, as regards the format/coding of the reports included in the bulletin.

4.2.6 For the production and exchange of IWXXM formatted OPMET data or the translation of TAC formatted OPMET data to the equivalent IWXXM format, the following documents do apply:

- ICAO EUR DOC 020, “EUR AMHS Manual” with reference to the AMHS envelope of the bulletin and also the Appendix H, describing the IWXXM profile to be used and guidance on initial testing.
- ICAO EUR DOC 033, “Guidelines for the Implementation of OPMET data exchange using IWXXM in the EUR Region”
- WMO Manual on the Global Telecommunication System, WMO No. 386, with reference to the WMO abbreviated heading of the bulletin, which provides information on data type, originator and time of issuance of the bulletin;
- ICAO Doc 10003, "Manual on the Digital Exchange of Aeronautical Meteorological Information" specifying the IWXXM data model" containing the most recent IWXXM Data Model needs to be referred.
- WMO-No. 306, Manual on Codes Volume I.3 Part D: “Representations derived from data models”

4.2.6.1 Examples of bulletin headers for reports in TAC and IWXXM format:

Datatype	TAC-Format	IWXXM-Format
METAR	SAOS31 LOWM 211020	LAOS31 LOWM 211020
TAF	FTFR31 LFPW 150500	LTFR31 LFPW 150500
SIGMET	WSBX31 EBBR 301455	LSBX31 EBBR 301455
VAA	FVXX01 EGGR 030954	LUXX01 EGGR 030954

4.2.6.2 The most recent IWXXM schematrons and schemas officially adopted by WMO should be applied. Those can be found in the Internet on the GitHub repository of the Task Team on Aviation Data (TT-AvXMLDdata). ~~on the WIS WIKI of the TT-AvXML group.~~

4.3 Types of OPMET exchange

4.3.1 General

4.3.1.1 The EUR RODEX scheme covers the regional and interregional exchange of TAC and IWXXM OPMET information in the EUR ICAO Region. It includes several types of exchanges as described below. It encompasses the RODBs which store OPMET data and make them available on request.

4.3.1.2 The EUR RODEX Scheme applies for TAC and IWXXM OPMET data exchange over the ICAO AFS. TAC formatted OPMET data are exchanged over AFTN or AMHS while the IWXXM OPMET data exchange is via AMHS with File Transfer Body Part (FTBP) capabilities only, also known as “extended AMHS”. IWXXM messages cannot be exchanged over AFTN.

4.3.2 Regular Exchange under EUR RODEX

4.3.2.1 This is a scheduled exchange that encompasses

- collection of messages by the NOC from the originating stations (or MWO for SIGMET, GAMET,..), compilation of bulletin(s) and their transfer to the responsible ROC;
- collection of bulletins by the ROC from the NOCs in its area of responsibility (AoR) and dissemination to the other ROCs, the RODBs and all other NOCs in the AoR;
- collection of bulletins by a ROC from the other ROCs, and dissemination to the NOCs in the area of responsibility;
- collection of bulletins by the IROG from the ICAO regions it is responsible for and dissemination to the other ROCs and the RODBs;
- collection of all EUR-bulletins requested by the ICAO region the IROG is responsible for and disseminate those to the ICAO region; and
- distribution of bulletins to national aeronautical services and users by the NOC.

4.3.3 Non-regular exchange.

4.3.3.1 This encompasses:

- the exchange of non-routine reports: COR messages (METAR, SPECI, TAF), AMD messages (TAF), SPECI, AIRMET, SIGMET, SPECIAL

AIREP, SPECIAL AIREP for Volcanic ash, TCA, VAA, SWXA, ADMIN messages.

- collection of messages by the NOC from the originating MWO or specialized centre (SWXC, VAAC) and their transfer to the responsible ROC;
- collection of bulletins by the ROC from the NOCs in its area of responsibility (AoR) and dissemination to the other ROCs, the RODBs and all other NOCs in the AoR;
- collection of bulletins by a ROC from the other ROCs, and dissemination to the NOCs in the area of responsibility;
- collection of bulletins by the IROG from the ICAO regions it is responsible for and dissemination to the other ROCs and the RODBs;
- collection of all EUR-bulletins requested by the ICAO region the IROG is responsible for and disseminate those to the ICAO region; and
- distribution of bulletins to national aeronautical services and users by the NOC

5 Telecommunication - General

5.1 RODEX

5.1.1 The EUR RODEX scheme is using the ground segment of the ICAO AFS (AFTN or AMHS) as the sole medium for the exchange of the OPMET messages between the Regional and National OPMET Centres, as well as for Inter-Regional exchange.

5.1.2 The access to the Regional OPMET Databanks (request-reply service provided by the RODBs) is only possible through the terrestrial AFS-network.

5.1.3 The Distribution Modes and AFS-addressing for the RODEX Schema is presented in Appendix E - Distribution Determination for OPMET Data.

5.2 AFS

5.2.1 The Exchange of OPMET data, as defined by the RODEX Schema, is based on the utilization of the AFS and its facilitating services like AFTN or AMHS.

5.2.2 The recommendation to do so can be found in ICAO Annex 3 (cf. p. 11.1.9)

5.2.3 The use of AFS for the OPMET exchange encompasses two components:

- use of the terrestrial AFS-network; and
- use of secure FTP distribution systems – SADIS (and WIFS)

5.2.4 The international and inter-regional OPMET data AFS distribution medium is determined to be AFTN or AMHS for TAC-data, and AMHS with FTBP capabilities for IWXXM data:

- From NOCs to the designated ROC
- From ROCs to NOCs within their AoR and the other ROCs.
- From EUR IROG to other ICAO Regions' IROG according to the AoR as determined by the RODEX Schema.

5.2.5 The OPMET Data exchange between TAC, possibly also IWXXM, Data Producers as Originating Units and their National OPMET Centre (NOC) is to be organised by the State's Meteorological Services Authority. The OPMET data collected by the State's NOC for international dissemination via the designated ROC (ref. RODEX Schema) shall be validated against TAC or the IWXXM Data Model format requirements before transmission.

5.2.6 OPMET bulletins transmitted via AFTN should be encapsulated in the text part of the AFTN message format (cf. Annex 10, Volume II, p. 4.4.2).

5.2.7 TAC OPMET data can be conveyed over AFTN and AMHS. IWXXM formatted OPMET data can only be transferred over AMHS with FTBP facilities with reference to ICAO Doc 9880 Part IIB *(Manual on detailed technical specifications for the aeronautical telecommunication network (ATN) using ISO/OSI standards and protocols*) and by extension EUR Doc 020. Guidance on the transition from TAC to IWXXM OPMET data is given in EUR Doc 033.

5.2.8 If data cannot be sourced directly from AFS, steps should be undertaken by the ROC and the respective NOC to provide an implementation plan to overcome this deficiency.

5.2.9 The requirements for the transit times of the AFTN messages and bulletins containing OPMET information are given in ICAO Annex 3, Appendix 10, 1.1. For AMHS messages, the transit times for OPMET data should at the least be identical.

5.2.10 Within the EUR region, some States use SADIS for the reception of global OPMET data. For back-up purposes only, it is recommended that those states consider having a WIFS account.

5.2.11 In order to improve the availability and regularity of OPMET data, the ROCs may create appropriate additional backup-connections with the NOCs from its AoR.

6 METAR/SPECI Exchange

6.1 METAR and SPECI General

6.1.1 Half-hourly METAR reports should be made at all RS (international scheduled air transport, regular use) and AS (international scheduled air transport, alternate use) aerodromes listed in the ICAO eANP, as required in respect of operational needs, and for any additional aerodromes which are included in the VOLMET broadcast, D-VOLMET, or on discretion by the State.

6.1.2 METARs from all international aerodromes listed in the ICAO eANP Volume II TABLE MET II-2 (AOP aerodromes) should be included in the regular EUR RODEX exchange. In addition, METARs from a number of domestic aerodromes (non-AOP aerodromes), required by the users, should also be included in the regular EUR RODEX exchange, if so agreed by the States concerned.

Note: The ICAO eANP Volume II Table MET II-2 presents the aviation user requirements for OPMET data (METAR and TAF) of AOP aerodromes. For the domestic airports not included in the ICAO eANP Volume II Table MET II-2 States are consulted on their agreement for providing these additional aerodromes. Once agreed, the States should provide the required OPMET information on a continuous basis.

6.1.3 NOC should compile eANP required METARs/SPECIs for international distribution in separated bulletins. METARs/SPECIs not in the eANP (not required; for national usage or distribution based on bilateral agreements) should be compiled in a different bulletin. Those bulletins are to be differentiated by means of the ii-bulletin number in the abbreviated header (TTAAii CCCC).

6.1.4 SPECI-report dissemination should be identical to METAR-report dissemination.

6.1.5 ICAO Annex 3, Amendments 76 – 78 (ref.: Section 2.4) provide for the gradual implementation of METARs and SPECIs in IWXXM format. The modus operandi is described in EUR Doc 033 (ref.: Section 3). During the transit period from TAC towards IWXXM, IWXXM OPMET data Originating Units shall continue producing and distributing the equivalent TAC OPMET data in parallel.

6.1.6 The NOC can delegate the translation of METAR data from TAC to IWXXM to the assigned ROC or a Data Translation Centre if not (yet) capable to produce IWXXM formatted METAR data.

6.1.7 The IWXXM METAR Producer is responsible for the validation of the data against the most recent Schematrons at the IWXXM data source before international distribution.

6.2 Responsibilities of the METAR/SPECI originating stations and NOCs

6.2.1 The originating aeronautical meteorological stations prepare METAR observations and send them to their responsible NOC.

6.2.2 The NOC compiles the collected METAR observations in bulletins and send it via the AFS to the responsible ROC. The NOC is responsible for the WMO No. 306 and ICAO Annex 3 code format compliance of METAR observations and bulletins from its State.

6.2.3 A NOC shall compile eANP required METARs for international distribution in separated bulletins. METARs not in the eANP (not required; for national usage or distribution based on

bilateral agreements) shall be compiled in another bulletin. Those bulletins are to be differentiated by means of the ii-bulletin number in the abbreviated header (TTAAii CCCC).

6.3 METAR/SPECI dissemination functions of the ROCs

6.3.1 ROCs collect all TAC and validated IWXXM METAR bulletins from the NOCs in their AoR and (re-)compile METAR bulletins if required.

6.3.2 A ROC can act as a Data Translation Centre (ref.: EUR Doc 033) on behalf of the NOCs within its AoR for the dissemination of IWXXM METAR bulletins in its AoR as determined by the RODEX Schema (Appendix E - Distribution Determination for OPMET Data).

6.3.3 A ROC disseminates via the AFS the compiled TAC and aggregated IWXXM METAR/SPECI bulletins received from the NOCs in their area of responsibility to the other ROCs, the RODB (if applicable) and as an IROG to the other ICAO Region(s).

6.3.4 ROCs should disseminate the TAC-METAR/SPECI bulletins (re-)compiled by them, and TAC-METAR/SPECI bulletins received from other IROGs, ROCs or NOCs to the NOCs in their area of responsibility, as agreed between the ROC, the NOC and the meteorological authority of the State concerned. The dissemination of aggregated IWXXM METAR/SPECI bulletins depends on the capabilities and requirements of the determined destination centres.

6.3.5 A SPECI bulletin shall contain only one single SPECI report.

6.4 Format compliance and content of METAR and SPECI data

6.4.1 METAR and SPECI messages' originating stations shall follow strictly the WMO No. 306 and ICAO Annex 3 defined Code Forms (FM).

6.4.1.1 TAC Format references:

- WMO No. 306, Manual on Codes, Volume I.1, Part A – Alphanumeric Codes FM 15-XII METAR and FM 16-XII SPECI.
- ICAO Annex 3, Chapter 4, and Appendix 3: Technical specifications related to meteorological observations and reports.

6.4.1.2 IWXXM Format references:

- WMO No. 306, Manual on Codes, Volume I.3, Part D – Representation in Extensible Markup Language
  - FM201: COLLECTION OF REPORTS: Collection of features = reports in a bulletin;
  - FM205: IWXXM: Details on schemas for all OPMET data types (Versions 1.1, 2.1 as well as 3.0)

6.4.2 TAC Format METAR compliance, T_1T_2 = SA

6.4.2.1 Each METAR observation in a METAR bulletin should start with the code word METAR followed by the ICAO location indicator (CCCC) of the aerodrome and the date/time group (YYGGggZ), indicating the actual UTC time of observation. Corrected METAR messages, should start with METAR COR.

6.4.2.2 For METARs, which are not available at the time of compilation of the bulletin, the code word NIL should be inserted following the date/time group indicating the time of the observation.

Example: `METAR LOWK 271220Z NIL=`

6.4.2.3 For METARs, which are composed fully automated, the code word AUTO should be inserted following the date/time group.

Example: `METAR LOWK 271220Z AUTO ……=`

6.4.3 IWXXM Format METAR compliance, T_1T_2 = LA

6.4.3.1 The unit producing the METAR in IWXXM format, either being the originating station, its NOC or the delegated Data Translation Centre, is responsible for the IWXXM format compliance and equivalence with the corresponding TAC formatted METAR.

6.4.4 TAC Format SPECI compliance, T_1T_2 = SP

6.4.4.1 In EUR Doc 7754 Volume II (EUR eANP), the following is stated:

"In the EUR Region, routine observations, issued as a METAR, should be made throughout the 24 hours of each day at intervals of one hour or, for RS and AS designated aerodromes1, at intervals of one half-hour at aerodromes as indicated in Table MET II-2."

6.4.4.2 Additionally, ICAO ANNEX 3, 4.4.2, b) states the following

"4.4.2 Reports of special observations shall be issued as: ……

b) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET) unless METAR are issued at half-hourly intervals."

~~6.4.4.1~~6.4.4.3 If SPECI-messages are produced with the intention to disseminate those internationally, ~~T~~the A_1A_2ii-groups in the Abbreviated Header of a SPECI bulletin of a station should correspond with the Abbreviated Header ~~for~~ of the collective METAR bulletin for that station.

Example: `SPBX31 EBBR`
`SPECI EBAW ...`
in accordance with
`SABX31 EBBR`
`METAR EBAW ...`
as the collective bulletin for EBAW METARs.

6.4.4.4 If SPECI-messages are produced with the intention to disseminate those only locally or bilaterally, the A_1A_2ii-groups in the Abbreviated Header of a SPECI bulletin of a station can be defined individually. States should only take care, that the ii is above the range used for international/interregional dissemination (ii>39).

6.4.4.5 The CCCC could be either the NOCs CCCC or the CCCC of the airport for which the SPECI is issued. This has to be agreed upon nationally.

Example:
```
SPOS41 LOWM
SPECI LOAV ...
or
SPOS41 LOAV
SPECI LOAV ...
```

~~6.4.4.2~~6.4.4.6 A SPECI message included in a SPECI bulletin should start with the code word SPECI followed by the ICAO location indicator (CCCC) of the aerodrome and a date/time group (YYGGggZ) indicating the UTC time of the observation of the meteorological conditions for which the SPECI is issued. Corrected SPECI messages, should start with SPECI COR.

6.4.5 IWXXM Format SPECI compliance, T_1T_2 = LP

6.4.5.1 The unit producing the SPECI in IWXXM format, either being the originating station, its NOC or the delegated Data Translation Centre, is responsible for the IWXXM format compliance and equivalence with the corresponding TAC formatted SPECI.

7 TAF Exchange

7.1 TAF General

7.1.1 Terminal aerodrome forecast (TAF) should be prepared by the aerodrome meteorological offices (AMO) or other meteorological offices, designated for provision of TAF by the State's meteorological authority, for all international aerodromes, for which TAF is required according to eANP Volume II Table MET II-2.

7.1.2 TAFs from all required international aerodromes listed in the ICAO eANP Volume II Table MET II-2 (AOP aerodromes) should be included in the regular EUR RODEX exchange. In addition, TAFs from a number of other (including domestic) aerodromes (non-AOP aerodromes), required by the users and agreed by the State, should also be included in the regular EUR RODEX exchange. All these TAFs should be available on request from the RODBs.

7.1.3 NOC should compile eANP required TAF for international distribution in separated bulletins. TAFs not in the eANP (not required; for national usage or distribution based on bilateral agreements) should be compiled in another bulletin. Those bulletins are to be differentiated by means of the ii-bulletin number in the abbreviated header (TTAAii CCCC).

7.1.4 Those TAFs exchanges, which are not covered by the EUR RODEX scheme, but required operationally, should be met by means of direct-addressed AFTN or AMHS messages.

7.1.5 The EUR RODEX Schema covers the exchange of TAF, following the requirements expressed in Table MET II-2, expanded by agreed non AOP airports.

7.1.6 ICAO Annex 3, Amendments 76 – 78 (ref.: Section 2.4) provide for the transition of TAC-formatted TAFs to TAFs in IWXXM format. The modus operandi is described in EUR Doc 033 (ref.: Section 3). During the transit period from TAC towards IWXXM, IWXXM OPMET data Originating Units shall continue producing and distributing the equivalent TAC OPMET data in parallel.

7.1.7 TAF producing stations issuing TAC formatted data shall, when possible, also produce the IWXXM format of the TAC TAF reports and bulletins. A TAC TAF Producer can delegate the translation of the alphanumeric to IWXXM TAF reports and bulletins to its NOC. The NOC can delegate the translation of TAF data from TAC to IWXXM to the assigned ROC or a Data Translation Centre if not (yet) capable to produce IWXXM formatted TAF data.

7.1.8 The IWXXM TAF Producer is responsible for the validation of the data against the most recent schematron at the IWXXM data source before international distribution.

7.2 Responsibilities of the TAF Originating AMO and the NOC

7.2.1 The following paragraphs are describing the responsibilities and procedures to be followed by the TAF originating aerodrome meteorological offices (AMO) and the National OPMET Centres (NOC).

7.2.2 The originating aeronautical meteorological stations produce TAF reports and send them to their responsible NOC.

7.2.3 The NOC compiles the collected TAF reports in one or more bulletins and sends those via the AFS to the responsible ROC. The NOC is responsible for complying to the WMO No. 306 and ICAO Annex 3 Code Format of TAF reports and bulletins from its State.

7.2.4 Where two or more separate TAF bulletins are issued with the same 'A_1A_2' group (e.g. "UK") different “ii” values (e.g., UK"31" and UK"32”) should be used in the WMO heading to differentiate the bulletins.

7.2.5 TAFs should be monitored by the originating AMOs and amended TAF issued according to the established criteria. Amended TAFs should be sent by the originating station to the responsible NOC and further on to the responsible ROC without delay. The optional group BBB related to amendment shall be used in the WMO abbreviated heading in accordance with WMO No. 386, Part II, paragraph 2.3.2.2, to indicate an amended TAF.

7.2.6 An amended TAF should have the beginning of validity set to the closest whole hour preceding the time of issuance of the TAF AMD. The time of issuance itself should be provided in the YYGGggZ group. No changes shall be done on the date-time group in the WMO Abbreviated Header Line.

7.2.7 *Example TAF AMD:*

```
FTOS31 LOWM 090500
TAF LOWW 090515Z 0906/1012 12007KT 9999 FEW040 SCT120
    TX28/1012Z TN18/1003Z.....

FTOS31 LOWM 090500 AAA
TAF AMD LOWW 090743Z 0907/1012 VRB02KT 9999 FEW040 SCT120
    TX28/1012Z TN18/1003Z.....
```

7.2.8 TAF messages should be quality controlled by the originating meteorological offices and, when necessary, a corrected message sent immediately after an error in an already transmitted message was identified.

7.2.9 According to ICAO Annex 3, paragraph 6.2.5 paragraph 3, TAFs that cannot be kept under continuous review shall be cancelled.

7.3 Responsibilities of a ROC

7.3.1 The following paragraphs are describing the responsibilities and procedures to be followed by the Regional OPMET Centres (ROC) for the dissemination of TAF messages.

7.3.2 A ROC collects TAF bulletins in TAC format and in IWXXM format from the NOCs in its area of responsibility via the AFS. When needed, for compliance to the ICAO EUR format standards for distribution, the ROC re-compiles TAF bulletins.

7.3.3 A ROC can act as a Data Translation Centre (ref.: EUR Doc 033) for the dissemination of IWXXM TAF bulletins on behalf of the NOCs within its AoR as determined by the RODEX Schema (ref.: ICAO Doc 018, Appendix E Distribution Determination for OPMET Data).

7.3.4 A ROC distributes, via the AFS, the compiled/aggregated TAC- and IWXXM-formatted TAF bulletins received from the NOCs in its area of responsibility to the other ROCs, the RODBs and as an IROG to the other ICAO Regions in accordance with the RODEX Schema (ref.: ICAO Doc 018, Appendix E Distribution Determination for OPMET Data).

7.3.5 ROCs should disseminate, via the AFS, the TAC-TAF bulletins recompiled/aggregated by them and TAC-TAF bulletin received from other IROGs, ROCs or NOCs to the NOCs in their area of responsibility, as agreed between the ROC and NOC and the meteorological authority of the State concerned. The dissemination of aggregated IWXXM TAF bulletins depends on the capabilities and requirements of the determined destination centres.

7.4 Format and content of TAF data

7.4.1 Meteorological offices issuing TAF messages shall apply strictly the WMO No. 306 and ICAO Annex 3 imposed Code Forms (FM).

7.4.1.1 TAC Format references:

- WMO No. 306, Manual on Codes, Volume I.1, Part A – Alphanumeric Codes FM 51-XV TAF.
- ICAO Annex 3, Chapter 4, and Appendix 3: Technical specifications related to meteorological observations and reports.

7.4.1.2 IWXXM Format references:

- WMO No. 306, Manual on Codes, Volume I.3, Part D – Representation in Extensible Markup Language
  - FM201: COLLECTION OF REPORTS: Collection of features = reports in a bulletin;
  - FM205: IWXXM: Details on schemas for all OPMET data types (Versions 1.1, 2.1 as well as 3.0)

7.5 TAF Format compliance

7.5.1 The format of TAF reports and the bulletins shall be in compliance with the relevant TAC or IWXXM code regulating documents as referred in Section 7.4.

7.5.2 TAC Format TAF compliance, T_1T_2 = FC and FT

7.5.2.1 Each TAF message in a TAF bulletin should start with the code word TAF followed by the ICAO location indicator (CCCC) of the aerodrome and the date/time group (YYGGggZ), indicating the official UTC time of issuance. Corrected TAF messages, should start with TAF COR. Amended forecasts should start with TAF AMD.

7.5.2.2 The following is an outline of the format to be applied by a NOC or ROC in preparing a TAF bulletin, containing “short” TAFs (less than 12 hours):

Example: `TAF EKSN 200900Z 2009/2018 29008KT 9999 FEW030=`

7.5.2.3 A missing TAF in a TAF bulletin should be indicated with “NIL”, as shown in the following example:

Example: `TAF EHAM 281100Z NIL=`

7.5.2.4 A cancelled TAF in a TAF bulletin should be indicated with “CNL”, as shown in the following example:

Example: `TAF AMD LOWG 281100Z 2812/2912 CNL=`

7.5.3 IWXXM Format TAF compliance, T_1T_2 = LC (short TAF) and LT (long TAF)

7.5.3.1 The IWXXM TAF Originating Unit, either being the originating station, its NOC or the delegated Data Translation Centre is responsible for the IWXXM format compliance and equivalence with the corresponding TAC formatted FC and FT TAF.

8 Exchange of SIGMET and Advisories

8.1 SIGMET and Advisories General

8.1.1 SIGMET should be prepared by the meteorological watch offices (MWOs) designated by the State's meteorological authority, as required by the table MET II-1 of the EUR eANP. The MWOs should follow the guidelines indicated in the ICAO EUR Doc 014, The EUR SIGMET and AIRMET Guide.

8.1.2 SIGMET messages indicated in ICAO DOC 014 shall be distributed to all ROCs and RODBs via the ICAO AFS.

8.1.3 Where two or more separate SIGMET bulletins are issued with the same "A_1A_2" group (e.g. $T_1T_2A_1A_2$="WSFR") either different "ii" bulletin number values (e.g., "31" and "32") or different "CCCC" compiling station shall be used in the WMO heading to differentiate the bulletins.

Example with different "ii" as used by France:
`WSFR31 LFPW ➔ FIR LFFF`
`WSFR32 LFPW ➔ FIR LFBB`
`WSFR33 LFPW ➔ FIR LFEE`
`WSFR34 LFPW ➔ FIR LFMM`
`WSFR35 LFPW ➔ FIR LFRR`

Example with different "CCCC" as used by Turkey:
`WSTU31 LTAC ➔ FIR LTAA (Ankara)`
`WSTU31 LTBA ➔ FIR LTBB (Istanbul)`

8.1.4 The dissemination of required SIGMETs to other users/states in the EUR/NAT region should be arranged through the responsible ROC as determined by the RODEX Schema (Appendix E, Distribution Determination for OPMET Data).

8.1.5 ICAO Annex 3, Amendments 76 – 78 (ref.: Section 2.4) provide for the transition of TAC-formatted SIGMETs to SIGMETs in IWXXM format. The modus operandi is described in EUR Doc 033 (ref.: Section 2.7.2.5). During the transit period from TAC towards IWXXM, IWXXM OPMET data Originating Units shall continue producing and distributing the equivalent TAC OPMET data in parallel.

8.2 Advisory messages preceding Volcanic Ash and Tropical Cyclone SIGMETs

8.2.1 Volcanic Aash Aadvisories (VAA) should be issued by the designated Volcanic Ash Advisory Centres (VAAC), as indicated in ICAO Doc 9766, *Handbook on the International Airways Volcano Watch (IAVW)*.

8.2.2 Tropical Cyclone Advisories (TCA) should be issued by the designated Tropical Cyclone Advisory Centres (TCAC).

- TCAC Tokyo for the far eastern coastal part of the EUR-region
- TCAC Miami for the far western coastal part of the EUR-region

8.2.3 The advisories produced by the TCACs and VAACs should be disseminated in addition to the WAFCs, SADIS and WIFS, TCACs/VAACs whose areas of responsibility may be affected and international OPMET databanks, in accordance with regional OPMET data exchange

schemes.~~should send the advisories directly to all ROCs for further distribution and to the RODBs~~.

~~8.2.1~~8.2.4 The RODBs should make TCA and VAA messages available on request.

8.3 Responsibilities of the SIGMET originating stations and NOCs.

8.3.1 After receiving ~~the a~~an ~~volcanic ash advisory (~~VAA~~)~~ message (T_1T_2 = FV, LU) or a~~n~~ TCA-message (T_1T_2 = FK, LK), the responsible MWO should issue a SIGMET for volcanic ash (T_1T_2 = WV, LV) or a tropical cyclone (T_1T_2 = WC, LY) in case that the FIR and/or UIR is affected.

8.4 Dissemination functionalities for SIGMETs and Advisories of the ROCs

8.4.1 SIGMET messages ~~and volcanic ash (VA)~~ advisories shall be distributed via the AFS to other ICAO Regions, including VAACs as appropriate, and made available through SADIS and WIFS. This distribution shall be through the corresponding ROCs according to the RODEX Schema.

8.5 SIGMET Format and content compliance

8.5.1 The SIGMET Code Format regulations and references are:

8.5.1.1 The TAC code format of SIGMETs is prescribed in:

- ICAO Annex 3, Chapter 4, and Appendix 6: Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts.
- WMO No. 49, Technical Regulations, Volume II, Part II, Appendix 6, [C.3.1] 1.

8.5.1.2 For the IWXXM SIGMET production applicable to the TAC code format, refer to:

- WMO No. 306, Manual on Codes, Volume I.3, Part D – Representation in Extensible Markup Language
  - FM201: COLLECTION OF REPORTS: Collection of features = reports in a bulletin;
  - FM205: IWXXM: Details on schemas for all OPMET data types (Versions 1.1, 2.1 as well as 3.0)

8.5.2 TAC Format SIGMET compliance, T_1T_2 = WS, WV and WC

8.5.2.1 Detailed information on the format and validation of SIGMET messages in the EUR Region is provided in the EUR ICAO Doc 014 (EUR SIGMET and AIRMET Guide) which is available from the website of the ICAO Office Paris.

8.5.3 IWXXM Format SIGMET compliance, T_1T_2 = LS, LV and LY

8.5.3.1 The T_1T_2 = LS-, LV- and LY-SIGMET Originating Unit, either being the originating station, its NOC or the delegated Data Translation Centre is responsible for the IWXXM format compliance and equivalence with the corresponding TAC formatted T_1T_2 = WS-, WV- and WC-SIGMET.

8.6 Space Weather Advisory messages ~~on Space Weather~~

~~8.6.1~~ The ICAO space weather service is provided by joint operation of ~~three~~ several global space weather centres (SWXC), ~~with~~ each providing the service, on a rotational basis, for 2 weeks. ~~in turn:~~

- ~~PECASUS (Pan-European Consortium for Aviation Space Weather User Service): consortium led by led by FMI comprises ICAO member states Finland, Belgium, UK, Austria, Germany, Italy, Netherlands, Poland, Cyprus, South Africa~~
- ~~SWPC: NOAA Space Weather Prediction Centre~~
- ~~ACFJ: the consortium of Australia, Canada, France and Japan~~

~~8.6.2~~8.6.1 Space Weather Advisory messages shall be issued by the designated Space Weather Centre (SWXC), as indicated in the ICAO Doc 10100 (Manual on Space Weather Information in Support of International Air Navigation).

~~8.6.3~~8.6.2 The advisories produced by the SWXCs should be disseminated in addition to the WAFCs, SADIS and WIFS and international OPMET databanks, in accordance with regional OPMET data exchange.~~The SWXCs should send the advisories directly to all ROCs and RODBs~~.

8.6.3 The ROCs should distribute the Space Weather Advisory Messages (T_1T_2 = FN, LN) via the AFS to the NOCs in the AoR, SADIS and EUR RODBs according to the RODEX-schema.

8.6.4 The NOCs should distribute the Space Weather Advisory Messages to area control centres, flight information centres, NOTAM offices ~~, SADIS, EUR RODBs~~ as well as aerodrome meteorological offices ~~in their area of responsibility~~according to national agreements.

~~8.6.4~~8.6.5 The RODBs should make SWXA messages available on request.

9 AIREP Exchange

9.1 General

9.1.1 This Section provides guidance with reference to the collection of routine air reports (AIREP) received by voice communications and special air-reports (AIREP SPECIAL) from aircrafts by meteorological watch offices (MWO) through their associated ATS units.

9.2 Routine AIREP

9.2.1 Routine voice air-reports – the exchange in the ICAO network is no longer required since Amendment 75 to ICAO Annex 3.

9.2.2 Routine air-reports received by data link communications should be relayed directly to the WAFCs by the ATS unit - Chapter 5, 5.8 b of ICAO Annex 3 and to their MWO.

9.3 Special AIREP

9.3.1 Special air reports are covered by ICAO Annex 3 and **are of urgent nature** as detailed below.

~~9.3.2 Special voice air-reports – MWO to send to WAFCs without delay (Appendix 4,3.1.1 of ICAO Annex 3).~~

~~9.3.3~~9.3.2 ~~Special air-reports~~ These reports are disseminated without delay to MWOs. In accordance with regional air navigation agreement (Appendix 4, 3.1.3 of ICAO Annex 3) and RODEX Schema, they are disseminated by the NOC, then the ROC to WAFCs, SADIS and to other meteorological offices. More information can be found in EUR DOC014 on best practice about Special Air Reports dissemination.

~~9.3.4~~9.3.3 Special air-reports of pre-eruption volcanic activity, volcanic eruption or volcanic ash – shall be sent by the responsible MWO ~~to send~~ to the VAACs without delay (Appendix 4, 3.1.2 of ICAO Annex 3) via the NOC~~, then the~~ and ROC, following the RODEX schema.

9.4 WMO headers

9.4.1 The WMO headers used to send the AIREP should follow the WMO regulations - WMO No 386, table D3 – as indicated here:

UA	01-59	Routine aircraft reports
UA	60-69	Special aircraft reports, except for volcanic ash
UA	70-79	Special aircraft reports related to volcanic ash

9.4.2 Examples

9.4.2.1 Special Air-Report received in a French ATS unit and related to volcanic ash should be sent with a WMO bulletin header such as UAFR70 LFPW.

9.4.2.2 Special Air-Report received in a French ATS unit and not related to volcanic ash should be sent with a WMO bulletin header such as UAFR60 LFPW.

9.5 Example Special air-reports on volcanic ash

9.5.1 Pilot to ACC Petropovlovsk-Kamchatsky

9.5.1.1 A pilot provides a special air-report on volcanic ash via voice communications to ACC. Referencing PANS-ATM Appendix 1, Part 1 – Reporting instructions sections 1-4 and 9, the following example is provided.

AIREP SPECIAL UNITED AIRLINES TREE TOO TOO POSITION FIFE FIFE ZERO TREE NORTH WUN SEVen ZERO TOO ZERO EAST FLIGHT LEVEL TREE ZERO ZERO CLIMBING TO FLIGHT LEVEL TREE FIFE ZERO VOLCANIC ASH CLOUD EXERCISE VOLKAM15 EXERCISE EXERCISE EXERCISE

9.5.2 ACC Petropovlovsk-Kamchatsky (PKK) to MWO Yelizovo

9.5.2.1 There are different arrangements between ACC and MWO (e.g. information provided by fax or phone vs. AFTN). The following is an example of providing a special air-report from the ACC to the MWO via the AFS (AFTN/AMHS).

9.5.2.2 The format used for forwarding of meteorological information received by voice communications to the associated meteorological watch office (MWO) is provided in subtitle 3 of Appendix 1 of PANS-ATM. An example is provided based on the information given by the pilot or dispatch.

ARS UAL322 5503N17020E 0105 F300 ASC F350 VA CLD=

9.5.3 MWO Yelizovo to VAAC Tokyo, Regional OPMET Centre-(ROC) Moscow, SADIS, WIFS

9.5.3.1 The format used for forwarding of a special air-report from the MWO to VAAC, ROC, SADIS and WIFS is in accordance to Annex 3, Appendix 6, Table A6-1B (**uplink**). An example is provided based on the information given by the ACC.

ARS UA322 VA CLD OBS AT 0105Z N5503E17020 FL300/350 =

~~9.5.3.2~~ The MWO should send this information using the World Meteorological Organization Abbreviated Header Line (WMO AHL) of UARA71 RUPK to the appropriate ROC, in this case ROC Moscow, via agreed communication lines. According to the regional OPMET exchange schema, ROC Moscow will then route to the three ~~other~~others ~~O~~ROCs, including ROC London, which will route to SADIS, ~~and~~ WIFS and the ~~.~~

~~9.5.3.3~~

~~9.5.3.4~~

~~9.5.3.5~~9.5.3.2 ~~A~~appropriate VAAC – in this case, VAAC Tokyo ~~(fax: +81 (3) 3212 6446; email ; AFTN address RJTDYMYX),~~ ~~according to the regional OPMET exchange schema (through ROC Vienna, then ROC London which will do the final addressing).~~

9.6 Example Special air-reports on severe turbulence

9.6.1 pilot to ACC Paris

9.6.1.1 A pilot provides a special air-report on severe turbulence via voice communications to ACC. Referencing PANS-ATM Appendix 1, Part 1 – Reporting instructions sections 1-4 and 9, the following example is provided.

‘**AIREP SPECIAL AIR NEW ZEALAND WUN ZERO WUN POSITION FIFE ZERO ZERO FIFE NORTH ZERO ZERO TOO ZERO WUN WEST WUN FIFE TREE SIX FLIGHT LEVEL TREE WUN ZERO CLIMBING TO FLIGHT LEVEL TREE FIFE ZERO SEVERE TURBULENCE** ‘

9.6.2 ACC Pairs (LFFF) to MWO Toulouse (Centre Meteo)

9.6.2.1 There are different arrangements between ACC and MWO (e.g. information provided by fax or phone vs. AFTN). The following is an example of providing a special air-report from the ACC to the MWO via AFTN.

9.6.2.2 The format used for forwarding of meteorological information received by voice communications to the associated meteorological watch office (MWO) is provided in subtitle 3 of Appendix 1 of PANS-ATM. An example is provided based on the information given by the pilot or dispatch.

ARS ANL101 5005N00201W 1536 F310 ASC F350 SEV TURB=

9.6.3 MWO Toulouse to Regional OPMET Centre-ROC Toulouse, then ROC London to SADIS, WIFS.

9.6.3.1 The format used for forwarding of a special air-report from the MWO to ROC, SADIS and WIFS is in accordance to Annex 3, Appendix 6, Table A6-1 (**uplink**). An example is provided based on the information given by the ACC.

ARS NL101 SEV TURB OBS AT 1536Z N5005W00201 FL310=

~~9.6.3.2~~ The MWO should send this information using the World Meteorological Organization Abbreviated Header Line (WMO AHL) of **UAFR61 LFPW** to the~~:~~

~~9.6.3.3~~

~~A~~appropriate NOC which will send it to the responsible~~n~~ ROC— (in this case, ROC Toulouse with~~at~~ AFTN address **LFPWYMEU**) which will then route to SADIS and WIFS according to the regional OPMET exchange schema via ROC London.

10 GAMET Exchange

10.1 General

10.1.1 Table MET II-1, *Meteorological Watch offices, Service to be provided for FIR or CTA,* provides a list of requirements for the issuance of AIRMET information in accordance with ICAO EUR Doc. 014 (EUR SIGMET and AIRMET guide). When abbreviated plain language for area forecasts in support of the issuance of AIRMET information is used, the forecast shall be prepared as a GAMET area forecast, using approved ICAO abbreviations and numerical values.

> *Note: when chart form is used, the forecast shall be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The issuance of graphical products is not covered within this document.*
> *States who want to provide such charts via SADIS are asked to contact the SADIS-Manager (sadismanager@metoffice.gov.uk) for further details.*

10.2 Responsibilities and Procedures to be followed by the originator and NOC

10.2.1 The MWO whose area of responsibility encompasses more than one FIR and/or CTA shall issue separate GAMET area forecast for each FIR and/or CTA within its area of responsibility.

10.2.2 Where necessary, the FIR should be divided in sub-areas and separate AIRMET and GAMET area forecasts issued for each sub-area.

> *Note: GAMET area forecasts should be issued for the same FIR/CTA, or part thereof for which the AIRMET is issued.*

10.2.3 GAMET prepared in support of the issuance of AIRMET information shall be issued every 6 hours for a period of validity of 6 hours and transmitted to meteorological offices within the AoR, to the MWO responsible for the issuance of relevant AIRMET information and the responsible NOC, not later than one hour prior to the beginning of their validity period. The NOC shall send the GAMET to the responsible ROC without delay.

> *Note: usually the MWO is also the meteorological office responsible for the issuance of the GAMET*

10.3 Responsibilities and Procedures to be followed by ROC

10.3.1 ROCs should collect GAMET area forecasts in support of the issuance of AIRMET information from the NOCs in their area of responsibility.

10.3.2 ROCs should transmit the GAMETs received from within their Area of Responsibility via the AFS to other ROCs.

10.3.3 ROCs should transmit all received GAMETs via the AFS, as necessary, to the NOCs in their Area of Responsibility including RODBs, as agreed between the ROC and NOC (ref.: RODEX Schema, ICAO Doc 018, Appendix E Distribution Determination for OPMET Data).

10.4 Format and structure of the GAMET area forecast

10.4.1 GAMET format should follow the provisions of Annex 3 (Appendix 5; Chapter 4 and the template Table A5-3) or the WMO Nº49 Technical Regulations Volume II and also regional procedures as defined in EUR basic Air Navigation Plan PART VI – Meteorology (MET).

10.4.2 Header of the GAMET area forecasts is the same type as in all other OPMET data messages $T_1T_2A_1A_2$ii CCCC YYGGgg.

- T_1T_2 = FA
- A_1A_2 = originating WMO country or territory designator
- ii = 50-59 (*according to Manual on the GTS, Vol I; Part II; Attachment II-5 Table D3*)
- CCCC = ICAO four-letter location indicator of the station or centre originating or compiling the area forecasts
- YYGGgg = Date-Time Group; where YY is the day of the month and GGgg the full hour preceding the transmission time of the bulletin

10.4.3 Where two or more separate GAMET area forecasts are issued with the same ' A_1A_2' group (e.g. "FALJ") either different “ii” values (e.g., "51" and "52”) should be used in the WMO heading or, if applicable, different “CCCC”.

Example for different “ii”:

```
FASN50 ESWI 050400
FASN51 ESWI 050400
FASN52 ESWI 050400
```

Example for different CCCC: *)

```
FADL51 EDZM 050300
FADL51 EDZF 050300
FADL51 EDZH 050300
```

*) The used example is based on a no longer produced product

10.4.4 The first line of GAMET area forecast shall contain the ICAO location indicator of the ATS unit serving the FIR or CTA to which it refers to, the message identification, validity period in UTC, location indicator of the MWO (meteorological watch office) originating the message with a separating hyphen at the end.

Examples:

```
LJLA GAMET VALID 150600/151200 LJLJ-
GCCC GAMET VALID 041500/042100 GCGC-
```

10.4.5 The second line of GAMET area forecast shall contain the location indicator and name of the FIR/CTA, or part thereof for which the GAMET is issued including also the vertical extension. GAMET could be issued for the whole FIR/CTA or part of FIR/CTA. If GAMET covers a part of FIR/CTA it should be numbered with a single symbol. Information about subdivision of GAMET area within FIR/CTA should be published in State AIP.

Example

```
ESAA SWEDEN FIR/A BLW FL125
ESAA SWEDEN FIR/B BLW FL125
ESAA SWEDEN FIR/C BLW FL125
```

10.4.6 Following is an example of a GAMET according to the rules stated in ICAO ANNEX 3:

```
FASN10 ESWI 050300
ESAA GAMET VALID 050400/051000 ESSA-
ESAA SWEDEN FIR/A BLW FL125
SECN I
SFC WSPD: NIL
SFC VIS: 04/06 3000 M FG BR IN AREA N,SW,SE
SIGWX: 06/10 OCNL TSRA IN AREA N
SIG CLD: 04/06 BKN SFC/500 FT IN AREA N,SW,SE 06/10
OCNL CB IN AREA N
ICE: NIL
TURB: NIL
MTW: NIL
SIGMET APPLICABLE: NIL
SECN II
PSYS: SEE SIGNIFICANT WEATHER CHARTS
WIND/T: 04/07 2000 FT 250/15 KT PS03 5000 FT 240/20
KT MS02 10000 FT
250/15 KT MS08
07/10 2000 FT 250/15 KT PS03 5000 FT 240/20 KT MS02
10000 FT 250/15
KT MS08
CLD: SEE SIGNIFICANT WEATHER CHARTS
FZLVL: 04/10 3000FT-4000FT AGL
MNM QNH: 1003 HPA
VA: NIL
```

11 Management of OPMET Exchange Under the EUR RODEX Scheme

11.1 DMG Management Roles

11.1.1 **DMG chairperson**: The DMG chairperson chairs the DMG Meeting and represents the DMG when reporting the activities of the DMG to other ICAO Meetings. The chairperson also supervises the changes done for the "EUR OPMET Data Management Handbook".

11.1.2 **DMG vice chairperson:** The DMG vice chairperson seconds the chair person, can be delegated some specific functions and makes function of chairperson when the chair person is not in capacity to represent DMG.

11.1.3 **DMG Secretary**: The DMG secretary records and issues a report for each meeting and maintains a record of actions to be handled by the DMG.

11.1.4 **DMG Focal Point**: The DMG Focal Point:

11.1.4.1 Maintains the EUR OPMET Working Table and generates the catalogues from that information. Coordinates the requests for changes to the OPMET data distributed in the EUR Region by means of the METNO Procedure

11.1.4.2 Issues the requests for additional non-EUR OPMET data via ICAO Europe.

11.1.4.3 Collects the DMG OPMET data monitoring results for analysing and publication.

11.1.5 **Warning Test Focal Point:** The WARNING Test Focal point organizes, collates and publishes the results from the regular Warning tests and proposes action plans to the DMG.

11.1.6 **Volcanic Ash Focal Point:** The Volcanic Ash Focal Point coordinates as necessary with the EUR groups in charge of Volcanic Ash exercises.

11.1.7 **Problem Handling Manager:** The Problem Handling Manager coordinates the problems issued by OPMET Providers concerning the OPMET data in the Problem Handling Team and presents a Problem Status Report to the DMG.

11.1.8 **EUR OPMET Databank Focal Point:** The RODB Focal Point coordinates the monitoring exercises of the EUR OPMET Databanks and the implementation of new common requirements.

11.2 EUR OPMET Working Tables

11.2.1 The DMG Working Tables contain all known Scheduled and Non-Scheduled OPMET data available within the EUR-Region. The Tables comprise the data starting from the MOTNEG/DMG Survey in 1997 and are maintained by the DMG FP. The following updates are implemented to the DMG Working Tables on a regular basis:

- The eANP Volume II Table MET II-2 User Required data, updated regularly by ICAO Montreal. The DMG tables will only be updated twice a year on regular times;
- The SADIS OPMET monitoring results required for generating SADIS Annexes 2 and 3, which describe the bulletin headers and content of OPMET data on SADIS, updated twice a year;
- The EUR OPMET Data Update Procedure METNO bulletins issued by the DMG FP on AIRAC dates;
- The results of the DMG EUR OPMET data ~~AFTN~~ AFS monitoring exercise held once a year.

11.3 EUR OPMET Catalogues

11.3.1 Various catalogues are extracted from the DMG Working Tables:

- The RODEX Routine OPMET bulletins: scheduled RODEX collective bulletins sorted per ICAO Region and the originating WMO Area Name (A_1A_2); from now on called The EUR RODEX Routine OPMET bulletins: scheduled RODEX collective bulletins sorted per ICAO Region and the originating WMO Area Name (A_1A_2);
- The RODEX Non-Routine OPMET bulletins: unscheduled RODEX bulletins sorted per ICAO Region and the originating WMO Area Name (A_1A_2); from now on called The EUR RODEX Non-Routine OPMET bulletins; unscheduled RODEX bulletins sorted per ICAO Region and the originating WMO Area Name (A_1A_2);
- The RODEX Routine OPMET Reports: scheduled RODEX reports sorted per ICAO Region and State; from now on called The EUR RODEX Routine OPMET bulletins; scheduled RODEX reports sorted per ICAO Region and State;
- The Routine OPMET Bulletins: the know scheduled OPMET Bulletins grouped per ICAO Region and per originating WMO Area (A_1A_2);
- The Non-Routine OPMET Bulletins: the unscheduled OPMET Bulletins grouped per ICAO Region and per originating WMO Area (A_1A_2);
- The Routine OPMET Reports: the OPMET scheduled reports banded per ICAO Region and per ICAO Country;
- The SADIS User Guide (SUG) Annex 2: the SADIS OPMET programme on report level and based on the SADIS User Requirements in the eANP volume II Table MET II-2 and agreed exchanged non AOP aerodrome OPMET data;
- The SADIS User Guide Annex 3: the OPMET bulletins broadcasted by SADIS as monitored on the SADIS.

11.3.2 The EUR OPMET Catalogues are updated every AIRAC cycle of the EUR OPMET Data Update Procedure.

11.4 EUR OPMET Procedures

11.4.1 EUR OPMET Data Update Procedure

11.4.1.1 The Update Procedure facilitates modification of the relevant tables and catalogues as described in 11.2 and 11.3 above, following any change.

11.4.1.2 The process provides Change Management and a co-ordinated implementation on the EUR terrestrial telecommunication infrastructure. Changes are implemented around the Region on AIRAC dates at a specific time.

11.4.1.3 It should be noted that the document defining the procedure should not be read in isolation but requires knowledge of and reference to other documents within the EUR ~~OPMET~~ RODEX system.

11.4.1.4 EUR data requirements, as defined in the eANP Volume II Table MET II-2, are the same as that of SUG (SADIS User Guide) Annex 1. The principalle is, that all required data shall be available via SADIS as well as via the AFS (AFTN/AMHS) ~~and there is a principle that if there is a requirement by Airline Operators for data on SADIS, then it must also be made available within the terrestrial infrastructure in EUR~~.

11.4.1.5 Therefore, all ROCs should have a complete set of available data ~~available~~ to distribute within ~~to~~ their area of responsibility, tailored to the requirements of individual States.

~~11.4.1.4~~11.4.1.6 Conversely, each ROC collects data from its area of responsibility for distribution to all other ROCs, RODBs and SADIS ~~distribution~~.

~~11.4.1.5~~11.4.1.7 A more detailed description of the data update procedure is provided in Appendix B to this document.

11.4.2 EUR OPMET Data Monitoring Procedure

11.4.2.1 Data Monitoring

11.4.2.1.1 With the working tables established and an update procedure to facilitate user's requests, it is important to monitor what is going through the distribution system to ensure that the tables are accurate in what they say. Data can disappear due to a variety of reasons as a result of bulletins routinely removed or replaced by a State. It can also appear either because a EUR State has not introduced it with standard notification through the Update Procedure, or a Non-EUR Region starts to send it to EUR without co-ordination. Monitoring tools are able to detect this and can annotate the tables with flags to highlight these occurrences.

11.4.2.1.2 Monitoring also provides an indication of anomalies in the availability of bulletins and reports between NOCs, ROCs, the databanks and also SADIS. In providing these indications, corrective action can then be taken to remedy the routeing or to obtain data, which is not available but is cited in the requirements.

11.4.2.1.3 Monitoring is performed as a minimum routinely by the ROCs, RODBs and a SADIS end user representative. The coordinated periods of monitoring are defined in the EUR OPMET Monitoring Procedure to ensure that the snapshots are taken of the same timeframe across the Region.

- EBBR (Focal Point)
- LFPW
- EGGY and SADIS Provider
- LOWM
- UUUJ
- EBBR and LROM SADIS Users
- EBBR RODB

11.4.2.1.4 In order to get comparable monitoring results for all kinds of analyses, standard specifications for the various monitoring applications in use at the Centres have been drawn up. The monitoring tools should be evaluated against the next standardized levels with increasing requirements:

- WMO Monitoring
- Transmission Network Monitoring
- Real Time Monitoring

11.4.2.1.5 The specifications for each level are presented in Appendix D: "EUR OPMET Data Monitoring Tool Specification".

11.4.2.1.6 A more detailed description of the data monitoring is provided in Appendix C to this document.

11.4.2.2 Warning messages routing Testing

11.4.2.2.1 The monitoring of routine data indicates easily the anomalies described above. However, this is not the case when trying to monitor SIGMET and SPECIAL AIREP information. It was decided to introduce standard testing within the EUR-region to ensure that every State was in receipt of all SIGMET and SPECIAL AIREP generated by EUR States. This is done on a specific day during the DMG monitoring period and highlights anomalies, such as routeing issues and thus allows remedial action to be taken. The execution and co-ordination of this test is carried out by the Warning Test Focal point.

11.4.2.2.2 A more detailed description of SIGMET and SPECIAL AIREP testing is provided in the EUR OPMET Data Monitoring Procedure that can be found as Appendix C to this document.

11.4.3 Performance Indices

11.4.3.1 The monitoring described above deals with individual reports and the bulletins in which they are monitored. It does not give a numerical interpretation about the availability regularity of the data. In response to questions raised by the SADIS users, a set of indices were developed to measure the performances for each required report as indicated in the eANP Volume II Table MET II-2. There are two measurements: the availability index and the regularity index.

11.4.3.2 If a required report is detected not NIL within the monitoring, period, it is indicated as available. Reports are generally broken down by ICAO Region. This allows an indication of availability for each Region against all the reports expected from it. If required, this can also be carried out on a State level or by taking the measurement of each State within a Region. Availability is currently calculated by the DMG Focal Point.

11.4.3.3 A more detailed description of the calculation of these indices is provided in Appendix F to this document.

11.4.4 Distribution Determination for OPMET Data

11.4.4.1 Distribution of meteorological data is determined by the tables 'Present Distribution Modes for Routine and Non-Routine Bulletins' and 'RODEX

Responsibility and Address Information Table'. These tables are included in Appendix E of this document and represent the RODEX Schema.

12 Message Validation Procedures

12.1 Basic Principles

12.1.1 TAC Formatted OPMET Data Validation

12.1.1.1 This section deals in detail on how alphanumeric OPMET messages are validated at ROCs and defines the modifications operators are authorised to carry out. It should be noted that operators are not authorised to modify actual meteorological data, e.g. visibility, QNHs etc., but only items such as bulletin headers, location indicators and observation times.

12.1.2 IWXXM Formatted OPMET Data Validation

12.1.2.1 The IWXXM OPMET data Producer / Originating Unit is responsible for the validation before the international distribution.

12.1.2.2 In case a ROC receives incorrect IWXXM OPMET data, no corrective actions will be performed by the operator. Instead those erroneous messages will be logged in a database for later analysing.

12.1.2.3 OPMET Data can be distributed in parallel in both formats: TAC and IWXXM. The IWXXM formatted OPMET data shall be equivalent to corresponding TAC OPMET data.

12.1.2.4 If unable to produce IWXXM data at source, the translation of TAC formatted OPMET data can be performed by a Data Translation Centre. This can be the NOC, the ROC on behalf of the NOC or any recognised Translation Centre based on bilateral agreement between the NOC and its delegated translating centre.

12.2 TAC Validation Procedures
(TAC = Traditional Alphanumeric Code.)

Preliminary note: all indications of time and time range are meant to be in UTC.

12.2.1 WMO Header Validation

12.2.1.1 The first line of the message text should be assumed to be AHL with the following format.

$T_1T_2A_1A_2$ii[SPACE(S)]CCCC[SPACE(S)]YYGGgg[SPACE(S)](BBB)

12.2.1.2 BBB is an optional group and T_1T_2 corresponds to one of the items listed below.

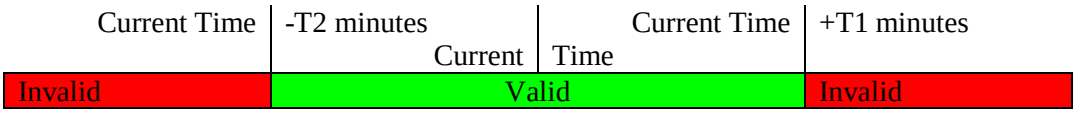
TT	Message Type
SA	METAR
SP	SPECI
FA	GAMETs
FC	Short TAF (less than 12 hours)
FT	Long TAF (up to 30 hours)
FN	Space Weather Advisory
WS	SIGMET
WC	Tropical Cyclone SIGMET
WV	Volcanic Ash SIGMET
WA	AIRMETs
UA	SPECIAL AIREPs, and SPECIAL AIREPs for Volcanic ash
FV	Volcanic Ash Advisory
FK	Tropical Cyclone Advisory

.

12.2.1.3 The AA group should comprise two alphabetical characters. The ii group should comprise 2 digits. Should only one digit be present then a leading zero or the correct two-digit indicator should be inserted. Should no ii group be present then a default value or the correct two-digit indicator should be inserted.

12.2.1.4 The CCCC group should comprise 4 alphabetical characters. This group is not validated as an ICAO location indicator.

12.2.1.5 The date time group of the bulletin, YYGGgg, should be considered valid if it lies between two configurable values, T1 minutes and T2 minutes, set after and before the current time. A table with the values for T1 and T2 can be found in chapter 12.2.6.1.



12.2.1.6 Different values of T1 and T2 are configured for METARs, TAFs and SIGMETs.

12.2.1.7 Bulletins that fail to correspond to the format should be rejected to an operator position for inspection.

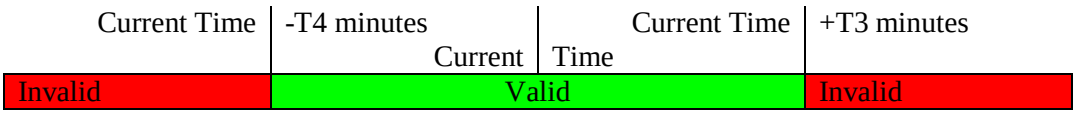
12.2.2 METAR Validation

12.2.2.1 For each individual METAR or SPECI within a bulletin the following items should be validated:

12.2.2.1.1 **CCCC** The report should contain a valid 4-letter ICAO location indicator in a position compliant with the WMO 306 FM15/FM16 code definition. Note that it is acceptable for location indicator to be prefixed according to the following table.

Prefix	Bulletin Type (TT)
METAR	SA
METAR COR	
SPECI	SP
SPECI COR	

12.2.2.1.2 **YYGGggZ** — The report should have a valid date and time of observation, including the character 'Z', which stands for UTC. For METARs the observation time is acceptable if it lies between two configurable values, T3 minutes and T4 minutes, set after and before the current time.



12.2.2.1.3 Each station report should be terminated by the "=" character.

12.2.2.1.4 METAR bulletins, i.e. those for which TT = 'SA' should not be accepted if they contain SPECIs.

12.2.2.1.5 Bulletins containing any reports that fail the above validation rules should be rejected to the error queue for inspection and, if appropriate, repair.

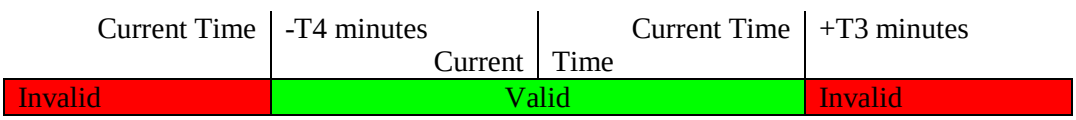
12.2.3 TAF Validation

12.2.3.1 For each individual TAF forecast within a bulletin the following items should be validated:

12.2.3.1.1 **CCCC** The forecast shall contain a valid 4-letter ICAO location indicator in a position compliant with the WMO 306 FM51 code definition. Note that it is acceptable for location indicator to be prefixed according to the following table.

Prefix	Bulletin Type (TT)
TAF	FC
TAF AMD	
TAF COR	
TAF	FT
TAF AMD	
TAF COR	

12.2.3.1.2 **YYGGggZ** — The **forecast** shall, if the field is included, have a valid forecast report date and time in UTC including 'Z'. The forecast time should be acceptable if it lies between two configurable values, T3 minutes and T4 minutes, set before and after the current time. These values are independently configurable for short TAFs (FC) and long TAFs (FT).



12.2.3.1.3 **$Y_1Y_1G_1G_1/Y_2Y_2G_2G_2$** — The forecast shall have a valid TAF validity period. This TAF validity period should be considered valid if it meets the following conditions.

12.2.3.1.4 The start of the validity period should be no more than a configurable value, T5 minutes, in the future from the current time.

12.2.3.1.5 The validity period should not exceed a configurable value of T6 minutes.

12.2.3.1.6 The end of the validity period should not be earlier than the current time.

12.2.3.1.7 Each forecast should be terminated by the "=" character.

12.2.3.1.8 Bulletins failing the validation rules above should be rejected to the operator position for inspection and, if appropriate, repair.

12.2.3.1.9 Separate configurable values are provided for long TAFs (FT) and short TAFs (FC).

12.2.4 SIGMET and AIRMET Validation

12.2.4.1 For each individual SIGMET or AIRMET the following items should be validated:

12.2.4.1.1 **CCCC** — The SIGMET or AIRMET, on the line following the abbreviated header, i.e. the pre-amble defined in Annex 3, must commence with a 4-letter group indicating the ATSU.

12.2.4.1.2 **SIGMET or AIRMET** — Following the CCCC group should be the word SIGMET or AIRMET as appropriate.

12.2.4.1.3 **SEQUENCE NUMBER** — Following the SIGMET or AIRMET there should be a sequence number for the SIGMET or AIRMET. This should be referred to in the template in Table A6-1 as defined in ICAO Annex 3 and shall correspond with the number of SIGMET or AIRMET messages issued for the flight information region since 0001 UTC on the day concerned.

12.2.4.1.4 **VALID** — Following the sequence number should be the word VALID.

12.2.4.1.5 **DDHHMM/DDHHMM** — The SIGMET or AIRMET should have a valid validity period. This validity period should be in the format DDHHMM/DDHHMM and should be considered valid if it meets the following conditions.

- The start of validity period should be no more than a configurable value, T5 minutes, in the future from the current time.
- The validity period should not exceed a configurable value of T6 minutes.
- The end of the validity period should not be earlier than the current time.

12.2.4.1.6 CCCC – Following the validity group should be a 4-letter group, indicating the MWO, immediately followed by a hyphen.

12.2.4.1.7 CCCC – The 2nd line after AHL should start with a 4-letter group, indicating the FIR and/or UIR. The first 2 letters must be the same as the first 2 letters of the ATSU to be accepted as being a valid FIR and/or UIR. If the check fails, the ATSU should be regarded as being the correct indicator.

***Recommendation** – ATSU, MWO, FIR and UIR should be validated against ICAO DOC 7910 whenever possible.*

12.2.4.1.8 Messages failing the above validation rules should be rejected to the operator position for inspection and, if appropriate, repair.

12.2.4.1.9 Separate configurable values are provided for conventional SIGMETs (WS), Volcanic Ash SIGMETs (WV), Tropical Cyclone SIGMETs (WC) and AIRMETs (WA).

12.2.5 Timers

12.2.5.1 General Header Validation

Parameter	Value	Description
SA T1	15	Limit of permitted SA AHL YYGGgg after current time
SA T2	90	Limit of permitted SA AHL YYGGgg before current time
FC T1	240	Limit of permitted FC AHL YYGGgg after current time
FC T2	360	Limit of permitted FC AHL YYGGgg before current time
FT T1	480	Limit of permitted FT AHL YYGGgg after current time
FT T2	720	Limit of permitted FT AHL YYGGgg before current time
WS T1	360	Limit of permitted WS AHL YYGGgg after current time
WS T2	720	Limit of permitted WS AHL YYGGgg before current time
WC T1	720	Limit of permitted WC AHL YYGGgg after current time
WC T2	1440	Limit of permitted WC AHL YYGGgg before current time
WV T1	720	Limit of permitted WV AHL YYGGgg after current time
WV T2	1440	Limit of permitted WV AHL YYGGgg before current time
WA T1	360	Limit of permitted WA AHL YYGGgg after current time
WA T2	720	Limit of permitted WA AHL YYGGgg before current time

12.2.5.2 METAR Validation

Parameter	Value	Description
SA T3	15	Limit of permitted observation time after current time
SA T4	90	Limit of permitted observation time before current time

12.2.5.3 TAF Validation

Parameter	Value	Description
FC T3	240	Limit of permitted Time of Forecast after current time (FC)
FC T4	360	Limit of permitted Time of Forecast before current time (FC)
FC T5	360	Limit between current time and start of validity (FC)
FC T6	720	Limit of validity period (FC)
FT T3	720	Limit of permitted Time of Forecast after current time (FT)
FT T4	840	Limit of permitted Time of Forecast before current time (FT)
FT T5	720	Limit between current time and start of validity (FT)
FT T6	1800	Limit of validity period (FT)

12.2.5.4 SIGMET Validation

Parameter	Value	Description
WS T5	360	Limit between current time and start of validity
WS T6	720	Limit of validity period
WC T5	720	Limit between current time and start of validity
WC T6	1440	Limit of validity period
WV T5	720	Limit between current time and start of validity
WV T6	1440	Limit of validity period
WA T5	360	Limit between current time and start of validity
WA T6	720	Limit of validity period

12.2.6 New Timer Values

Transition is planned for the following new timers (the values defined in 12.2.1 to 12.2.5 are currently in use).

	SA	FT	FC	WS	WA	WV	WC
T1	**15**	60	60	15	15	15	15
T2	**90**	720	360	500	500	1100	1100
T3	**15**	60	60	15	15	15	15
T4	**90**	840	360	500	500	1100	1100
T5	**n/a**	60	60	240	240	720	720
T6	**n/a**	1800	720	240	240	360	360

12.3 TAC Message Correction Procedures

12.3.1 General Principles

12.3.1.1 This section describes the modification operators are authorised to apply to rejected bulletins. It should be noted that operators are not authorised to modify actual meteorological data, e.g. visibility, QNHs etc., but only items such as bulletin headers, location indicators and observation times.

12.3.1.2 If a specific error is identified to happen on a regular basis for one and the same bulletin, a problem ticket should be raised via the Problem Handling Procedure (see chapter 13).

12.3.1.3 In the following examples the erroneous parts are highlighted.

12.3.2 WMO Header Errors

12.3.2.1 Various Errors are observed on WMO Headers. Among these is the substitution of ‘0’ (zero) for ‘O’ in the alphabetical parts of the header, a missing digit in the YYGGgg group or an illegal optional group. These are often straightforward corrections. The YYGGgg group should only be corrected if the correction is implied by other information within the bulletin e.g. METAR observation time. Consider the following examples.

12.3.2.2 In the example below the message was rejected because the date time group of the AHL only has 5 digits. Adding a single digit which makes the AHL date time group and the date time of origin of forecast correspond, repairs this.

```
FTZW20 FVHA 020400 RRA
TAF FVFA 020400Z 0206/0306 04006KT CAVOK BECMG 0210/0212
FEW040CB SCT080 TEMPO 0211/0216 3000 TSRA SCT040CB BKN080
BECMG 0217/0219 CAVOK=
```

12.3.2.3 In the example below the message was rejected because the AA part of the first group of the AHL contains a numeric character in the AA part, ‘0’. This is simply corrected by replacing ‘0’ with ‘O’.

```
SAG040 FOOL 020700
METAR FOOB 020700Z 26004KT 9999 OVC008 23/22 Q////=
METAR FOGR 020700Z ///// 0400 FG SCT008 OVC100 26/25
Q1011=
METAR FOOY 020700Z ///// 8000 -TSRA SCT008 FEW015CB
OVC023 23/23 Q1011=
METAR FOOG 020700Z 22004KT 9999 SCT008 BKN120 28/26
Q1012=
METAR FOON 020700Z SPECI ///// 6000 TSRA BKN006 FEW023CB
OVC100 22/22
Q1013=
METAR FOOT 020700Z ///// 9000 SCT011 FEW020CB OVC100
23/23 Q////=
METAR FOGM 020700Z NIL=
METAR FOOM 020700Z NIL=
METAR FOGM 020700Z NIL=
METAR FOOC 020700Z NIL=
METAR FOOR 020700Z NIL=
```

12.3.2.4 In the example below the message was rejected because the YYGGgg group of the AHL is appended with a 'Z'. This is simply corrected by deleting the 'Z'.

```
FTIN32 VOTV 240900Z
TAF VOTV 240900Z 2412/2512 00000KT 3000 HZ FEW015 SCT020
BKN100 BECMG 2500/2501 1500 BR BECMG 2503/2504 4000 HZ
BECMG 2506/2507 23010KT 6000 TEMPO 2412/2512 3000
TSRA/SHRA SCT006 SCT015 FEW025CB OVC080=
TAF VOCI 240900Z 2412/2512 00000KT 3000 HZ FEW015 SCT020
BKN100 BECMG 250/25001 1500 BR BECMG 2503/2504 4000 HZ
BECMG 2506/2507 27010KT 6000 TEMPO 2412/2512 3000
TSRA/SHRA SCT006 SCT015 FEW025CB OVC080=
TAF VOCL 240900Z 2412/2512 00000KT 4000 HZ FEW015 SCT020
BKN100 BECMG 2500/2501 09010KT 2000 HZ BECMG 2503/2504
4000 HZ BECMG 2506/2507 27010KT 6000 TEMPO 2412/2512 3000
TSRA/SHRA SCT006 SCT015 FEW025CB OVC080=
```

12.3.3 Multi-Part Messages

12.3.3.1 Long messages are segmented in the AFTN network. Often the segmentation introduces non-meteorological text elements into messages, e.g. 'PART ONE OF TWO PARTS' that causes them to fail validation. These will be edited out of messages. See the following example.

12.3.3.2 In this example of a multi-part message the lines commencing PART and //PART cause rejection of the messages. The operator should remove these lines in order to permit the message to be validated correctly.

```
SAUS31 KWBC 050000PART ONE OF TWO PARTS METAR KABQ
042356Z 18009KT 10SM FEW160 SCT250 11/M16 A2992=METAR
KATL 042353Z 30012KT 10SM FEW250 07/M04 A3000=METAR KBGR
042353Z 18008KT 1 1/4SM -RA BR OVC003 04/03 A2907=METAR
KBHM 042353Z 33006KT 10SM CLR 08/M06 A3009=.
.
.
METAR KJAX 042356Z 31005KT 10SM FEW040 BKN250 16/09
A2994=METAR KJFK 042351Z 26024G30KT 10SM SCT060 06/M05
A2955=METAR KLAS 042356Z 09006KT 10SM FEW250 14/M12
A2992=METAR KLAX 042350Z 25011KT 10SM BKN200 BKN250 17/11
A2993=METAR KLGA 042351Z 28018G22KT 10SM CLR 06/M06
A2953=METAR KLGC 050000Z AUTO 33005KT 10SM CLR 08/M03
A3003=METAR KLIT 042353Z 31006KT 10SM SCT250 06/M08
A3019=METAR KLOU 042353Z 29009KT 10SM CLR 00/M10
A3005=METAR KMCI 042353Z 34006KT 10SM SCT065 BKN150
M03/M12 A3022=METAR KMCO 042353Z 25005KT 10SM FEW028
SCT035 BKN120 BKN250 21/18 A2996=METAR KMEM 042353Z
31008KT 10SM FEW250 04/M08 A3018=METAR KMIA 042356Z
22006KT 10SM SCT042 BKN250 23/18 A3000=//END PART 01//
```

12.3.4 Multiple Separation Signal (=)

12.3.4.1 Messages are received which contain multiple separation signals, '='. These characters can cause problems with report-based validation that searches for a valid location indicator following the first separation signal. Excess separation signals should be removed.

12.3.4.2 In this example the TAF for OEDF has been terminated with 2 separation signals. The operator should remove one of the characters in order to permit the message to be validated correctly.

```
FTBN31 OBBI 051100TAF OBBI 050900Z 0512/0612 33015G25KT
9999 SCT025=
TAF OEDF 051100Z 0512/0612 35020KT 8000 SCT030 SCT090
TEMPO 0512/0516 4000 BLDU BECMG 0516/0518 31012KT==
TAF OEDR 051100Z 0512/0612 35020KT 8000 SCT030 SCT090
TEMPO 0512/0516 4000 BLDU BECMG 0516/0518 31012KT=
TAF OTBD 051100Z 0512/0612 21015KT 9999 FEW030 BKN090
TEMPO 0512/0524 33013G25KT TSRA FEW035CB SCT025 BKN080=
```

12.3.5 Missing Separation Signal (=)

12.3.5.1 If in a METAR or TAF bulletin a separation signal (=) is missing at the end of a report or a forecast, the incomplete report or forecast should be deleted unless the operator feels certain that the report or forecast is complete.

12.3.6 Localized Corruption

12.3.6.1 In bulletins containing multiple METARs or TAFs it has been observed that some individual reports or forecasts are obviously corrupted. It should be noted that such messages should only be rejected when validated groups are corrupt, a message that has been validated may still contain corrupted meteorological groups. When such a message is rejected the operator should remove any forecasts or reports in which the corruption prevents validation. See the following example.

12.3.6.2 In this example it can be seen that only the first TAF, for FMMI, appears to be free of corruption. All of its groups are complete and reasonable. After that a lot of "question marks" can be found which indicate unknown characters in regard to the international telegraph alphabet IA-5 have been found. The remaining TAFs, for FMNM, FMMT, FIMP and FMEE show obvious signs of corruption. Those question marks with grey background could be replaced by the keyword "TAF". The whole report with yellow background has to be removed due to the corruption. The final report for FMEE does not have a separation signal and as the operator cannot guarantee that it was not truncated it is removed. Additionally, a question mark with green background can be found in the BECMG change group.

```
FTIO31 FMMI 051100
TAF FMMI 051130Z 0512/0612 27010KT 9999 SCT020 BKN100
TEMPO DZRA BECMG 0516/0520 SCT020CB BKM100 TEMPO 5000
RATS BECMG 0602/0606 VRB03KT 9999 FEW007BKN017 BECMG
0606/0609 10010KT 9999 SCT017 BKN100??????????FMMT
051130Z 0512/0612 16006KT 9999 SCT017CB SCT033 BKN233
TEMPO 5000TSRA BECMG 0600/0603 SCT017 BKN033 PROB40 TEMPO
5000 RA=??????????????????????????????????????8000 -
SHRA FEW020CB BKN020 BKN080 BECMG 0520/0524 10007KT BECMG
0601/0605VRB03KT BECMG 0607/0610 22012KT SCT023
SCT043=??????????????????????????????FIMP 050500Z
0506/0606 08013G25KT 9999 SCT018 SCT050 PROB-30 TEMPO
5000 SHRA FEW010 FEW014TCU BKN016 BECMG 0513/0515
09010KT=TAF FMEE 050924Z 0512/0612 10016KT 9999 FEW026
SCT050 BECMG 0516/0518 14012KTFEW020 BECMG 0?06 10020KT
FEW026
```

12.3.6.3 In the example below it can easily be seen that the corrupted time of forecast for FAKM should read 100500Z in order to be consistent with the other TAFs in the bulletin. This can be assured by checking the consistency of the validity period with the other reports in the bulletin.

```
FCZA43 FABL 100500
TAF FABL 100500Z 1006/1015 04008KT 9999 SCT040
TX31/12ZTN20/06Z=
TAF FAKM 100??Z 1006/1015 36012KT CAVOK TX34/12ZTN23/06Z=
TAF FAUP 100500Z 1006/1015 35008KT CAVOK
TX38/18ZTN26/06Z=
TAF FAWM 100500Z 1006/1015 03010KT 9999 SCT040
TX30/12ZTN21/06Z=
```

12.3.7 METAR Corrective Actions

12.3.7.1 SPECIs in METAR Bulletins

12.3.7.1.1 Sometimes a METAR bulletin will be received containing SPECIs. This can be identified by the prefix SPECI before the location indicator. Such an occurrence will cause a message to be rejected. In the case where the reports are obviously routine, i.e. their observation time is a regular value such as 121200Z, the SPECI prefix should be deleted. If however the observation time of the SPECI is irregular then the TT part of the header should be modified from SA to SP.

12.3.7.1.2 In the following examples the erroneous parts are highlighted.

12.3.7.1.3 In the first example the report does not appear to be regular METARs as it is indicated as SPECIs. In this case the operator can assume that it is a SPECIs and modify the TT part of the bulletin header from SA to SP.

```
SASA85 EGRR 101023
SPECI SBPV 101010Z 00000KT 9999 BKN008 BKN100 24/24
Q1011=
```

12.3.7.1.4 In the second example the report for NZCH is marked as a SPECI. However its observation time is the same as the routine METARs so in this case the operator can delete the SPECI prefix which appears to be erroneous.

```
SANZ31 NZKL 101300
METAR NZAA 101300Z VRB02KT 30KM FEW025 17/15 Q1019 NOSIG=
METAR NZWN 101300Z 02015KT 30KM BKN022 18/14 Q1016 NOSIG
RMK KAUKAU 01029KT=
SPECI NZCH 101300Z 05008KT 8000 OVC005 15/14 Q1013 TEMPO
15KM NSW TEMPO BKN004=
```

12.3.7.2 Incorrectly placed METAR and SPECI strings

Often the METAR or SPECI string is incorrectly positioned within an individual report. This may be corrected by moving the METAR or SPECI string to the correct place. In the example below METAR has been incorrectly placed after the location indicator UHPP.

```
SARA32 LOWM 101000
METAR UIII 101000Z 13002MPS CAVOK M13/M18 Q1025 NOSIG RMK
     QFE726/0968 12410550=
METAR UIBB 101000Z 18002MPS 6000 -SN BKN100 OVC200
M18/M20 Q1018 NOSIG RMK QFE720 30490232=
METAR UIAA 101000Z 25003MPS 9999 SKC M25/M32 Q1025 NOSIG
RMK QFE710 29CLRD70=
METAR UHWW 101000Z 01002MPS 9999 BKN200 M11/M22 Q1028
NOSIG RMK QFE770/1026 75CLRD80 =
METAR UHSS 101000Z 32006MPS 9999 SCT030CB M08/M12 Q1016
     NOSIG RMK MT OBSC QFE760 01820345=
METAR UHSH 101000Z NIL=
UHPP METAR 101000Z 000000MPS 9999 BKN030CB M07/M10 Q1021
NOSIG RMK QFE 762 SC 05=
METAR UHMP 101000Z NIL=
METAR UHNN 101000Z 32003MPS 9999 -SN OVC/// M17/M19 Q1022
      RMK QFE760 298///37=
```

12.3.7.3 Mistyped Time of Observation

12.3.7.3.1 Time of observation is often mistyped. They may be corrected if the error is obvious. Obvious errors include:

- the addition of a superfluous '0' in the field
- a date inconsistent with the current date and the bulletin header date time group.
- the absence of a 'Z' at the end of the time of observation, or the usage of other characters instead

12.3.7.3.2 In the following example it can be seen that the observation time for DAON is dated from the previous day. In such a case the operator should examine previous METARs for DAON to obtain assurance that the date is just mistyped and can be corrected to 101000Z. If the operator is unsure the METAR should be deleted.

```
SAAL31 DAAA 101000 RRA
METAR DAAG 101000Z NIL=
METAR DABB 101000Z 22012KT 9000 -RA FEW013 SCT033 BKN100
10/07 Q1017=
METAR DAON 091000Z 22016KT CAVOK 11/03 Q1021=
METAR DAOO 101000Z 23011KT 9999 FEW033 BKN233 11/07
Q1020=
METAR DABC 101000Z 00000KT 9999 FEW026 BKN100 05/02
Q1017=
METAR DAAT 101000Z NIL=
```

12.3.7.3.3 In the following example the time of observation for UAUU has been mistyped. An additional 0 has been added. The operator can remove the additional 0 to make it consistent with the other METARs in the bulletin.

```
SAKZ31 LOWM 101000
METAR UAUU 1010000Z 02005MPS CAVOK M14/M19 Q1042 RMK
8838//55 NOSIG=
METAR UATT 101000Z 07013MPS CAVOK M12/M19 Q1033
RMK 130///60 NOSIG=
METAR UATE 101000Z 10005MPS 9999 OVC033 M01/M06 Q1017
RMK 120///70 NOSIG=
METAR UARR 101000Z 06005G10MPS 9999 DR FEW/// M12/M19
Q1036 NOSIG RMK047203344545=
METAR UAAA 101000Z NIL=
METAR UAKK 101000Z 06006MPS CAVOK M17/M23 Q1034
NOSIG 058/1060 QFE727=
METAR UAII 101000Z 34002MPS CAVOK 09/05 Q1017 NOSIG
RMK 280///65=
METAR UACK 101000Z NIL=
METAR UACC 101000Z NIL=
```

12.3.7.3.4 In the following example the time of observation for UTAK is followed by a '+'. The operator can replace this with a 'Z'.

```
SATR31 LOWM 071700
METAR UTAK 071700+ 00000MPS P6000 SKC 03/01 Q1020 NOSIG =
METAR UTAA 071701Z AUTO VRB01MPS 9999 SKC 06/05 Q1020
NOSIG=
```

12.3.7.4 Concatenated Time of Observation

12.3.7.4.1 A METAR or SPECI will be rejected if its time of observation is concatenated with either, the location indicator, the AUTO field or the wind speed and direction group. This can simply be corrected by inserting a space between the different groups.

12.3.7.4.2 In the example below a space would be inserted after LBWN.

```
SABU31 LBSM 050000
METAR LBSF 050000Z 28007MPS 240V310 9999 OVC025 04/M00
Q1023 NOSIG=
METAR LBWN050000Z 27005MPS CAVOK 04/02 Q1018 NOSIG
8809//95=
METAR LBBG 050000Z 25004MPS 9999 BKN043 03/00 Q1019 NOSIG=
METAR LBPD 050000Z 26011MPS CAVOK 07/M00 Q1021 NOSIG=
METAR LBGO 050000Z 27011G16MPS 9999 FEW050 BKN100 07/02
Q1020 NOSIG=
```

12.3.7.5 Late METARs

12.3.7.5.1 A METAR or SPECI should be rejected if its time of observation is older than a configurable period. In this case the METAR should be discarded unless there is evidence in the bulletin that the time of observation has been mistyped.

12.3.7.5.2 The following example was received at around 0000Z on the 5th of the month. The operator should examine previous METARs for SCIP to obtain assurance that the date is just mistyped and, if this is the case, correct it to 050000Z in order to make it consistent with all of the other reports in the bulletin. If the operator is unsure the METAR should be deleted.

```
SACH10 SCSC 050000
METAR SCAR 050000Z VRB03KT CAVOKI 24/17 Q1013=
METAR SCDA 050000Z 19004KT 9999 FEW030 22/17 Q1012 =
METAR SCFA 050000Z 19006KT 9999 BKN040 20/17 Q1013 NOSIG=
METAR SCIP 040000Z 10010KT 9999 FEW020 BKN040 23/17 Q1021
NOSIG=
METAR SCEL 050000Z 15007KT 120V180 CAVOK 23/11 Q1013 NOSIG=
METAR SCIE 050000Z 23010KT CAVOK 18/14 Q1014=
METAR SCTC 050000Z VRB03KT 9999 FEW020 19/13 Q1013=
METAR SCTE 050000Z 25006KT 2500 -SHRA SCT008 OVC018 15/15
Q1010 NOSIG=
METAR SCCI 050000Z 23019KT 9999 SCT016 10/05 Q0992 NOSIG=
```

12.3.8 TAF Corrective Actions

12.3.8.1 Incorrectly placed TAF and AMD strings

12.3.8.1.1 If the TAF or AMD strings are incorrectly positioned, e.g. after the location indicator, then they should be repositioned correctly.

12.3.8.1.2 In the example below, AMD has been incorrectly positioned in the TAF for KPBF. The keyword AMD should be moved between the keyword TAF and the location indicator KPBF.

```
FTUS23 KWBC 042300 AAA
TAF AMD KDRT 050008Z 0500/0524 11008KT P6SM FEW015 BKN040
BKN100
     TEMPO 0500/0502 06015G30KT SHRA
     FM051000 10010KT 5SM -SHRA VCTS BKN015 OVC040CB
     FM051800 12010KT P6SM SCT050 BKN250=
TAF KPBF AMD 050008Z 0500/0524 10003KT P6SM SCT250
     FM051500 04005KT P6SM SCT050 BKN250=
```

12.3.8.1.3 In the next example the keyword TAF has been incorrectly positioned after the location indicator SBUL. This can easily be corrected by moving the keyword TAF in front.

```
FTBZ46 SBBR 042300 RRA
TAF SBTT 042300Z 0500/0524 00000KT
   CAVOK TN23/0511Z TX30/0517Z
   BECMG 0509/0511 36005KT
   BECMG 0515/0517 06005KT SCT020
   BECMG 0521/0523 09003KT
   CAVOK RMK PEH=
SBUL TAF 042310Z 0500/0512 05005KT
   CAVOK TX21/0500Z TN16/0510Z
   BECMG 0504/0506 09005KT RMK PGG=
TAF SBUR 042310Z 0500/0512 05005KT
   CAVOK TX23/0500Z TN17/0510Z RMK PGG=
TAF SBYS 042300Z 0500/0512 18005KT
   CAVOK TN09/0506Z TX18/0511Z
   BECMG 0506/0508 36005KT 7000 FEW020 RMK PDE=
```

12.3.8.2 Mistyped Time of Forecast

12.3.8.2.1 If the time of forecast has obviously been mistyped, it may be corrected. Obvious mistypes can be detected when other TAFs within the bulletin show a consistent time. In the example below the time of forecast, which has been highlighted, has been mistyped. The time of forecast for UHNN should be either 101245Z or 101250Z to make it consistent with UHPP or UHSS. Either value will make little material difference to the meaning of the message.

```
FCRA34 LOWM 101200
TAF UHMM 101250Z NIL=
TAF UHMP 101250Z NIL=
TAF UHNN 1012450Z 1013/1022 36005G12MPS 9999 –SHSN
BKN020CB OVC070 550007 TEMPO 1013/1022 2500 SHSN=
TAF UHPP TAF 101250Z 1013/1022 02005MPS 9999 OVC015CB
OVC070 640150 FM1900 16005G10MPS 5000 SHSN OVC010CB
OVC070 650100 550009 TEMPO 1019/1022 0800 SHSN DRSN
OVC002=
TAF UHSH 101250Z NIL=
TAF UHSS 101245Z 1013/1022 32008MPS 9999 BKN020CB 530009
TEMPO 1013/1022 4000 SHSN VV006=
TAF UHWW 101230Z 1013/1022 36009MPS 4000 HZ FU SCT030CB
BKN070 530007 TEMPO 1013/1022 1300 -SHSN HZ BKN005=
```

12.3.8.3 Mistyped Validity Period

12.3.8.3.1 TAF validity errors should be handled with care. If it looks as though a TAF could be corrected to make its validity period consistent with other in the bulletin the operator should examine previous TAFs to obtain assurance that such consistency is valid and that the TAF has not been previously issued. If this assurance cannot be obtained, then the TAF should be deleted.

12.3.8.3.2 If the validity period has been obviously mistyped, then it may be corrected. In the example below it can be seen that the TAF validity period for LCPH has been mistyped because it currently implies a period from 0400Z on the 10th to 1300Z on the 11th which is in excess of the maximum length permitted for an FC (< 12 hours). The TAF for LCLK, in the same bulletin, though has a correct validity period. A previous FCCY31 bulletin can be examined to conform that LCLK and LCPH have consistent validity periods, if this is the case the end of the validity should be changed to 1013 making it consistent with the period for LCLK.

```
FCCY31 LCLK 100300
TAF LCLK 100300Z 1004/1013 28006KT 9999 FEW030 SCT050
BECMG 1004/1006 22015KT PROB30 TEMPO 1004/1013 5000 SHRA=
TAF LCPH 100300Z 1004/1113 27015KT 9999 FEW020 SCT050
PROB40 TEMPO 1004/1013 5000 SHRA=
```

12.3.8.4 Four Digit Validity Period

12.3.8.4.1 Some TAFs are still produced with a 4-digit validity period. These will be rejected by the Gateway. Operators may insert a date consistent with the current date and the date time group of the bulletin header. In this example a number of TAFs have been transmitted with only 4-digit validity periods. The operator can insert the appropriate date. In the example below the inserted figures for the date are highlighted.

```
FCJD31 OJAI 020200
TAF OJAI 020200Z 0203/0212 VRB06KT CAVOK BECMG 0206/0208
22010KT 7000=
TAF OJAM 020200Z 0203/0212 VRB06KT CAVOK BECMG 0206/0208
22010KT 7000=
TAF OJAQ 020200Z 0203/0212 VRB06KT CAVOK BECMG 0206/0208
35010KT 6000 HZ=
```

12.3.8.4.2 In the example below the wrong format for the start of validity is used. This can be changed by the operator to “0300”. This has been done in this example for the last TAF and highlighted with yellow background.

```
FTME31 OLBA 022300
TAF OLBA 022324Z 0300/0324 18016KT 8000 RA BKN026 BKN070
BECMG 0305/0307 22025G50KT PROB40 TEMPO 0306/0324 4000
TSSHRA SCT020CB BKN023=
TAF OSDI 022324Z 0300/0324 20010KT 7000 FEW030 SCT200
BECMG 1214G25KT 4000 SCT030 BKN090 TEMPO 0315/0324 SHRA
SCT022CB BKN025 OVC090=
TAF OSAP 022318Z 0300/0324 VRB03KT 3000 BR SCT020 BKN100
TEMPO 0300/0318 27012KT 4000 SHRA SCT015CB BKN020 BKN080=
TAF OJAM 022300Z 0224/0324 22014KT 2000 DU BECMG
0306/0308 23012G22KT 5000 HZ SCT030 FEW100 PROB30 TEMPO
0312/0324 4000 SHRA BKN025 SCT100 SCTCB030=
TAF OJAI 022300Z 0224/0324 22014KT 2000 DU BECMG
0306/0308 23012G22KT 5000 HZ SCT030 FEW100 ROB30 TEMPO
0312/0324 4000 SHRA BKN025 SCT100 SCTCB030=
TAF OJAQ 022300Z 0300/0324 18014KT 2000 DU BECMG
0306/0308 18014G24KT 5000 BLDU SCT030 FEW100=
```

12.3.8.5 Missing Validity Period

12.3.8.5.1 Some TAFs are received with no validity period. These will be rejected by the Gateway. Operators should discard each individual TAF within a bulletin for which a validity period has not been provided. In the example below the validity period of the TAF for URWA has been omitted and therefore should be deleted from the bulletin. Whenever possible the originator should be contacted, to inform about the missing information and the undertaken action.

```
FTEA32 HKNA 050500 RRA
TAF HUEN 050500Z 32008KT 9999 FEW021 FEW023CB
   BECMG 0507/0512 VRB14KT -TS SCT023 FEW025CB
   FM 051700 18010KT FEW020 FEW022CB
   BECMG 0520/0524 34006KT
   TEMPO 0602/0606 VRB12KT 8000 -TSRA SCT018 FEW020CB
BKN100
   BECMG 0607/0612 16012KT 9999 FEW024 FEW026CB=
```

12.3.8.6 Concatenated Time of Forecast or Validity Period

12.3.8.6.1 A TAF will be rejected if its time of forecast or validity period is concatenated with an adjacent group. This can simply be corrected by inserting a space between the affected groups. In the example below the time of forecast and validity period of the TAF for HLLB have been concatenated.

```
FCMP31 LMMM 310500 RRA
TAF HLLT 310500Z 3106/3115 27010G20KT 9999 SCT025 TEMPO
CAVOK=
TAF HLLB 310500Z3106/3115 24015G25KT 9999 SCT025=
```

12.3.8.7 Late TAFs

12.3.8.7.1 A TAF should be rejected if its time of forecast is older than a configurable period. In this case the TAF should be discarded unless there is evidence in the bulletin that the time of observation has been mistyped.

12.3.8.8 Provisional TAFs

12.3.8.8.1 TAFs issued for two locations, separated by a slash, shall be removed from the bulletin.

```
FTBA31 MYNN 071700
TAF MYNN 071715Z 0718/0818 21010KT 9999 SCT020 TEMPO
0718/0722 8000 SHRA BKN018 FM080 32015KT 9999 SCT020
BKN045 PROB30 0708/0712 8000 -SHRA BKN018=
MBGT/MBPV 071645Z 071818 13012KT 9999 SCT025=
```

12.3.8.9 Dual TAFs

12.3.8.9.1 Sometimes a TAF is issued with two location indicators. A fictitious example is provided below. In such a case the TAF should be edited so that two distinct TAFs with the same content are provides. The modified version is presented below the original.

```
FTBA31 MYNN 071700
TAF MYNN 071745Z 0718/0818 21010KT 9999 SCT020 TEMPO
0718/0722 8000 SHRA BKN018 FM080 32015KT 9999 SCT020
BKN045 PROB30 0708/0712 8000 -SHRA BKN018=
TAF MBGT/MBPV 071745Z 0718/0818 13012KT 9999 SCT025=
```

```
FTBA31 MYNN 071700
TAF MYNN 071745Z 0718/0818 21010KT 9999 SCT020 TEMPO
0718/0722 8000 SHRA BKN018 FM080 32015KT 9999 SCT020
BKN045 PROB30 0708/0712 8000 -SHRA BKN018=
TAF MBGT 071745Z 0718/0818 13012KT 9999 SCT025=
TAF MBPV 071745Z 0718/0818 13012KT 9999 SCT025=
```

12.3.8.10 Mixed Short and Long TAFs

12.3.8.10.1 If an FC bulletin is received containing one or more long TAFs the bulletin should be rejected and the header modified from FC to FT. The same applies to FT bulletins containing short TAFs.

12.3.8.10.2 If however the bulletin contains a mixture of short and long TAFs, then either the long TAF or short TAFs should be removed from the bulletin and sent with an appropriate header (copy & paste). Some investigations might be necessary by the operator to identify the correct header to be used. The example below shows an FT bulletin containing both a long TAF and a short TAF. The short TAF would be extracted from the original bulletin and sent with an appropriate (in this case fictional) FC header.

```
FTIN90 VAAH 070500
TAF VAJM 070500Z 0706/0806 07006KT 6000 SKC BECMG 1315
5000 FU/HZ TEMPO 0801/0803 03004KT 4000 HZ BECMG
0805/0806 07005KT 6000 SKC=
TAF VARK 070500Z 0706/0715 07006KT 6000 SKC BECMG
0713/0715 5000 FU/HZ=
```

```
FCIN90 VAAH 070500
TAF VARK 070500Z 0706/0715 07006KT 6000 SKC BECMG
0713/0715 5000 FU/HZ=
```

12.3.8.10.3 The example below shows a fictional FC bulletin containing both a long TAF and a short TAF for VARK. This type of error should be reported back to the originator as there should be only one type of TAF (short or long) be produced for an aerodrome. The e.g. short TAF should only be exchanged locally or on bilateral agreement. The original TAF bulletin should be corrected by the operator by removing the short TAF.

```
FCIN90 VAAH 070500
TAF VARK 070500Z 0706/0806 07006KT 6000 SKC BECMG
0713/0715 5000 FU/HZ TEMPO 0801/0803 03004KT 4000 HZ
BECMG 0805/0806 07005KT 6000 SKC=
TAF VARK 070500Z 0706/0715 07006KT 6000 SKC BECMG
0713/0715 5000 FU/HZ=
```

12.3.9 SIGMET/AIRMET Corrective Actions

12.3.9.1 Invalid FIRs/UIRs

12.3.9.1.1 Where a SIGMET or AIRMET is rejected due to the absence or incorrect length of the Air Traffic Services Unit (ATSU) indicator on the line following the Abbreviated Header Line (AHL, the operator should attempt to correct /add the ATSU based on the FIR and/or UIR indicator at the beginning of the second line after the header. Repetitive examples of such errors should be reported to the DMG. At the same time a message should be sent to the originator describing the error and the correction applied by the operators.

12.3.9.1.2 In the following fictitious example, the SIGMET has been rejected as the ATSU indicator is missing. The operator will identify the correct indicator (EDFF) from the FIR name using Doc 7910 and edit the SIGMET accordingly.

```
WSDL31 EDZF 240600
EDFF SIGMET 1 VALID 240600/241200 EDZF-
EDFF FRANKFURT FIR LOC SEV TURB...
```

12.3.9.2 Incorrectly formatted SIGMET/AIRMET Sequence Number

SIGMET and AIRMET sequence numbers are checked for the correct format but not in regard to the value of the sequence number.

12.3.9.2.1 In the following example the number 1A is causing the SIGMET to be rejected, as it does not comply with the message format described in ANNEX 3 as well as the EUR Doc. 014. This can be corrected by moving the A in front of 1, changing 1A into A1.

```
WVCA31 MMEX 230330
MMEX SIGMET 1A VALID 230330/230930 MMMX-
MMEX MEXICO CTA VA CLD POPOCATEPETL 1901N9837W OBS AT
222037
EXTD 400NM NE BTN SFC FL300 MVNG NE 70KT NC.
OTLK VA 230930 800NM SFC FL300 E FM SUMMIT=
```

12.3.9.2.2 In the next example the number 3 has been concatenated with the SIGMET group causing the message to be rejected. This can be corrected by inserting a space in between.

```
WVCA31 TTPP 231730
TTZP SIGMET3 VALID 231730/232330 TTPP-
TTZP PIARCO FIR SOUFRIERE HILLS MONTSERRAT 16.7N 62.2W
VA CLD 10NM WIDE OBS BLO FL060 MOV W AT 20-25KTS
OTLK VALID 232330/240530...LTL CHNG=
```

12.3.9.3 Incorrect Format of the Validity Period

12.3.9.3.1 The validity period is tightly validated in the Gateway so there are a number of errors which may cause rejection most of which can be rectified by a simple correction. One possible error is, that the VALID keyword is misspelled or completely missing. Looking at the validity group itself, several possible reasons can cause a warning message to be rejected. Some of them are described in the following examples.

12.3.9.3.2 In the first example the SIGMET has been rejected because of a misspelling of the VALID keyword. It can be corrected by deleting the 'E'.

```
WSEG31 HECA 241415
HECC SIGMET 2 VALIED 241415/241815 HECA-
HECC CAIRO FIR ISOL EMBD CB FCST HECA TOP FL 300 MOV NE
08KT NC=
```

12.3.9.3.3 In the next example the SIGMET has been rejected because the validity date-time-groups have been appended with 'Z'. It can be corrected by deleting those.

```
WSRA31 UAFM 241600
UAFM SIGMET N1 VALID 241600Z/242000Z UAFM-
UAFM BISHKEK FIR FCST MOD ICE 0500-7000M
MOD TURB 1000-8000M INTST NC=
```

12.3.9.3.4 In the example below the SIGMET has been rejected because the validity dates are separated by a space instead of a slash “/”. It can be corrected by replacing this space with a slash “/”.

```
WSBZ24 SBCW 212141
SBCW SIGMET 10 VALID 242200 242359 SBCT –
SBCW CURITIBA FIR EMBD TS OBS AT 2140UTC IN
SBFI/SBCA/RITAT PSN/SBDN/SBPP/
KALAD PSN/SSGY/SBFI AREA TOP FL390 STNR NC =
```

12.3.9.3.5 In the following example the SIGMET has been rejected because the end of validity date is incorrect. It is obvious from the bulletin date time group and the start of validity time that the date can be modified to 23.

```
WSCU31 MUHA 230225
MUFH SIGMET 01 VALID 230230/130630 MUHA-
MUFH HABANA FIR AREA TS OBS BY SATELLITE AND RADAR
ASOCIATED TO COLD FRONT
AT 24.N84.4W 24.0N82.1W 23.6N82.6W 22.5N84.3W 21.5N84.7W
TO
24.4N84.4W TOP 400 MOV SE 15KT INCR=
```

12.3.9.4 Invalid Validity Period

12.3.9.4.1 Validity periods may be rejected if

- The validity period is too long
- The start of the validity period is too far in the future
- The end of the validity period is earlier than the current time

12.3.9.4.2 Messages rejected due to such reasons should be examined for simple mistypes, e.g. an obviously incorrect date, which may be corrected. If the error is not correctable then the originator should be contacted if possible, e.g. by an AFTN SVC (Service Message).

12.3.9.4.3 In the case of SIGMETs where the period of validity exceeds the maximum permissible period of validity, whenever possible the originator shall be contacted and/or a ticket raised via the Problem Handling Procedure (see chapter 13). The rejected message shall be sent further on according to the routing table without any change.

12.3.9.4.4 In the example below the validity period is too long as the date for the end of validity has been mistyped.

```
WSPO31 LPMG 161051
LPPC SIGMET 1 VALID 161055/141500 LPPT -
LPCC LISBON FIR EMBD TS OBS MAINLY OVER TMA MADEIRA TOP
FL300 MOV SE 5 KT NC=
```

12.3.9.4.5 In the fictitious example below the start of the validity period is too far in the future. As the message was received at 01:03 on the 15th and the bulletin header date time group is 150059.

```
WSUZ31 UTTT 150059
UTTT SIGMET 1 VALID 160200/160900 UTTT-
UTTT TASHKENT FIR SEV TURB 0600/7000M SEV ICE 0500/7000M
FCST INTST NC=
```

12.3.9.4.6 In the next fictitious example, the message was received at 0300Z on the 17th.

```
WSEW33 LEMM 162215
GCCC SIGMET 1 VALID 162215/160215 GCGC-
GCCC CANARIAS FIR EMBD TS OBS AT 2215 IN N2917 W01723
TOPS FL390 MOV S
NC=
```

12.3.9.5 AIRMET/SIGMET Header Mismatch

12.3.9.5.1 If an AIRMET, i.e. the string AIRMET is included in the line following the AHL, is received with a TT value of 'WS' then it will be rejected. Similarly, if a SIGMET, i.e. the string SIGMET is included in the line following the AHL, is received with a TT value of 'WA' then it will be rejected. In such a case the TT value in the AHL should be modified to match the SIGMET or AIRMET stream.

12.3.9.5.2 In the example below the AIRMET has been rejected because the AHL is WA... In this case the TT value WS, highlighted should be replaced by WA.

```
WSEG31 HECA 191350
HECC AIRMET 7 VALID 191350/191750 HECA-
HECC CAIRO FIR SFC VIS2000M SA OBS AT 1300Z AND FCST HEGN
AND HESH STNR NC=
```

12.4 IWXXM Validation Procedures

12.4.1 ~~To be provided.~~Originators of IWXXM-messages ~~are obliged~~ should ~~to~~ validate the messages before international exchange. No real-time validation is performed by ROCs. Offline-validation is planned to be implemented in future. Further information can be found in chapter D.4.

12.5 IWXXM Message Correction Procedures

12.5.1 No correction for IWXXM messages will be undertaken.

13 Problem Handling Procedure

13.1 Introduction

13.1.1 To meet the new quality standards, which are commonly required by the aviation authorities, a procedure was developed to standardize the manner in resolving problems related to the availability of OPMET data when the international dissemination of these data are not fully effective.

13.1.2 Only problems related to the DMG mandate and to the collection, dissemination and accessibility of OPMET data, are conceivable to be handled within this procedure.

13.1.3 More details on the PHP procedure and the involved functions can be found under paragraph 13.3.

13.2 How to proceed for OPMET Providers

1	When a problem is reported by an end user and your own organisation (OPMET provider) cannot solve the problem please inform the end user that you start the Problem Handling Procedure.
2	Collect as much detailed information as possible.
3	Forward this information to - A Regional OPMET Centre or - A DMG Member or - An ICAO (recognised) Organisation (IATA, ICAO-EUR Region, etc.) who will act as Problem Reporter and will create a problem ticket; you will automatically be informed of any status changes of the problem ticket
4	The Problem Reporter will raise a ticket via the PHP-Ticketing Application. The Problem Handling Manager will evaluate the problem and, if accepted as a problem based on its nature, assigns a Problem Handler.
5	The Problem Reporter will contact you, if necessary, for more information or to set a target date for an update or to notify you that the problem cannot be dealt with in this procedure.
6	Each time when the status of the problem is changed please inform your end user.

13.3 General Requirements

13.3.1 The EUR OPMET DMG Problem Handling Procedure (PHP) increases the efficiency of the handling of reported problems about the collection, dissemination and accessibility of OPMET data within the European Region and streamlines the actions.

13.3.2 The procedure improves the transparency of the problem handling to all involved parties. Therefore, special attention has been paid to the provision of feedback to the persons or organisations that announced the problems.

13.3.3 The Problem Handling database, accessible to the EUR OPMET DMG Members, stores OPMET data problem files. The database shall serve as an information and knowledge bank concerning related problem cases, the history of investigations and activity reports.

13.3.4 Designated DMG Members organise and conduct inquiries to resolve OPMET data problems independent of the frequency of the EUR OPMET DMG meetings. Each problem shall be evaluated irrespective of who submitted it.

13.3.5 The EUR OPMET DMG is entitled to change the EUR OPMET Problem Handling Procedure either to meet its mandate or to increase compliancy with the specifications described in the General Concept of the procedure and with the standard quality management requirements.

13.3.6 Ideally, the EUR OPMET Problem Handling Procedure will become a highly automated application with defined access for the end users interfacing to the EUR OPMET DMG. The EUR OPMET DMG is aware of standardized automated ticketing helpdesk applications that could be configured to the specifications of the procedure presented in Attachment A of this document and available on the EUR DMG FTP Servers and the DMG website

13.4 The Scope

13.4.1 The problems handled following the procedure are related to:

13.4.1.1 The production of EUR OPMET data by the National OPMET Centres (NOCs).

13.4.1.2 The collection of EUR OPMET data by the Regional OPMET Centres (ROCs).

13.4.1.3 The collection of Non-EUR OPMET data through the Inter-Regional OPMET Gateway Centres (= ROCs)

13.4.1.4 The dissemination or routeing of EUR and Non-EUR OPMET data within the European Region.

13.4.1.5 The interregional distribution of European OPMET data.

13.4.1.6 The routeing of OPMET data to the European OPMET Databases.

13.4.1.7 The routeing of OPMET data to the SADIS Provider.

13.4.1.8 The accessibility of the European OPMET Databases and the available OPMET data.

13.4.2 The aspects handled within the procedure are

13.4.2.1 WMO TAC (Traditional Alphanumeric Code) Code format compliancy of EUR OPMET data.

13.4.2.2 IWXXM Format compliancy of EUR OPMET data.

13.4.2.3 EUR OPMET data performance: availability, regularity and timeliness.

13.4.2.4 The EUR communication networks for OPMET data dissemination.

13.4.2.5 The EUR OPMET Databases: accessibility, availability and access procedures.

13.4.3 End systems related issues are excluded for handling by the EUR OPMET DMG PHP.

13.5 The EUR OPMET DMG PHP Ticketing Application

13.5.1 Manual Procedure

13.5.2 A BMG Task Team (former EUR OPMET DMG) drew up the Problem Handling Procedure (PHP) specifications endorsed by the former BMG and the METG. However, testing the procedure revealed some inertia and reluctance of BMG Members to adopt the procedure, mainly because of the implicit administrative overhead.

13.5.3 AUTOMATED APPLICATION

13.5.4 The PHP specifications proved to be very adequate for the development of an automated helpdesk ticketing application. The BMG Task Team converted the manual PHP procedure to what is now the Internet based EUR OPMET DMG PHP Ticketing Application for the reporting and handling of OPMET Problems. The website is hosted by skeyes (Belgium ATS) and accessible to the EUR OPMET DMG Members only.

13.6 Definitions

13.6.1 PHP Problem Classification

13.6.1.1 The Problem Nature

13.6.1.1.1 A problem, when regarding the EUR OPMET DMG, can be either incidental or structural:

- An incidental problem has limited consequences and occurs occasionally.
- A structural problem has a significant impact, recurs systematically or is persistent in time. It affects the performance of OPMET data locally or generally.

13.6.1.1.2 Structural problems always have to be handled, while incidental problems will not result in a start-up of the whole procedure. However, a systematically recurring incidental problem can become a structural problem to be dealt with, in accordance with the procedure.

13.6.1.2 The Problem Type

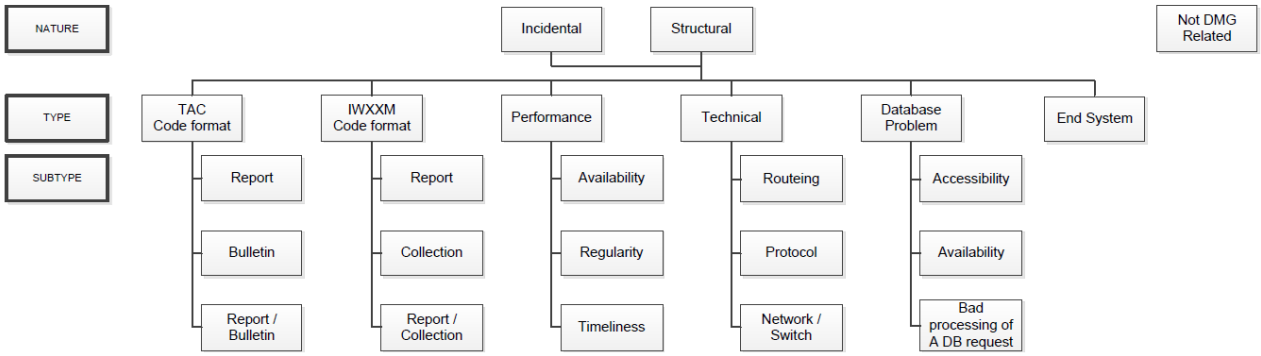
13.6.1.2.1 Apart from specials tasks assigned to the EUR OPMET DMG within its mandate, the cause of a problem can be determined as the OPMET problem “Type”. OPMET Problems related to an end system are considered as being the responsibility of the User. Other problems are considered to be beyond the scope and thus not EUR OPMET DMG related.

13.6.1.3 The Problem Subtype

13.6.1.3.1 Per Type of problem, known issues can be defined as some of the predefined “Subtypes”.

13.6.1.4 Overview of OPMET Data Problems

13.6.1.4.1 The following graph presents an overview of OPMET Data problems:



13.6.1.5 New Problem Type and Subtype

13.6.1.5.1 The PHP application development team can create an additional Problem Type and additional Subtypes for existing or new Types. Any Problem Type/Subtype can be activated or de-activated by the development team members. Problem Types and Subtypes are be created, activated and de-activated only in accordance with the directives of the DMG.

13.6.2 Problem Reporter

13.6.2.1 The Problem Reporter, representing their organisation or an end user, submits potential structural problems to the EUR OPMET DMG through the Problem Handling Procedure. On behalf of the user originating the problem, the Problem Reporter deliberates over possible solutions suggested by the EUR OPMET DMG.

13.6.2.2 Users

13.6.2.2.1 A problem can be raised by the following users:

- An authorised aeronautical user: National OPMET Centre, air liner, etc.
- A Regional OPMET Centre;
- A Member of the EUR OPMET DMG;
- A Sub-Group of the EUR OPMET DMG;
- Any organisation recognised by ICAO;
- A State.

13.6.2.3 The Problem Reporter (PR)

13.6.2.3.1 Throughout this procedure, the Problem Reporter shall be either:

- An ICAO (recognised) Organisation;
- A Regional OPMET Centre;
- An EUR OPMET DMG Member.

13.6.3 Problem Handling Team

13.6.3.1 The dedicated officials of the Problem Handling Team all are EUR OPMET DMG Members functioning as, and /or:

- A Problem Handling Manager;
- A Problem Archive Manager;
- A Problem Handler.

13.6.3.2 The EUR OPMET DMG Officials can appeal to a Consultant Expert external to the EUR OPMET DMG for assistance.

13.6.3.3 Problem Handling Manager (PHM)

13.6.3.3.1 The EUR OPMET DMG assigns at least one Problem Handling Manager (PHM) and a backup. A PHM determines the work domain over which he or she will be fully responsible as the first contact person in line to and from the Problem Reporter standing in for the end users. A PHM can delegate or share responsibilities per Types of problems to other PHMs. For each problem, when structural, the PHM responsible for that Type of problems assigns a Problem Handler for investigation and responsive actions towards a solution. The responsible PHM decides whether or not a problem submitted to the EUR OPMET DMG is eligible for further handling following the procedure.

13.6.3.4 Problem Handler (PH)

13.6.3.4.1 Per Problem Type, the EUR OPMET DMG provides for one or more possible Problem Handlers one of which the PHM will designate for initiating an investigation. The Problem Handler suggests possible solutions to the Problem Reporter who submitted the problem. A Problem Handler can ask an expert for assistance.

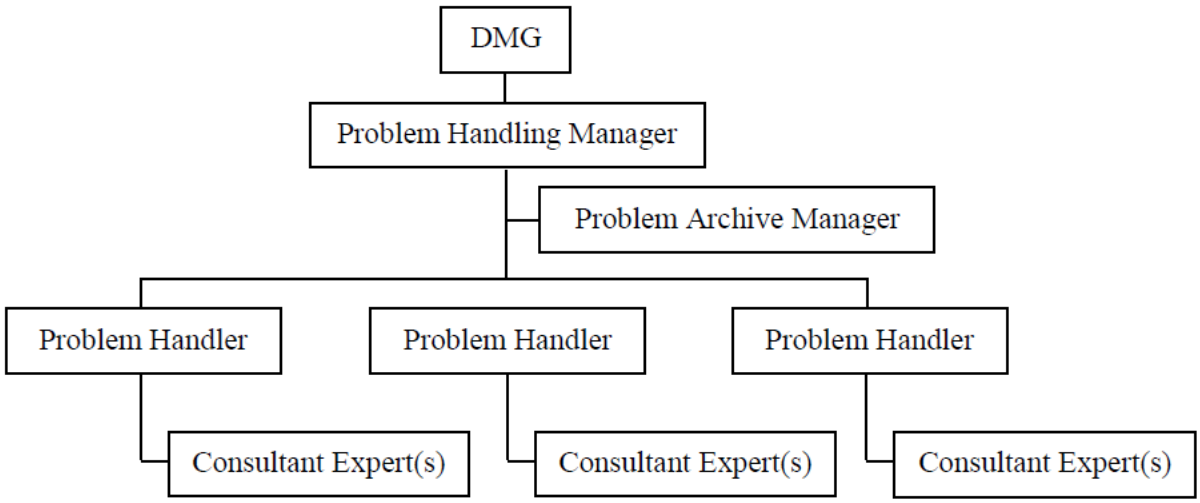
13.6.3.5 Problem Archive Manager (PAM)

13.6.3.5.1 A Problem Archive Manager can be assigned for generating reports from the PHP archive.

13.6.3.6 Consultant Expert

13.6.3.6.1 A Problem Handler can request a Consultant Expert for assistance in the investigation of a problem. A Consultant Expert need not be a DMG Member and communications with the EUR OPMET DMG are led via the Problem Handler of the problem case.

13.6.3.7 Problem Handling Team organisation chart



13.6.4 Problem Ticket

13.6.4.1 A Problem Ticket is an OPMET Problem submitted to the EUR OPMET DMG using the PHP Ticketing Application by a Problem Reporter on behalf of an end user who experienced the problem. The Problem Ticket traces all events and possible actions performed during the investigation of the problem.

13.6.5 Problem Ticket Access Modes

13.6.5.1 The access to the EUR OPMET DMG EUR Ticketing Application website is restricted to the EUR OPMET DMG Members and trusted persons from ICAO (recognised) organisations. A Problem Ticket has two access modes.

13.6.5.2 Read mode:

13.6.5.2.1 Appearing Problem Tickets are in read mode initially. When having access rights to a Ticket as a Problem Handling Manager, the Problem Handler, the Problem Reporter or as an additional reader, all current information can be viewed by selecting its register number.

13.6.5.3 Edit mode:

13.6.5.3.1 A Problem Ticket in edit mode can be updated by the viewer to the extent permitted by the current access rights.

13.6.6 Problem Ticket Status

13.6.6.1 Every Problem Ticket that has been submitted has one of the following statuses:

- Initial
- Logged
- Wait
- Closed
- Failed
- Final Failed
- Final Closed.

13.7 Problem Handling Process

13.7.1 The Problem Reporter or a user via the Problem Reporter collects all possible circumstantial information prior to submitting a Problem to the EUR OPMET DMG. The EUR OPMET DMG Problem Handling Team evaluates the problem in order to define its Nature, Type and Subtype. When the EUR OPMET DMG is concerned, the problem shall be handled following the procedure. The Problem Reporter gets feedback on the EUR OPMET DMG problem handling actions and relays it to the User originating the problem. In conspiracy with the User, the Problem Reporter accepts or rejects suggested EUR OPMET DMG solutions to their problem.

13.7.2 The EUR OPMET DMG PHP is totally transparent to the end users. The end user reports any problem to the EUR OPMET DMG by email via a Problem Reporter. Also, the Problem Reporter provides for any feedback to the end user with regard to the EUR OPMET DMG actions and suggested solutions.

13.7.3 All reported problems will be evaluated irrespective of who submitted them.

13.7.4 The handling of a problem on which a Problem Ticket has been issued is subject to the evaluation of the responsible Problem Handling Manager. When it concerns a DMG matter, the problem will be handled by a Problem Handler. Actions then are registered on and co-ordinated by means of the Problem Ticket until closure of the Ticket on mutual agreement with the Problem Reporter on behalf of the end user. If the problem happens to be an incident or is of no concern to the EUR OPMET DMG, the Problem Ticket will be closed.

13.7.5 A Problem can be redirected, assigned to another Problem Handler.

13.7.6 A Problem Ticket can be closed and re-created on replacement of its Problem Reporter.

A APPENDIX A – Interface Control Document

A.1 Introduction

A.1.1 Purpose

A.1.1.1 This document defines the standard access procedures for the designated ICAO Regional OPMET databanks (RODB) in the EUR Region.

A.1.1.2 It also informs about the standard formats for request and reply messages.

A.1.1.3 By accessing these databanks, the user implicitly acknowledges the disclaimer in A.12.

A.2 EUR Regional OPMET Databanks

A.2.1 Location

A.2.1.1 The designated OPMET databanks in the EUR Region are located at Brussels, Toulouse and Vienna.

A.2.2 Backup procedures

A.2.2.1 In case of an outage of one of the three EUR OPMET databanks, any of the other two databanksses can be used as fall-back. To this end, the user should simply change the AFTN/AMHS-address to which the request is sent.

A.2.3 Access Addresses

A.2.3.1 The EUR OPMET Databanks can be accessed via the ICAO AFS only, either via AFTN or AMHS

A.2.3.2 Via AFTN

A.2.3.2.1 The AFTN addresses to be used to access the OPMET databanks via an AFTN user system/terminal are the following:

Brussels	EBBRYZYX
Toulouse	LFPWYZYX
Vienna	LOWMYZYX

A.2.3.3 Via AMHS

A.2.3.3.1 The AMHS addresses to be used to access the OPMET databanks via an AMHS user system/terminal are the following:

Brussels	/C=XX/A=ICAO/P=BELGIUM/O=EBBR/OU1=EBBR/CN=EBBRYZYA
Toulouse	/C=XX/A=ICAO/P=FRANCE/O=LFLF/OU1=LFPW/CN=LFPWYZYA
Vienna	/C=XX/A=ICAO/P=AUSTRIA/O=LOVV/OU1=LOWM/CN=LOWMYZYA

A.2.4 Meteorological Data Types

A.2.4.1 The following meteorological data types may be retrieved from the RODBs with some limitations as described below the table:

Message Type	**TT (TAC)**	**TT (IWXXM)**
METAR/SPECI (1)	SA/SP	LA/LP
9 HR TAF	FC	LC
24/30 HR TAF	FT	LT
SIGMET	WS	LS
Tropical Cyclone SIGMET (3)	WC	LY
Volcanic Ash SIGMET (3)	WV	LV
AIRMET	WA	LW
GAMET (5)	FA	
Special AIREPs (2)(5)	UA	
Volcanic Ash Advisory (4)	FV	LU
Tropical Cyclone Advisory (4)	FK	LK
Space Weather Advisory (4)	FN	LN ~~(6)~~

Note (1): A reply for a METAR request will consist of the latest METAR or SPECI reports available for the concerned station.

Note (2): Available only at Brussels and Vienna RODB

Note (3): When a query for WS (TAC format) or LS (IWXXM format) SIGMETs is received, the reply will contain all valid SIGMETs (General, Volcanic Ash and Tropical Cyclone) that are available for the FIR and or UIR.

Note (4): Due to the lack of an ICAO identifier in the message, the reply to a FV/FK request, and where available to an FN request, will contain all valid FV/FK/FN messages at the time of the request. Therefore, a dummy ICAO indicator "XXXX" is used in the request (see further for the request format)

Note (5): Not yet available in IWXXM format.

~~*Note (6): IWXXM to be issued as per Annex 3 recommendation from November 2019 onwards*~~

A.2.5 Formal Syntax Notation Convention

A.2.5.1 The below is a description of the notation used to describe the request syntax.

<item>	:	item to be further defined
=::	:	definition symbol
n*m<item>	:	at least n but at most m instances of item default values for n and m are 0 and infinity; e.g. 1*<item> means at least 1
|	:	separator for alternative definitions (OR)
[ ]	:	optional
"xyz"	:	terminal symbol xyz
+	:	followed by

- : comment.

A.2.6 Formal Syntax Notation for EUR OPMET Databankse Requests

A.2.6.1 A EUR OPMET Database Request line shall contain a maximum of 69 characters and/or spaces (ref. AICAO ANNEX 10-Vol II-paragraph 4.4.9.1.1).

<request>	=::	["RQM"|"RQX"]+1*<group>+"="
<group>	=::	"/"+<group_detail>
<group_detail>	=::	<TT>+<report>+*[","<TT>]
<report>	=::	<CCCC>+ *[","<CCCC>]
<T_iT_i>	=::	- the requested data type (for supported data types : see paragraph A.2.4.1)
<$C_iC_iC_iC_i$>	=::	- ICAO 4-letter location indicator (see Doc. 7910): • of an aerodrome for METAR, TAF • of an FIR and/or UIR for SIGMET, AIRMET, GAMET and, if supported by the RODB, Special AIREP • "XXXX" for FV/FK requests and, if supported by the RODB, FN requests

A.2.6.2 Request lines for TAC data start with "RQM", request lines for IWXXM data start with "RQX"

A.2.6.3 Examples for TAC-requests (RQM) can be found under paragraph A.3.4, examples for IWXXM-requests under paragraph A.4.3.

A.3 Request/Reply Message Format: TAC

A.3.1 General

A.3.1.1 Request messages for OPMET data in TAC format can be sent either via AFTN or via AMHS.

A.3.1.2 Validation of query messages (RQM/) will strictly follow the Standardized Query Language as defined in the formal syntax notation in paragraph A.2.5 & 2.6 and shown in the examples for the request line in paragraph A.3.4.

A.3.1.3 An RQM-request line shall not exceed 69 characters including "RQM/" and the "=" signal. Only one request line shall be included in one AFTN/AMHS message.

A.3.1.4 Queries or part of queries which do not conform to that notation will result in an error message returned to the originator of the query as described in paragraph A.3.6.

A.3.1.5 Queries or part of queries which are not authorized or for which the data is not available will result in an information message returned to the originator of the query as described in paragraph A.3.6.

A.3.2 Request messages sent via AFTN

A.3.2.1 Request messages sent via AFTN should follow the AFTN standard telecommunication procedures as defined in ICAO Annex 10, volume II. The text part of the messages shall adhere to the rules defined in this document.

A.3.2.2 The standard AFTN message start and end characters and alignment characters (SOH, STX and ETX for ITA-5 format or ZCZC and NNNN for ITA-2 format) have been omitted for clarity in the following examples.

A.3.2.3 Request messages should use the AFTN priority GG.

A.3.2.4 The general format of the request message is as follows:

```
GG xxxxxxxx
ddhhmm yyyyyyyy
REQUEST LINE =
```

Where:

xxxxxxxx	*is the AFTN address of the databa*nk~~se~~ *(as given in paragraph A.2.3.2)*
ddhhmm	*is the message origination date-time-group*
yyyyyyyy	*is the AFTN address of the message originator*
REQUEST LINE	*as defined in paragraph A.2.6*
=	*indicates the end of the request line.*

A.3.3 Request messages sent via AMHS

A.3.3.1 Request messages for TAC data sent via AMHS shall follow the AMHS standard telecommunication procedures as defined in ICAO Annex 10, volume II and ICAO Doc 9880 "Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards" – Part II.

A.3.3.2 The request message should be sent as Text Body Part. The Text Body Part should contain a single REQUEST LINE as defined in A.2.6.

A.3.4 RQM-request examples

Example	Type of Request
RQM/SALOWW=	One request of single report of type SA
RQM/WSEBBU=	One request of all valid SIGMET messages in a single FIR/UIR
RQM/FTEBBR,LFPO=	One request of two reports of type FT
RQM/SALOWW/FTEBBR,LFPO/WSEBBU=	Three requests of above combined
RQM/SAEBBR,FT=	A request of a SA type and a FT type report for the same station
RQM/UAEBBU=	One request of all valid Special AIREP messages in a single FIR or UIR (not supported yet by all RODBs)
RQM/FVXXXX=	Request for all valid FV messages ; XXXX is a dummy ICAO indicator
RQM/FKXXXX	Request for all valid FK messages ; XXXX is a dummy ICAO indicator
RQM/FNXXXX=	Request for all valid FN messages ; XXXX is a dummy ICAO indicator (not supported yet by all RODBs)

A.3.4.1 Example of an RQM embedded in an AFTN request message:

```
GG EBBRYZYX
181808 EGKKYMYX
RQM/SALOWW/WSEBBU,LFFF/FTLOWW=
```

A.3.5 Databanks~~e~~ Reply Format

A.3.5.1 If the originator AFTN/AMHS address is authorized, the databanks~~e~~ will automatically reply to the AFTN/AMHS originator address given in the request message.

A.3.5.2 Valid requests will produce an answer, which will be returned in a standard WMO bulletin format embedded as text in a standard AFTN message or as a Text Body Part of an AMHS message. Each bulletin will be sent as a separate AFTN/AMHS message.

A.3.5.3 Per group of valid requested reports belonging to the same type, one or more bulletins will be generated.

A.3.5.4 For regular messages (METAR, TAF,..) the reply will consist of the latest valid, not NIL reports.

A.3.5.5 For non-regular messages (SIGMET) the reply will consist of all valid SIGMET-messages for the requested FIR.

A.3.5.6 For Special AIREP, if supported by the RODB, the reply will consist of all Special AIREP messages received during the last hour and containing phenomena reported within the lateral boundaries of the requested FIR or UIR, not taking into consideration the height/flight level of the report. This means, that a Special AIREP may be replied for an FIR as well as for an UIR above.

~~A.3.5.6~~ Only Special AIREPs which include co-ordinates as position are supported by the RODBs.

A.3.5.7

A.3.5.8 For advisory messages the reply will contain the most recent valid message for each volcano, tropical cyclone or the valid Space Weather Advisories.

A.3.5.9 The abbreviated heading of a reply message will be constructed as TTAAii **CCCC YYGGgg** where:

TT	=	the requested data type
AA	=	XX : fixed geographical designator for databanks~~e~~ reply
ii	=	**99** : fixed bulletin number for databanks~~e~~ reply
CCCC	=	location indicator of the replying databanks~~e~~ (e.g. EBBR, LFPW, LOWM)
YYGGgg	=	depending on the original DTG of the Bulletin Header

A.3.5.10 The Report(s) within the Bulletin are copied as received. Reports which result to have the same DTG will be grouped in one or more bulletins with a maximum length of 1800 characters (see ref.: ICAO Annex10 Vol II section 4.4.5.7). Where necessary, consecutive messages will be generated with the same header and will start with a complete report (reports will not be split).

A.3.6 Error/Information replies

A.3.6.1 An appropriate error/information reply will be sent to the user in the following cases:
- the request line contains a syntax error
- the user is not allowed to request this information
- the station(s) for which data is requested is (are) unkown
- the data is unavailable

A.3.6.2 Error/Information replies will be sent in WMO message format as a
- Text Body Part of a AMHS message in case the request was received via AMHS
- AFTN message in case the request was received via AFTN

A.3.6.3 The abbreviated heading of an *Information* or *Error Reply* message will be constructed as **TTAAii CCCC YYGGgg**, where:

TT	=	**ZZ**
AA	=	**XX** : fixed geographical designator for databanks~~e~~ reply
ii	=	**99** : fixed bulletin number for databanks~~e~~ reply
CCCC	=	location indicator of the replying databanks~~e~~ (e.g. EBBR, LFPW, LOWM)
YYGGgg	=	DTG corresponding to the issuing time of the Information or Error Reply

A.4 Request/Reply Message Format: IWXXM

A.4.1 General

A.4.1.1 Request messages for OPMET data in IWXXM format can be sent via AMHS only.

A.4.1.2 Validation of query messages (RQM/) will strictly follow the Standardized Query Language as defined in the formal syntax notation in paragraph A.2.5 & 2.6 and shown in the examples for the request line in paragraph A.4.3.

A.4.1.3 Queries or part of queries which do not conform to that notation will result in an error message returned to the originator of the query as described in paragraph A.4.5.

A.4.1.4 Queries or part of queries which are not authorized or for which the data is not available will result in an information message returned to the originator of the query as described in paragraph A.4.5.

A.4.2 Request messages

A.4.2.1 Request messages for OPMET data in IWXXM format shall be sent via AMHS and shall follow the AMHS standard telecommunication procedures as defined in ICAO Annex 10, volume II, the EUR AMHS Manual (EUR Doc 20) and ICAO Doc 9880 Part II. The user requesting IWXXM data shall make sure that a full AMHS path with Extended Services exists to the EUR OPMET Databank.

A.4.2.2 The request message should be sent as Text Body Part. The Text Body Part should contain a single REQUEST LINE as defined below.

A.4.3 RQX-request examples

Example	Type of Request
`RQX/LALOWW=`	One request of single report of type LA
`RQX/LSEBBU=`	One request of all valid SIGMET messages in a single FIR and/or UIR
`RQX/LTEBBR,LFPO=`	One request of two reports of type LT
`RQX/LALOWW/LTEBBR,LFPO/LSEBBU=`	Three requests of above combined
`RQX/LAEBBR,LT=`	A request of a LA type and a LT type report for the same station

A.4.4 Databankse reply format

A.4.4.1 If the originator AMHS address is authorized, the databankse will automatically reply to the AMHS originator address given in the request message.

A.4.4.2 Valid requests will produce an answer, which will be returned as one or more standard WMO IWXXM bulletins that are sent as a File Transfer Body Part of an AMHS message. Each AMHS reply message will contain only one single FTBP and an FTBP will only contain one single OPMET bulletin.

A.4.4.3 Per group of valid requested reports belonging to the same type, one or more bulletins will be generated.

A.4.4.4 For regular messages (METAR, TAF,..) the reply will consist of the latest valid, not NIL reports.

A.4.4.5 For non-regular messages (SIGMET) the reply will consist of all valid SIGMET-messages for the requested FIR.

A.4.4.6 For advisory messages the reply will contain the most recent valid message for each volcano or tropical cyclone or the valid Space Weather Advisories.

A.4.4.7 There is no distinction made between “operational” and “non-operational” data as defined by the XML-attribute “permissibleUsage”. The reply will contain actually available data.

A.4.4.8 The file name and bulletin identifier will be constructed as:

A_TTAAiiCCCCYYGGgg**_C_**CCCC**_**YYYYMMddhhmmss**.xml.[compression_suffix]**

where the elements in black and bold are fixed elements and:

TT	=	the requested data type
AA	=	XX : fixed geographical designator for databankse reply
ii	=	**99** : fixed bulletin number for databankse reply
CCCC	=	location indicator of the replying databankse (e.g. EBBR, LFPW, LOWM)
YYGGgg	=	depending on the original DTG of the Bulletin Header

YYYYMMddhhmmss is the date/time group

A.4.5 Error/Information replies

A.4.5.1 An appropriate error/information reply will be sent to the user in the following cases:
- the request line contains a syntax error
- the user is not allowed to request this information
- the station(s) for which data is requested is (are) unknown
- the data is unavailable in IWXXM format
- the request was received via AFTN
- the reply cannot be sent as there is no AMHS path with extended services to the user

A.4.5.2 Error/Information replies will be sent in WMO message format as a
- Text Body Part of a AMHS message, in case the request was received via AMHS
- AFTN message, in case the request was received via AFTN

A.4.5.3 The abbreviated heading of an *Information* or *Error Reply* message will be constructed as **TTAAii CCCC YYGGgg**, where:

TT	=	**ZZ**
AA	=	**XX**: fixed geographical designator for databankse reply
ii	=	**99** : fixed bulletin number for databankse reply
CCCC	=	location indicator of the replying databankse (e.g. EBBR, LFPW, LOWM)
YYGGgg	=	DTG corresponding to the issuing time of the Information or Error Reply

A.5 Message Validation and Storage Criteria

A.5.1 Definition

A.5.1.1 The EUR OPMET Databankse message validation and storage criteria are based on message validation procedures described in the EUR OPMET Data Management Handbook, with the following specifications:

- NIL reports are rejected
- Corrected or amended reports replace the original ones
- For regular message types: a report is rejected if a report for the same station with a more recent report time is already stored in the DB. If a report does not contain a valid report or issuing time (YYGGggZ), the date/time of the WMO header is used instead

A.5.2 Aging Process

A.5.2.1 Furthermore, the EUR OPMET Databasnkes will have an aging process which regularly deletes messages for which the expiration time has been exceeded.

A.5.2.2 For messages of type METAR/SPECI the expiration time is 3 hours, for Special AIREP (if supported by the RODB) the expiration time is 1 hour, for all other types, the messages expire at the end of their validity period.

A.6 Databankse Access Control

A.6.1 Definition

A.6.1.1 Two different levels of access control will be provided:

a) Implicit and statistical access control by the monitoring of the AFTN/AMHS originator indicators of the request messages (**off-line** Databankse Access Control - see paragraph Databankse Query Monitoring).
b) Explicit access control by checking the received AFTN/AMHS originator indicator against two databankse access tables containing a permissive and/or denial list of AFTN/AMHS addressee indicators or part of it (**on-line** Databankse Access Control). *Optionally a databankse agent may decide to implement the possibility to limit user access to certain types of products and/or stations.*

A.6.1.2 If a retrieval request does not have an authorised AFTN/AMHS originator indicator, then an automatic concerned **Information** Reply will be returned. Details of this procedure can be found in paragraphs A.3.6 (RQM) and A.4.5.1 (RQX) dealing with “Error/Information Replies”. An example can be found under paragraph A.10.2.2.

A.7 Databank Request Monitoring

A.7.1 Definition

A.7.1.1 The databank agents will, on a continuous basis or ad-hoc, monitor all the requests received from AFTN/AMHS-users..

A.7.1.2 These databank monitoring results will be used for:

- access control
- improvement of the exchange of data
- detection of abnormal use or misuse of the databank

~~**A.7 Database Monitoring**~~

~~A.7.1 Definition~~

~~A.7.1.1 Database monitoring will provide information concerning the usage of the databases (query monitoring) and concerning the availability of data.~~

~~A.7.1.2 This database monitoring results will be used for:~~

- ~~access control~~
- ~~improvement of the exchange of data~~

~~A.7.2 Database Query Monitoring~~

~~A.7.2.1 Database query monitoring exercises are performed at least once every year over a three-day period.~~

~~A.7.2.2 Database Query Monitoring Items:~~

~~A.7.2.2.1 Per requester, identified by the AFTN originator indicator:~~

- ~~the requested bulletins and/or reports (number and identification)~~
- ~~the database Error and Information Reply message count~~

~~A.7.2.3 Database Query Monitoring Results publication:~~

~~A.7.2.3.1 In case of abnormal use or misuse of a Database is observed, Tthe Database Agents will report this to the DMG and, if deemed necessary, as a WP to the METG. should make available the details of the international database queries:~~

- ~~Yearly in a combined condensed report of all Database agents as a WP or IP to the METG~~
- ~~Occasionally, when abnormal use of the database is observed.~~

A.8 Monitoring of the availability of data

A.8.1 Definition

A.8.1.1 Databank~~se~~ availability monitoring exercises are performed at least once every year.

A.8.2 Data Availability Monitoring Items

A.8.2.1 The availability of the data, for each station in the EUR OPMET DB Catalogue, will be monitored for the data types SA/SP, FC and FT.

A.8.3 Data Availability Monitoring Results Publication

A.8.3.1 The results of the EUR OPMET DB data availability monitoring are presented to the DMG and will be ~~published~~ included in ~~a yearly combined~~the yearly DMG report to METG.

A.9 Databa~~nkse~~ Misuse and Abuse

A.9.1 Detection of misuse and/or abuse

A.9.1.1 ~~The database agents will, on a continuous basis, monitor all the requests received from AFTN/AMHS users.~~ In order to determine possible abuse or misuse of the EUR Infrastructure (EUR OPMET Databas~~es~~ and network), a detailed investigation may be performed for all frequent users detected during the databank request monitoring.

A.9.1.2 A frequent user is a user performing 100 requests or more per day, on a regular basis.

A.9.1.3 These investigations might lead to the detection of **misuse** or **abuse** of the DB.

A.9.2 Definition of misuse and abuse

A.9.2.1 The DB is **misused** if it is not used in the way it is intended.

A.9.2.2 A typical example of misuse would be a user requesting on a regular basis (e.g. every hour) the same reports. In case of misuse of the databa~~se~~, the databa~~se~~ user might be contacted by the ICAO Regional Office with the request to find, together with his Parent RODEX centre, an alternative way to receive the required data. If a suitable solution is found to receive the data using the normal telecommunications procedures, but this solution is not accepted by the databa~~se~~ user (i.e. the misuse continues), then the databa~~se~~ agent could decide to limit *or block* the access to the EUR OPMET Databank for this user.

A.9.2.3 The DB is **abused** if users are requesting data they are not entitled to receive or it is suspected that users use the data for commercial purposes.

A.9.2.4 In case of abuse of the Databa~~se~~ is suspected, the databa~~se~~ user might be contacted by the ICAO Regional Office with a request for information on its databa~~se~~ use. After investigation, the databa~~se~~ agent could decide to limit or block the access to the EUR OPMET Databank for this user.

A.10 Examples for Databa~~nkse~~ Replies

A.10.1 Examples of databa~~se~~ requests with the related reply

A.10.1.1 Example 1

request : RQM/SAEBBR,EGLL,LIRF=

reply messages :

```
SAXX99 EBBR 110850
METAR EBBR 110850Z 30008KT 9999 FEW020CB 13/08 Q1017 NOSIG=
METAR EGLL 110850Z 27010KT 9999 SCT200 15/10 Q1015 NOSIG=
```

and

```
SAXX99 EBBR 110820
METAR LIRF 110820Z 28008KT 9999 BKN100 14/09 Q1016 NOSIG=
```

(the 0850Z METAR for LIRF was not available)

A.10.1.2 Example 2

request : RQM/SALOWW,FT=

reply messages :

```
SAXX99 EBBR 110850
METAR LOWW 110850Z 30008KT 9999 FEW020CB 13/08 Q1017 NOSIG=
```

and

```
FTXX99 EBBR 110500
TAF LOWW 110530Z 1106/1212 30010KT SCT020 SCT040 PROB30
TEMPO 1110/1119 34015G25KT 5000 SHRA BKN016=
```

A.10.1.3 Example 3

request : RQM/WSEISN=

reply messages :

```
WSXX99 EBBR 061215
EISN SIGMET 02 VALID 061215/061600 EINN-
EISN SHANNON FIR/UIR SEV TURB FCST BTN GND/FL070 NC=
```

and

```
WSXX99 EBBR 061300
EISN SIGMET 03 VALID 061300/061900 EINN-
EISN SHANNON FIR/UIR VA ERUPTION MT EYJAFJALLAJOKULL LOC
N6338
     W01937 VA CLD OBS AT 1200Z SFC/FL200 W OF LINE N5416
W01155
      N5100 W01144 AND S OF LINE N5100 W01144 - N5204 W00712
- N5310
     W00530 FL200/350 W OF LINE N5410 W01320 - N5114 W01500
FCST
     VA CLD 1900Z SFC/FL200 W OF LINE N5414 W01310 - N5114
W01310
```

```
     AND S OF LINE N5100 W00800 - N5220 W00550 - N5212
W00550
 FL200/350 W OF SHANNON FIR=
```

A.10.2 Examples with error/information replies

A.10.2.1 Syntax error

request: RQM/SAEBR/FCEBAW=

reply messages:

```
ZZXX99 EBBR 110912
RQM/SAEBR=
SYNTAX ERROR=
```

and

```
FCXX99 EBBR 110800
TAF EBAW 110830Z 1109/1118 35008KT 9999 SCT030=
```

A.10.2.2 Access not authorised

1) *request:* RQM/SAEBBR=

reply message:

```
ZZXX99 EBBR 110915
RQM/SAEBBR
ACCESS NOT AUTHORISED
```

2) *request:* RQM/SAEBBR/FTEHAM=

reply messages:

```
ZZXX99 EBBR 110905
RQM/FTEHAM
ACCESS NOT AUTHORISED=
```

and

```
SAXX99 EBBR 110850
```

```
METAR EBBR 110850Z 30008KT 9999 FEW020CB 13/08
Q1017 NOSIG=
```

(user is not authorised to retrieve TAF data)

A.10.2.3 Unknown data

request: RQM/SAEBBB/FTLFPO=

reply messages:

```
ZZXX99 EBBR 061221
RQM/SAEBBB=
UNKNOWN=
```

and

```
FTXX99 EBBR 061100
TAF LFPO 061100Z 0612/0718 35010KT 9999 SCT045
BECMG 0612/0614 CAVOK BECMG 0703/0705 33005KT
SCT008 BKN012 BECMG 0709/0712 03006KT BKN035
BECMG 0712/0714 CAVOK=
```

A.10.2.4 NIL-data

request: RQM/SAEBBR,DATG,LOWW =

reply messages:

```
SAXX99 EBBR 110850
METAR EBBR 110850Z 30008KT 9999 FEW020CB 13/08
Q1017 NOSIG=
METAR LOWW 110850Z 27010KT 9999 SCT200 15/10
Q1015 NOSIG=
```

and

```
ZZXX99 EBBR 110904
RQM/ SADATG=
METAR DATG NIL=
```

(no valid METAR available for DATG)

A.11 EUR OPMET Databankse Catalogue

A.11.1 Contents

A.11.1.1 The EUR OPMET Databank Catalogue consists of lists of OPMET products that are required to be available in the ICAO EUR OPMET Databanks.

These requirements are:

a) *for message types METAR/SPECI, Long TAF and Short TAF:*
required data as stated in the Regional eANP Volume II MET II-2 tables and agreed non-AOP data

b) *for SIGMET messages:*
all FIRs, as listed in the Regional SIGMET Guides.

A.12 Disclaimer

A.12.1 Usage of the EUR OPMET DB implies that the user has taken notice of the disclaimer below and accepts the associated consequences.

DISCLAIMER

The Stations and FIR lists of the EUR OPMET Databankse only consist of lists of required data. It does not mean that these data are presently received in the EUR OPMET Databankse or have been yet received.

The fact that there is no data found for one location and one type of message in the EUR OPMET Databankse does not mean that a message has not been generated for such a location, but only means that no valid message concerning such a location and such a type of message has been received or stored by the EUR OPMET Databankse.
The user assumes the entire risk related to its use of data.

B APPENDIX B - EUR OPMET Data Update Procedure

B.1 Introduction

B.1.1 The requirements for the provision of METAR as well as TAF for EUR-AOP aerodromes are defined in Doc 7754, Volume II, Table MET II-2. Additionally, OPMET data for several agreed non-AOP aerodromes is exchanged by EUR-States.

B.1.2 All OPMET Data is exchanged within bulletins. In order to know which report is exchanged within which bulletin, the DMG implemented the EUR OPMET Data Update Procedure.

B.1.3 The EUR OPMET Data Update Procedure is to be applied for the registration of all TAC and/or IWXXM OPMET data disseminated in the EUR Region, including Inter-Regional OPMET data.

B.1.4 Registering OPMET data will not just update DMG-internal working tables but will also trigger a so called METNO-message, aiming to inform all centres in the EUR-Region about any change in regard to exchanged OPMET data.

B.2 Supported OPMET Data Types

B.2.1 The following list displays the data types supported by the EUR OPMET Data Update Procedure:

Type	T_1T_2-TAC	T_1T_2-IWXXM
Scheduled (Routine) Bulletins		
METAR	SA	LA
SPECI	SP	LP
“Short” TAF	FC	LC
“Long” TAF	FT	LT
GAMET	FA	*
Unscheduled (Non-Routine) Bulletins		
Tropical Cyclone Advisory	FK	LK
Volcanic Ash Advisory	FV	LU
AIRMET	WA	LW
Aviation Tropical Cyclone Warning	WC	LY
Aviation General Warning	WS	LS
Aviation Volcanic Ash Warning	WV	LV
Special AIREP	UA	*
Space Weather Advisory	FN	LN

**) No IWXXM-schema defined.*

B.2.2 According to ICAO Annex 3, Amendments 76 till 78 as from November 2016 the international exchange of XML-formatted METAR/SPECI, TAF, AIRMET and SIGMET is recommended.

B.2.3 ICAO requires the XML-format to be disseminated in parallel to the TAC-data for all OPMET data from November 2020 until November 2026 (foreseen TAC exchange of data cessation).

B.3 General Rules

B.3.1 Every alteration of registered TAC OPMET Data by default must provoke the same action in regard to the IWXXM OPMET Data equivalent, if such already has been registered. If only a change for one of the two message types is provided by a NOC, the missing one will automatically be added to the METNO-message by the DMG focal point. This means that e.g.

a report is removed from a METAR bulletin SAXX31 XXXX, the same is expected to be the case for the IWXXM equivalent LAXX31 XXXX.

B.3.2 When adding / introducing new IWXXM OPMET Data by means of the EUR OPMET Data Update Procedure, the equivalent TAC OPMET Data will be registered automatically for the parallel distribution of (TAC and IWXXM) OPMET Data.

B.3.3 The registration of added / new TAC OPMET Data does not imply the automatic introduction of equivalent IWXXM OPMET Data. This will change from November 2020 onwards (see B.2.3) when the registration of added / new TAC OPMET Data will automatically introduce the equivalent IWXXM OPMET Data.

B.3.4 When removing / deleting IWXXM OPMET Data by means of the EUR OPMET Data Update Procedure, by default the equivalent TAC OPMET Data will be removed / deleted also. If ever the TAC OPMET Data has to be continued, they need to be re-introduced specifically to be registered in compliance with the Update Procedure.

B.3.5 The discontinuation of TAC OPMET Data by removing / deleting from the EUR OPMET Data register by default discontinuous the IWXXM equivalent OPMET Data from the list of registered OPMET Data for EUR distribution.

B.4 The AIRAC-cycle

B.4.1 The whole procedure is following the ICAO AIRAC (**A**eronautical **I**nformation **R**egulation **A**nd **C**ontrol) cycle. The AIRAC-cycle is a “series of common effective dates at intervals of 28 days” (ICAO ANNEX 15, Chapter 6).

B.4.2 A list of AIRAC Dates can be found in B.10-Attachment 3 to this procedure.

B.5 The DMG Update Procedure in detail

B.5.1 A graphical presentation (flow diagram) of the procedure can be found in B.9-Attachment 1 of this document.

B.5.2 Modification requests to the production of national OPMET-data shall be reported by the NOC (National OPMET Centre) to the ROC. The ROC then forwards the requests to the DMG FP (Focal Point) for publication, DMG evaluation and DMG FP processing accepted changes.

B.5.3 Modification requests for an upcoming AIRAC date have to be sent at the latest by the preceding AIRAC date. This will guarantee that all subsequent steps can be performed in time. For planning purposes modification requests should be provided well in advance (between 30 and 60 days before the AIRAC date) to allow full assessment by the DMG and to provide confirmation to the originator that all changes will be made at the required date.

B.5.4 The DMG FP will summarize all requests and present those via email to the DMG members at the latest 7 days after the preceding AIRAC date.

B.5.5 The DMG members will review the requests and shall communicated any comments to the FP at the latest 14 days after the preceding (*thus 14 days before the upcoming*) AIRAC date. Nil comments shall be considered as a positive response.

B.5.6 At 21 days after the preceding (*7 days before the upcoming*) AIRAC date, the FP shall announce the list of accepted amendments to the ICAO Regional Office, the NOCs and SADIS by means of a standard GTS formatted METNO message for routine meteorological information sent via AFS.

B.5.7 The involved NOCs in turn shall notify users in their State about their requested modifications.

B.5.8 In addition, all DMG members and contacts will receive a confirmation by email. Subscription requests to the AIRAC EUR OPMET Data Update Procedure METNO Bulletins can be submitted to the DMG via the METG or directly by utilizing the contact form provided on the EUR DMG Website.

B.5.9 The modifications shall be implemented by all affected centres on AIRAC date, at 11:00 UTC.

B.5.10 The AIRAC OPMET data updates shall be applied by:

- the Regional OPMET Centres (ROCs) for routing the current OPMET data in accordance with the EUR RODEX Schema.
- The DMG Focal Point for the introduction of the AIRAC changes in the OPMET inventories. The OPMET inventories are the source for generating OPMET catalogues representing OPMET data distributed via AFS within the EUR Region known from the EUR OPMET Data Update Procedure and also reflecting results from the DMG OPMET data monitoring. The OPMET catalogues can be generated in the context of the DMG Terms of References and on authorized request via the ICAO EUR/EASPG/METG/DMG parental organisations.

B.5.11 In order to avoid difficulties in processing EUR OPMET Data modifications during major holidays, the DMG can decide to skip a particular AIRAC Cycle occurring in these periods.

B.6 Format and Content of the METNO-message

B.6.1 The METNO Syntax

B.6.1.1 The syntax of a METNO statement is presented in a compact form in B.11 – Attachment 3. It also includes the list of AFS addressees actually used as well as examples for the various OPMET data update METNO statements.

B.6.2 The METNO Header

B.6.2.1 The header of the METNO bulletin is: **NOXX99 CCCC YYGGgg**, where

- XX is a general area designator
- CCCC is the AFTN location indicator of the DMG FP Centre

B.6.3 The METNO Statements

B.6.3.1 The METNO statements for registration and updating of OPMET / IWXXM data are:

- ADDRPT / RMVRPT: for adding / removing Routine OPMET data in an already registered bulletin.
- NEWBUL / DELBUL: for registering a new / unregistering an expiring (Non-)Routine OPMET bulletin and its contained data.

B.6.3.1.1 ADDRPT

B.6.3.1.2 This statement is used when a new location indicator is added to an already registered bulletin. It can be used in combination with METAR or TAF bulletins.

B.6.3.1.3 Adding TAC-formatted METARs/TAFs to a registered bulletin does not automatically register the IWXXM equivalent data. TAC data can exist without a IWXXM equivalent (mind paragraph B.2.3).

B.6.3.1.4 Adding IWXXM METARs/TAFs to a registered bulletin will by default result in adding the equivalent TAC METARs/TAFs for their parallel distribution. There can be no IWXXM data without any equivalent TAC-formatted version of the data.

B.6.3.1.5 RMVRPT

B.6.3.1.6 This statement is used for METARs/TAFs planned to be removed from an already registered bulletin. Removed reports possibly can be registered for allocation in other existing or in new to be registered bulletins.

B.6.3.1.7 Removing TAC-formatted METARs/TAFs from a registered bulletin will also remove the equivalent IWXXM data from the OPMET data register in case it has been registered already. There is no IWXXM data without equivalent TAC-formatted data.

B.6.3.1.8 Removing IWXXM METARs/TAFs will by default result in removing equivalent TAC METARs/TAFs from the OPMET data register. If the TAC data need to be continued, it has to be re-registered explicitly, using ADDRPT.

B.6.3.1.9 NEWBUL

B.6.3.1.10 This statement is used for the registration of a new bulletin. It can be used for all supported data types (see list under paragraph B.2.1).

B.6.3.1.11 The registration of a new IWXXM bulletin by default implies the introduction of the TAC equivalent.

B.6.3.1.12 The registration of a new TAC OPMET bulletin does not automatically trigger the registration of an IWXXM bulletin equivalent.

B.6.3.1.13 DELBUL

B.6.3.1.14 This statement is used for the deletion of a registered bulletin. It can be used for all supported data types (see list under paragraph B.2.1).

B.6.3.1.15 The deletion of a registered IWXXM bulletin implies automatically the deletion of the TAC equivalent. TAC equivalents which are meant to be continued have to be re-introduced explicitly by applying NEWBUL.

B.6.3.1.16 Deletion of TAC OPMET bulletin by default also deletes the IWXXM equivalent.

B.6.3.2 The EUR OPMET Data Update Procedure AIRAC METNO Bulletin is distributed via AFS:
On AIRAC-date -7 days, the DMG FP sends the METNO Bulletin via AMHS as IA-5 formatted IPM Text Body Part to:

- the EUR ROCs for further distribution within its AoR
- the U.K. SADIS Provider for dissemination on SADIS FTP

And via eMail to:

- ICAO Paris
- DMG Members
- The centres that submitted the OPMET changes
- Other interested organisations on explicit request via the DMG.

B.6.3.3 The DMG FP maintains a list of registered, as well as a list of known but not registered OPMET data resulting from all times AIRAC METNOs. This list can be found on the DMG-Website (MetnoOverviewAll.docx).

B.7 EUR RODB Interface Control Document Amendments

B.7.1 General Information

B.7.1.1 The DMG FP shall proclaim changes to the operational status of the RODB and to the standardized OPMET database access procedure (TAC & IWXXM) via AFS by a METNO notification message. RODB status changes and ICD access procedure amendments will be announced following the EUR OPMET Data Update Procedure AIRAC cycle or as soon as necessary. The DMG Members receive a confirmation by e-mail.

B.7.1.2 The syntax of this special METNO statement for ICD Amendments is presented in a compact form in B.12– Attachment 6.

B.7.1.3 The METNO Bulletin is distributed:
via AMHS as IA-5 formatted IPM Text Body Part to:

- the EUR ROCs for further distribution within its AoR
- the U.K. SADIS Provider for dissemination on SADIS FTP

And via eMail to:

- ICAO Paris
- DMG Members

B.7.1.4 The actual version of the EUR OPMET Database Interface Control Document (ICD) can be found as EUR DOC 018, Appendix A.

B.8 Regional and Inter-Regional OPMET Data Requests

B.8.1 General

B.8.1.1 Additional OPMET data are data for which no requirements have been specified in the current ICAO Doc 7754 eANP Volume II Table MET II-2 (formerly known as SADIS User Guide (SUG) Annex 1 and the FASID Tables) yet. This data is also known as agreed non-AOP.

B.8.1.2 To request additional OPMET data the application form, presented in B.13Attachment 5, should be used.

B.8.1.3 Slightly different procedures have to be used for requesting data from the ICAO EUR Region and Inter-Regional data from Non-EUR Regions. This is reflected in the different flow charts which can be found in Attachment 6 (EUR Region) and Attachment 7 (non-EUR Region).

B.8.1.4 This procedure can be applied to request all OPMET data types (routine and non-routine) for aerodromes as well as FIRs/UIRs.

B.8.1.5 The Regional OPMET Centre collects the requirements from its AoR and submits it to the DMG Focal Point by using the dedicated form.

B.8.1.6 For EUR OPMET data, the DMG Focal Point submits the form to the EUR ICAO Office and to the Regional OPMET Centre responsible for the distribution of the requested OPMET data (from its AoR).

B.8.1.7 For non-EUR OPMET data, the DMG Focal Point passes the form further on to the EUR ICAO Office, which will in turn send it to the relevant Regional ICAO Office of the State concerned.

B.8.1.8 Following the procedures to request EUR as well as Non-EUR OPMET data are explained.

B.8.2 Requesting additional EUR-Region OPMET data

B.8.2.1 The procedure for requesting additional European OPMET data (not in the eANP Volume II MET II-2 Table) is illustrated by an example. It is assumed that Norrkoping (ESSP) applies for METARs from Koksijde (EBFN). EBFN is a Belgian Air Force base for mixed military and civil Search and Rescue.

B.8.2.2 ESSP (Norrkoping) inquires for the availability of EBFN METARs at Norrkoping (SMHI), being the Swedish National Aviation MET-Authority.

B.8.2.3 EBFN METARs are not specified in the eANP Volume II MET II-2 Table. Therefore, SMHI forwards the request to the EGGY, being the responsible ROC for distributing all OPMET data to Sweden.

B.8.2.4 ROC EGGY is filling in the following fields of the application form:
- Requesting User;
- Part 1 (containing details on the requested data)

B.8.2.5 After that ROC EGGY will send the application form to the DMG Focal Point. The Focal Point will fill in the following fields of the application form:
- Application Reference Number
- Part 2 (containing details about addressing of new data if request is granted. In this example Belgium OPMET shall be sent to ROC EGGY (via AMHS XX/ICAO/EG/AFTN/EGZZWPXX) for further routing to Sweden)

B.8.2.6 After completing the above tasks, the DMG FP sends the application form to the ICAO Office in Paris. The ICAO Office will forward it as an official request to the national Aviation MET-Authority responsible for the requested EBFN Koksijde data. In this example, Paris will forward the application form to the Belgian Aviation MET-Authority.

B.8.2.7 The Belgian Aviation MET-Authority deliberates over the ESSP request for EBFN METAR data and enters its decision on the application form by filling in:

- Part 3 (information about granting or not accepting the request)

B.8.2.8 After the application form has been completed, it will be returned to the ICAO Office Paris.

B.8.2.9 If the request has been accepted the completed application form will be provided to:

1. ICAO Montreal, for inclusion of the new OPMET specifications to the SUG Annex 1 (for AOP aerodrome OPMET requirements only)
2. DMG Focal Point to introduce the new EUR data through the OPMET Update Cycle in a bulletin for AOP or Non-AOP aerodrome data as appropriate to the requested data.
3. The DMG Focal Point will inform the responsible ROC Centre (EGGY in this example) as well as the national Aviation MET-Authority that requested the additional EUR OPMET data (SMHI in this example)
4. The national Aviation MET-Authority will inform the user (ESSP in the example)

B.8.2.10 If the request concerns Non-AOP aerodrome OPMET data or has been declined, the flow of information will be the same as if granted. There is just one difference, that ICAO Montreal will not get any information.

B.8.3 Requesting additional Non-EUR OPMET Data

B.8.3.1 The procedure for requesting additional Non-European OPMET data is illustrated by an example. It is assumed that the national airline of Poland (LOT) is stating a request for the provision of METAR and FT messages from Campo Grande (SBCG) in Brazil.

B.8.3.2 The User (LOT) states the request to the national Aviation MET-Authority (or the national Meteorological Service, when applicable) as published in the Polish AIP.

B.8.3.3 The national Aviation MET-Authority will forward this request to the ROC Centre Vienna (LOWM), which is responsible for Poland.

B.8.3.4 At the ROC Centre the following fields of the APPLICATION FORM are filled in:

- Requesting User
- Part 1 (containing details on the requested data)

B.8.3.5 After that, ROC LOWM will send the application form to the DMG Focal Point. The Focal Point will fill in the following fields of the application form:

- Application Reference Number
- Part 2 (containing details about addressing of new data if request is granted. In this example the data from SAM-Region should be sent to the I/R Gateway Centre in London. Therefore “XX/ICAO/EG/AFTN/EGZZM...“ will be ticked and the address will be completed by adding “SAM”)

B.8.3.6 Now the APPLICATION FORM will be sent to the ICAO Office in Paris and to the relevant I/R Gateway Centre in EUR. Paris will forward it as an official request to the Regional ICAO Office in Peru.

B.8.3.7 The Regional ICAO Office in Peru has to transmit the request to the responsible organisation in Brazil, asking them to provide the information asked for in part 3 of the application form. The gathered information has to be filled out either by the Regional ICAO Office in Peru or the addressed centre.

B.8.3.8 After the application form has been filled out completely, it will be returned to the ICAO Office Paris.

B.8.3.9 If the request has been accepted and SBCG is an AOP-aerodrome or is planned to become one, the information will be provided to:

B.8.3.10 ICAO, for inclusion to the eANP Volume II Table Met II-2 of OPMET Data Requirements, SAM Region.

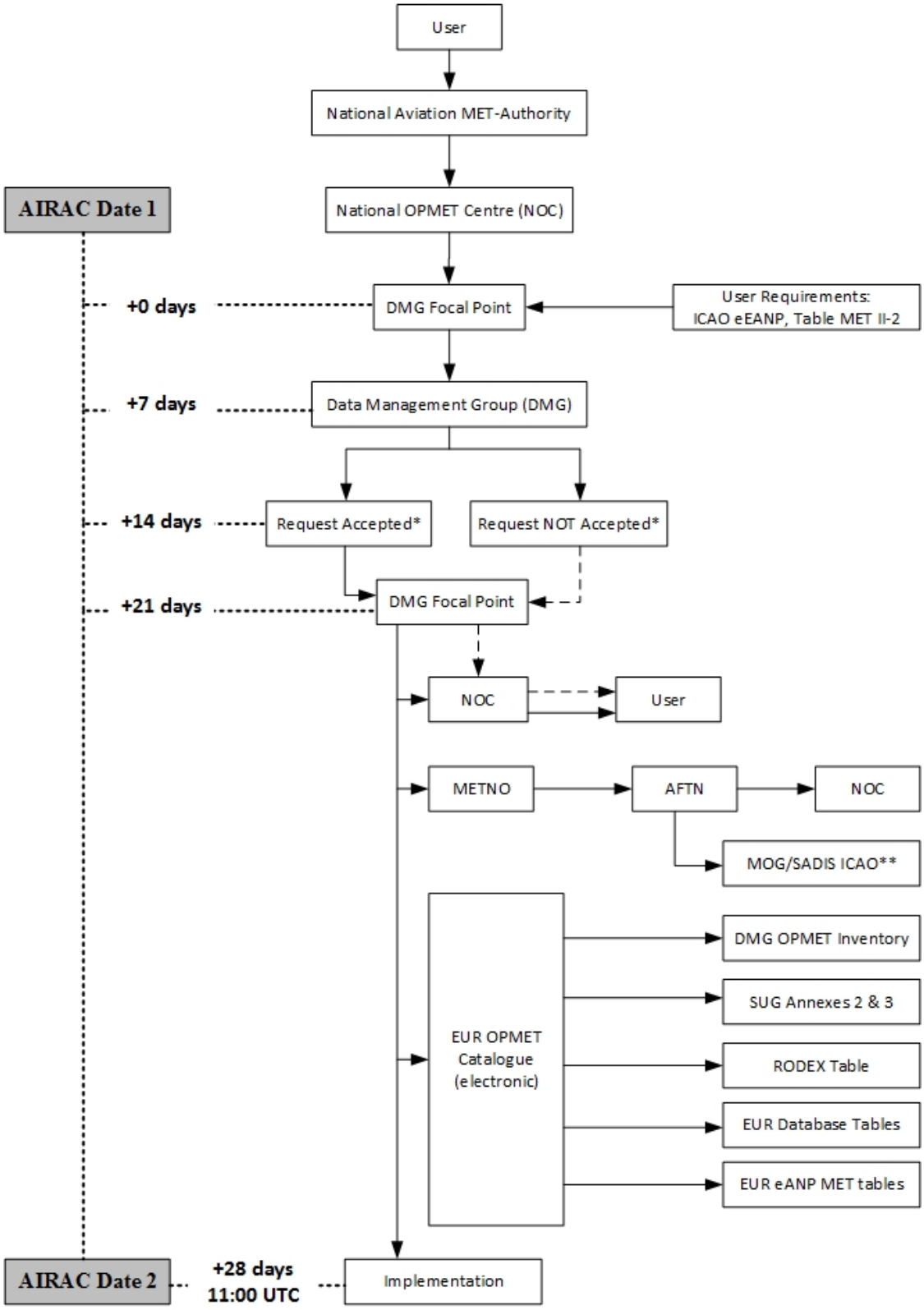
1. DMG Focal Point to introduce the new data in EUR through the OPMET Update Cycle
2. Via the DMG Focal Point to the ROC Centre that has relayed the request and to the I/R gateway centres in EUR
3. The ROC Centre will inform the national Aviation MET-Authority in Poland which in turn will inform user (LOT).

B.8.3.11 In case SBCG is a non-AOP-Aerodrome ICAO will not be informed.

B.8.3.12 If the request has not been accepted the information will go to:

1. DMG Focal Point
2. Via the DMG Focal Point to the ROC Centre that has relayed the request and to the I/R Gateway Centres in EUR
3. The ROC centre will inform the national Aviation MET-Authority in Poland which in turn will inform user (LOT).

B.9 ATTACHMENT 1 - EUR OPMET Data Update Procedure Flow Diagram



* “Request Accepted" and "Request Not Accepted" refer to AOP aerodromes listed in the EUR ICAO eANP Table MET II-2.
** Via the SADIS Provider State on behalf of the MOG/SADIS.

B.10 ATTACHMENT 2 – AIRAC Dates

Schedule of AIRAC effective dates, 2021 – 2024

2021	2022	2023	2024
28. January	27. January	26. January	25. January
25. February	24. February	23. February	22. February
25. March	24. March	23. March	21. March
22. April	21. April	20. April	18. April
20. May	19. May	18. May	16. May
17. June	16. June	15. June	13. June
15. July	14. July	13. July	11. July
12. August	11. August	10. August	8. August
9. September	8. September	7. September	5. September
7. October	6. October	5. October	3. October
4. November	3. November	2. November	31. October
2. December	1. December	30. November	28. November
30. December	29. December	28. December	26. December

Greyed dates: No EUR OPMET Catalogue Updates.

B.11 ATTACHMENT 3 – EUR OPMET UPDATE Data Changes

B.11.1 Syntax of the METNO message

Item	Example (fictitious): AFS
AMHS Priority	Normal
AMHS Addressees of ROC Centres+ ICAO European Office	C=XX/A=ICAO/P=EG/O=AFTN/OU1=EGZZWPXX C=XX/A=ICAO/P=FRANCE/O=LFLF/OU1=LFLF/CN=LFLFYBYX C=XX/A=ICAO/P=AUSTRIA/O=LOVV/OU1=LOWM/CN=LOWMMMXX C=XX/A=ICAO/P=RUSSIA/O=UU/OU1=UUUJYZYA
AMHS Origin	C=XX/A=ICAO/P=BELGIUM/O=EBBR/OU1=EBBB/CN=EBBBYFYX
Abbreviated header	NOBX99 EBBR YYGGgg
Message Identifier (METNO)+ Product Description (EUR OPMET)+ AIRAC Date (YYMMDD)	METNO EUR OPMET YYMMDD
- New Bulletin: **NEWBUL TTAAii CCCC Locind**(s), or **NEWBUL TTAAii CCCC FIR/UIR** for Non-Routine bulletin where applicable	NEWBUL FCMJ31 LWSK LWSK LWOH NEWBUL WVCZ31 LKPR LKAA
- Delete Bulletin: **DELBUL TTAAii CCCC,** or **DELBUL TTAAii CCCC FIR/UIR** for Non-Routine bulletin where applicable	DELBUL FTOS31 LOWM DELBUL WSRA31 ALAK UATT
- Add Report to existing bulletin: **ADDRPT TTAAii CCCC Locind**(s)	ADDRPT FCTU33 LTAA LTAJ LTCF LTCI LTFH
- Remove Report from existing bulletin: **RMVRPT TTAAii CCCC Locind**(s)	RMVRPT FCSN31 ESWI ESOW ESSA ESSB ESSP ESSV
End of METNO	END

*(*1) TAF Report Validity Period changes (DELTIM – NEWTIM) normally reflect to all the reports in one (**FC**-**FT**)AAii CCCC Bulletin.*
*(*2) For METAR Observations, changes to the Observation Times normally apply to all the Obervations contained in on **SA**AAii CCCC Bulletin.*

B.11.2 Example for a EUR OPMET Data Update METNO message

```
GG EBZZYBYX EGZZWPXX LFLFYBYX LOWMMMXX LFPSYAYU
121420 EBBBYFYX
NOBX99 EBBR 121420
METNO EUR OPMET 060119
NEWBUL FCMJ31 LWSK LWSK LWOH
NEWBUL WVCZ31 LKPR LKAA
DELBUL FTOS31 LOWM
DELBUL WSRA31 ALAK UATT
ADDRPT FCTU33 LTAA LTAJ LTCF LTCI LTFH
RMVRPT FCSN31 ESWI ESOW ESSA ESSB ESSP ESSV
END
```

B.12 ATTACHMENT 4 – EUR RODB METNO bulletins

B.12.1 Syntax of the METNO message

Item	Example (fictitious): AFS - AFTN
Priority	GG
Addressees of ROC Centres + ICAO European Office	EBZZYBYX EGZZWPXX LFPWYMEU LOWMMMXX LFPSYAYU UUUJYZYA
Origin	ddhhmm EBBBYFYX
Abbreviated header	NOBX98 EBBR YYGGgg
Message Identifier (METNO)+ Product Description (EUR OPMET DB)+ AIRAC Date (YYMMDD)	METNO EUR OPMET DB YYMMDD
Reference number (*1)	ICD AMD YYYY/xxx
AFTN Address of the EBBR DB Amendment or NONE AFTN Address of the LFPW DB Amendment or NONE AFTN Address of the LOWM DB Amendment or NONE	EBBRYZYX: THE BRUSSELS EUR OPMET DATABASE REPORTS THAT ... LFPWYZYX: THE TOULOUSE EUR OPMET DATABASE REPORTS THAT ... LOWMYZYX: THE VIENNA EUR OPMET DATABASE REPORTS THAT ...
End of METNO	END

*(*1) **YYYY** = 4 digits year and **xxx** = sequence number of the amendments of the year **YYYY**.*

B.12.2 The message always includes all three EUR OPMET Databases. If there are not any changes to be mentioned, it shall be indicated by "**NONE"** for the concerned Database, as shown in the following example.

B.12.3 Example for an ICD Update METNO message

```
GG EBZZYBYX EGZZWPXX LFLFYBYX LIIBYMYI LOWMMMXX LFPSYAYU
131100 EBBBYFYX
NOBX98 EBBR 131100
METNO EUR OPMET DB 030220
ICD AMD 2003/001
EBBRYZYX:
THE BRUSSELS EUR OPMET DATABASE REPORTS THAT THE FORMAT OF THEIR
DATABASE REPLIES WILL BE MODIFIED ON AIRAC DATE 20/02/2003.

IN ACCORDANCE WITH THE WMO/ICAO CODE CHANGES OF NOVEMBER 2001,
THE METAR/TAF REPLIES WILL, FROM THAT DATE ONWARDS, ALWAYS
CONTAIN THE KEYWORDS METAR, TAF OR TAF AMD FOR EVERY STATION IN
THE REPLY.

LFPWYZYX:
NONE

LOWMYZYX:
NONE
END
```

B.13 ATTACHMENT 5 – Form for requesting additional OPMET Data

B.13.1 Explanations to the application form

B.13.1.1 **Requesting User:** Company or National OPMET Centre (NOC) that is requesting the information.

B.13.1.2 **Application Reference Number:** EUR OPMET Req A_1A_2–YYYY/MM/DD–nnn (to be filled in by the DMG focal point)

- A1A2: WMO Area designator of the applying NOC Centre, for example "GR" for Greece;
- YYYY/MM/DD: Application date;
- nnn: Number of requests at that specific day.

B.13.1.3 Example: "EUR OPMET Req GR – 2007/01/30 – 001".

B.13.1.4 **Part 1:** part to be filled out by the ROC Centre based on the request received by the NOC

B.13.1.5 **Part 2:** the DMG FP specifies the most appropriate AFTN or AMHS Address of the ROC or the I/R Gateway Centre for the EUR distribution of the OPMET Data applied for.

B.13.1.6 **Part 3:** part to be filled in by the relevant Regional ICAO Office, specifying:

B.13.1.6.1 The Provider State and Region;

B.13.1.6.2 On acceptance:

- The Bulletin Header used for the EUR distribution: TTAAii CCCC;
- The nearest following AIRAC Date by which the data will be provided via the ROC or IROG: DD/MM/YYYY;
- All useful information on the availability and the regularity of the required OPMET Data;

B.13.1.6.3 If the request is declined:

- Explanation for rejecting the EUR distribution of the OPMET Data applied for.

B.13.1.7 **Date:** Deliberation date, DD/MM/YYYY.

B.13.1.8 **Name:** Name of the person endorsing the decision.

European and North Atlantic

REQUEST FOR OPMET DATA FROM AERODROMES OR FIRs/UIRs

Requesting User: .....

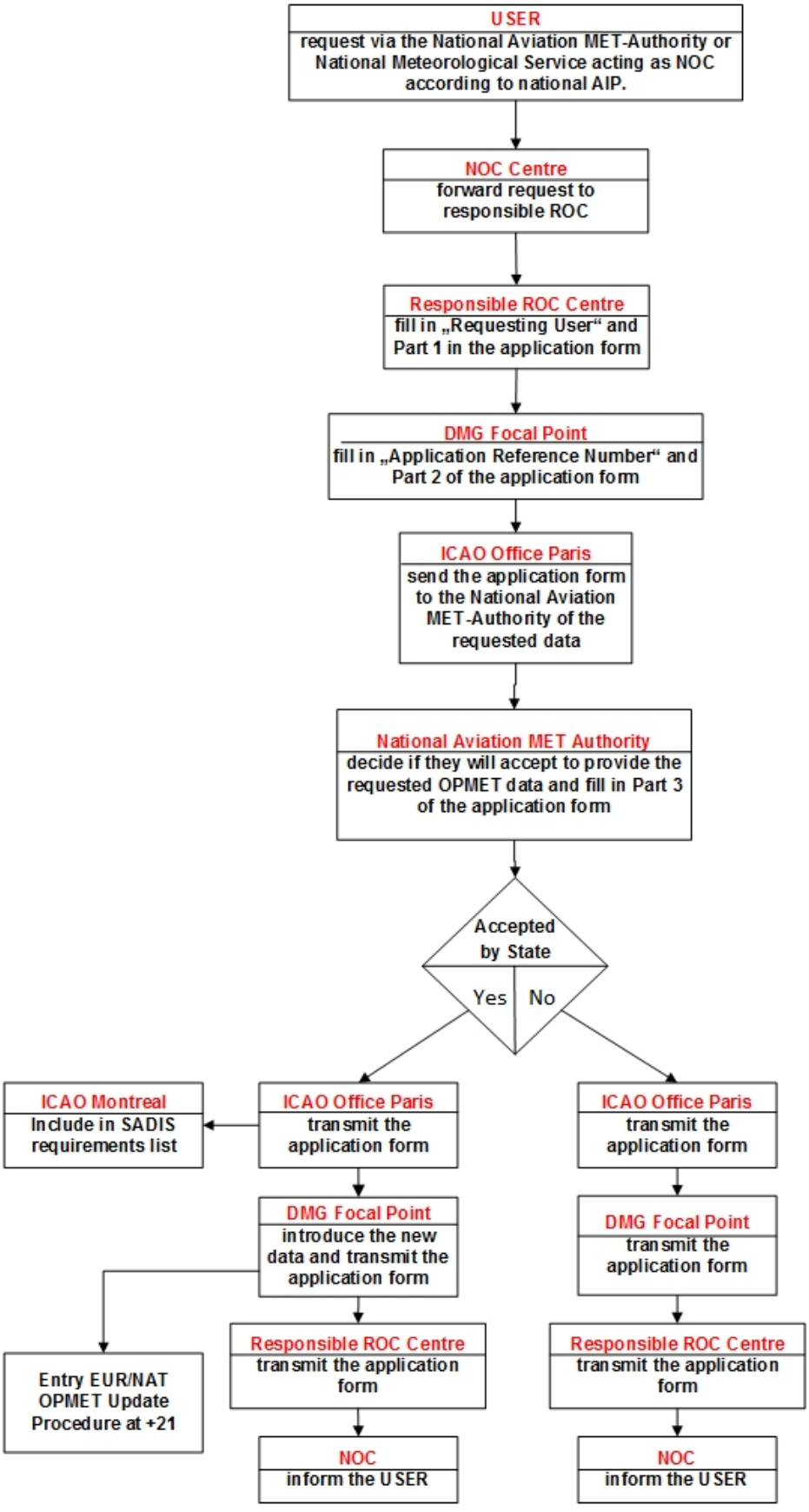
Application Reference Number: EUR OPMET Req A_1A_2 – YYYY/MM/DD – nnn

Part 1 To be completed by: **applying ROC Centre** **(Mark requested data type(s))**	Requested ICAO-Location Indicator(s): ..... Name(s) of requested aerodrome / FIR, UIR or CTA: ..... Requested Report: TAC or (TAC and IWXXM) formatted OPMET data TAC: ☐: SA / SP ☐: FC ☐: FT(24 or 30) ☐: WS/WV/WC and IWXXM: ☐: LA / LP ☐: LC ☐: LT(24 or 30) ☐: LS/LV/LY Other: ..... Reasons: .....
Part 2 To be completed by: **DMG Focal Point** ~~**(Select IROG AFTN Address)**~~ ~~**(Select IROG AMHS Address)**~~ ~~**(Select ROC AFTN / AMHS Address)**~~	**FOR Non-EUR OPMET Data** ~~AFTN – Destination Address to the European I/R OPMET Gateway Centre:~~ ~~(The AFTN Address to be used by the originating Compiling Centre in order to make available the requested OPMET data.)~~
Select IROG AFTN Address	AFTN – Destination Address to the European I/R OPMET Gateway Centre: (The AFTN Address to be used by the originating Compiling Centre to make available the requested OPMET data.)
	Choose the IROG AFTN-Address
Select IROG AMHS Address	AMHS – Destination Address to the I/R OPMET Gateway Centre: (The AMHS Address to be used by the originating Compiling Centre in order to make available the requested OPMET data.)
	Choose the IROG AMHS-Address
	FOR EUR OPMET Data

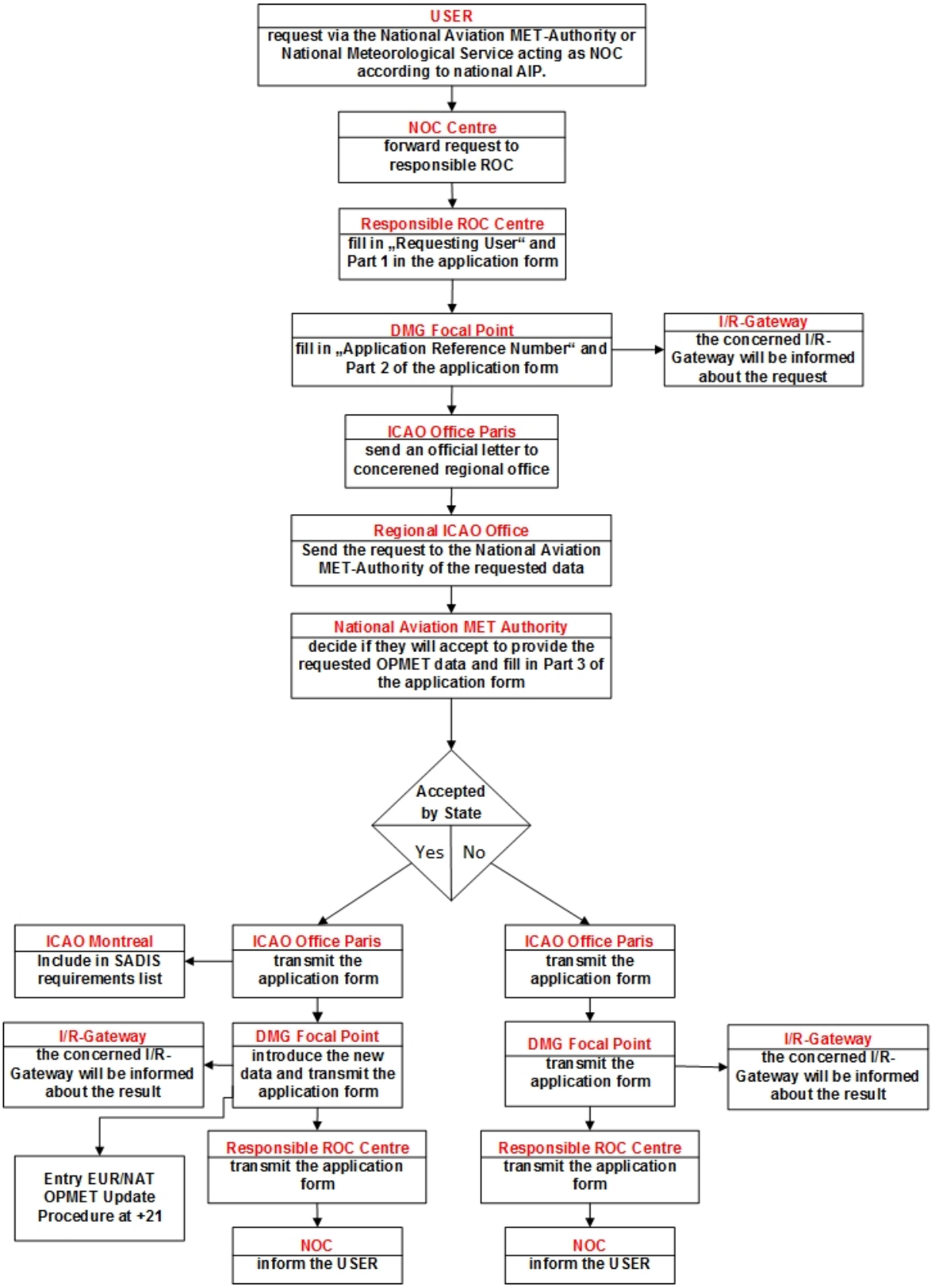
(Select ROC AFTN / AMHS Address)	AFTN/AMHS – Destination Address of the Regional OPMET Centre: ~~(☐: XX/ICAO/EG/AFTN/EGZZWPXX~~ ~~☐: XX/ICAO/AUSTRIA/LOVV/LOZZ/LOZZMMXX~~ ~~☐: XX/ICAO/FRANCE/LFLF/LFZZ/LFPWYMEU~~ ~~☐: XX/ICAO/RUSSIA/UU/UUUJ/UUUJYZYA~~ ~~(~~The AFTN/AMHS Address of the Responsible ROC Centre to be used by the originating Compiling Centre for the European distribution of the requested OPMET data.) ~~Not applicable~~ ~~(The AFTN Address of the Responsible ROC Centre to be used by the originating Compiling Centre for the European distribution of the requested OPMET data.)~~ **Choose the ROC AFTN/AMHS-Address**
Part 3 To be completed by: **Regional ICAO Office / National Aviation MET-Authority / National OPMET Centre / Responsible ROC Centre of requested OPMET data**	Regional ICAO Office: (ICAO Region/State/Location Indicator) Region of Provider State : - For the Provider State: Organization: ..... Name:……Phone:…… …… E-Mail:…….. a) The request is accepted: Bulletin Header used (TTAAii CCCC): ..... Start AIRAC Date: (DD/MM/YYYY) (Any useful information on the requested data) ..... b) The request is declined: (Because) → Please return to ICAO Office PARIS

Date: (DD/MM/YYYY) **Name:**

B.14 ATTACHMENT 6 – Flow chart for requests of EUR OPMET Data



B.15 ATTACHMENT 7 – Flow chart for requests of Non-EUR OPMET Data



C APPENDIX C - EUR OPMET Data Monitoring Procedure

C.1 Introduction

C.1.1 The DMG established the OPMET Monitoring Procedure for the European AFTN network over AMHS (Aeronautical Fixed Services: AFS) and the SADIS (**S**ecure **A**viation **D**ata **I**nformation **S**ervice).

C.1.2 The OPMET Data Monitoring Procedure regulates the DMG EUR monitoring exercises for TAC (Traditional Alphanumeric Code Form)-formatted data:

- Scheduling of co-ordinated monitoring exercises and periodicity
- Format of OPMET data monitoring results;
- Collection of OPMET data monitoring results;
- Processing of OPMET data monitoring results;
- Reporting of co-ordinated OPMET data monitoring exercises.

C.1.3 The DMG recognizes the need for IWXXM (XML formatted) data monitoring. The development of tools for IWXXM data monitoring are subject to common specifications still to be defined.

C.1.4 The procedure organises joined monitoring of the dissemination of TAC-formatted OPMET data over AFS (AFTN/AMHS) and SADIS. Whenever possible WIFS is also included.

C.1.5 The following OPMET data will be monitored:

- Routine OPMET data: TT = SA (SP), FA, FC and FT bulletins on report level, including NIL reports;
- Non-Routine OPMET data: TT = FK, FV, WA, WC, WS, WV and UA bulletins.

C.1.6 The key subjects for the monitoring exercises are:

- The compliance to the ICAO eANP Vol. II Table Met II-2 (formerly known as FASID MET2A) requirements and
- The OPMET data distribution in the EUR Region and also to the other Regions.
- The OPMET data performance indices: Availability and Timeliness, reported in the ICAO eANP Vol. III Tables MET 3-5, MET 3-6 and MET 3-7.

C.1.7 Deficiencies to the OPMET data availability and their distribution may lead to the issuance of a Problem Ticket in the Problem Handling Procedure application and to be handled by the DMG.

C.1.8 The DMG performs one EUR OPMET monitoring exercise per year.

C.1.9 The Regional OPMET Databases (the RODBs are: EBBR, LFPW and LOWM) have synchronized their monitoring of OPMET data to the terms and periods of the DMG to enable the results to be compared for optimisation of actions where necessary.

C.2 DMG EUR OPMET Monitoring Exercise Participation

C.2.1 The Regional OPMET Centres (ROCs) as well as the Inter-Regional OPMET Gateways (IROGs) are required to participate to the DMG monitoring exercises in order to enable any remedial actions in terms of the availability of ICAO eANP Vol II Table Met II-2 required OPMET data and their efficient regional and inter-regional distribution.

~~C.2.1~~C.2.2 National OPMET Centres (NOCs) may participate to the scheduled DMG OPMET monitoring exercises on a voluntary basis.

~~C.2.2~~C.2.3 The EUR RODBs not hosted by a ROC~~, if different to the AFS monitoring,~~ are expected to join the DMG periodical OPMET data monitoring exercises.

~~C.2.3A.1.1 The Regional OPMET Centres (ROCs) as well as the Inter-Regional OPMET Gateways (IROGs) are required to participate to the DMG monitoring exercises in order to enable any remedial actions in terms of the availability of ICAO eANP Vol II Table Met II-2 required OPMET data and their efficient regional and inter-regional distribution.~~

C.2.4 The SADIS OPMET programme monitoring is performed by London (EGGY) for the SADIS Provider and by Brussels (EBBR) and Bucharest (LROM) as SADIS Users.

C.2.5 NOCs / MWOs participation to the periodical DMG (Test) Warning bulletin monitoring (SIGMET & SPECIAL AIREP) are an ICAO EUR requirement. Details can be found in sections C.8 and C.9.

C.3 DMG EUR TAC OPMET Monitoring Exercises

C.3.1 General

C.3.1.1 The DMG co-ordinated OPMET monitoring exercises are subject to the ICAO International eANP Vol. II Table Met II-2 updates and to the scheduling of parental/related ICAO Working Group meetings.

C.3.1.2 Apart from the fixed EUR OPMET monitoring periods, the DMG is able to comply with special requests for flexible extra monitoring to the interest of exceptional events, such as for example Volcanic Ash SIGMET (TT = WV) tests.

C.3.2 Routine OPMET data monitoring:

- 3 days, first day starting at 00:00 UTC until last day 24:00 UTC.
- For generating ~~the SADIS and AFS~~ OPMET Performance Indices, ~~that indicate the availability and timeliness of required Routine OPMET data, the SADIS Provider and the EBBB AFTN/AMHS COM Centre perform a synchronised 14 day monitoring.~~which are in detail explained in Appendix F.

C.3.3 Non-Routine OPMET data monitoring:

- 14 days, starting the first day at 00:00 UTC till 24:00 UTC the last day.

C.3.3.1 WS-(Test) SIGMET and SPECIAL AIREP-(Test; with ii=60-69) bulletins monitoring:

- 1 day, between 08:00 and 12:00 UTC~~.~~

C.3.3.2 WV-(Test) SIGMET, SPECIAL AIREP-(Test; with ii=70-79) and FV-(Test) Volcanic Ash Advisory bulletins monitoring:

- 1 day, between 08:00 and 12:00 UTC~~.~~

C.3.3.3 WC-(Test) SIGMET and FK-(Test) Tropical Cyclone Advisory bulletins monitoring:

- 1 day, between 05:00 and 13:00 UTC

C.3.3.4 FN-(Test) Speace Weather Advisory bulletins monitoring:

- 1 day between 03:00 and 17:00 UTC

C.4 Announcement of DMG EUR Monitoring Exercises

C.4.1 The scheduled DMG OPMET monitoring exercises are published and updated in the present EUR OPMET Monitoring Procedure document. Deeming monitoring periods are announced to the NOCs via the EUR OPMET Data Update Procedure emails.

C.4.2 MWOs receive an invitation to participate to the EUR Warning Monitoring ((Test) SIGMET and (Test) SPECIAL AIREP bulletin transmission) and/or monitoring together with an information on how to provide the results to the Warning Monitoring Focal Point. The invitation is distributed via e-mail by the DMG Warning Messages Monitoring Focal Point.

C.5 OPMET Monitoring Tools

C.5.1 Monitoring Tool for TAC-formatted OPMET Data

C.5.1.1 Centres can use local available monitoring tools. In order to enable comparison of monitoring results from different centres, the DMG defined the requirements that an AFS monitoring tool needs to comply with in the Appendix D - EUR OPMET Data Monitoring Tool Specification.

C.5.1.2 The EUR OPMET Data Monitoring Tool Specification standardized three levels or modes for monitoring, differentiated by incremental details to be registered in the results:

- WMO Monitoring;
- Transmission Network Monitoring;
- Real Time Monitoring.

C.5.1.3 The details or fields obtained and registered in the monitoring results are subject to the minimum validation rules as imposed by the specifications.

C.5.2 Monitoring Tool for IWXXM OPMET Data

C.5.2.1 The IWXXM OPMET data are emerging. IWXXM OPMET data monitoring is required. However, there have not been made any specifications for the standardisation of an IWXXM OPMET data monitoring tool as yet.

C.6 EUR OPMET Monitoring Results

C.6.1 Routine and Non-Routine OPMET data monitoring

C.6.1.1 The DMG Focal Point collects the NOCs' results of the scheduled OPMET monitoring exercises. NOCs that participated to a DMG monitoring exercise are requested to send their results to the DMG FP (Contact details to be found on the ICAO Portal).

C.6.1.2 The DMG FP can only process NOC OPMET monitoring result files in compliance with the standardized output formats as implemented in the EUR OPMET Data Monitoring Tool Specification.

C.6.1.3 Considering the sizes of the monitoring output files, the resulting files shall be compressed to enable exchange via email whenever possible. For large volumes of files, exchange via Internet FTP shall be considered. It is recommended that tools register monitored OPMET data in result files per day or in files shifting every 12 hours (AM/PM).

C.6.1.4 Peripheral MWOs that participated to the EUR OPMET monitoring exercises shall forward the results to their responsible NOC for feedback to the DMG.

C.6.2 Warning Monitoring

C.6.2.1 The DMG Warning Monitoring Focal Point (@ SPAM Protection) collects the NOCs' monitoring results, provided by participants in a defined format, for analysing and deriving action plans. This format is described in chapter C.9.

C.6.3 EUR OPMET monitoring results requirements

C.6.3.1 The minimum of required details to be validated and registered is (ref.: D.2 WMO Monitoring):

- TT: Type of report SA, SP, FA, FC, FT for Routine OPMET data and FK, FV, WA, WC, WS, WV and UA for Non-Routine OPMET data;
- AAii: bulletin WMO-area and number;
- CCCC: Compiling Station;
- YYGGgg: date and time from the Abbreviated Header;
- BBB: Remark Group, if occurring in the Abbreviated Header;
- Report Station / FIR: the report ICAO Location Indicator or FIR / UIR / CTA as applicable;
- Report Time: Report-Date-Time Group for Routine OPMET data;
- TAF Validity Period: for FC and FT TAFs
- NIL or TEST: indication of NIL Routine reports or Test Non-Routine bulletins.

C.6.4 EUR OPMET monitoring results delivery

C.6.4.1 The output format of the monitoring results should be in compliance with the requirements as specified in the Appendix D - EUR OPMET Data Monitoring Tool Specification.

C.6.4.2 NOCs / MWOs shall send the OPMET monitoring results at the latest 14 days after the DMG monitoring period.

C.7 Scope of the EUR OPMET Monitoring Exercises

C.7.1 The results of the DMG OPMET monitoring exercises can be used as the input for dedicated Work Packages and special quality and quantity inquiries like the following:

- The compliancy of OPMET data monitored in the EUR-Region with the EUR OPMET Data Update Procedure;
- The efficient distribution of regional and inter-regional OPMET data in the EUR Region in accordance with the EUR OPMET Data Distribution Determination Procedure: distribution responsibilities, routeing, AFTN-formats;
- EUR OPMET Databases Brussels, Toulouse and Vienna: Interface Control Document, storage and retrieval of OPMET data, eANP-Tables, database catalogues;
- Optimisation of OPMET bulletins: duplication of data, WMO-formats, compilation and re-compilation of bulletins, separation of AOP required and Non-AOP OPMET data in different bulletins;
- AFTN and SADIS Performance Indices: availability and regularity of OPMET data on the EUR AFS-network and SADIS;
- Routeing and formatting of safety related OPMET Data: WS- and WV-SIGMETs;
- The efficiency of the Volcanic Ash procedure at European ATC Centres;

- Compilation and updating of various OPMET catalogues: SADIS User Guide Annexes 2 & 3, DMG working tables, registers and inventories all kinds.

C.7.2 The DMG evaluates the monitoring results and proposes corrective actions in order to improve the OPMET data exchanges. The DMG also refines the procedures for OPMET Data Monitoring as appropriate.

C.7.3 Beyond the DMG scheduled monitoring period, monitoring, in accordance with the DMG specifications, can be asked for by METG to check or reveal potential problems, as for example:

- RMK-group monitoring
- Runway State Group monitoring
- METAR Observation Time monitoring.

C.7.4 The OPMET Performance Indices are generated based on the scheduled DMG Routine OPMET data monitoring results, for which a co-ordinated fourteen days period (performed by SADIS Provider and the EBBB AFTN/AMHS COM Centre) is required.

C.7.5 The EBBR and EGGY AFTN Routine OPMET data monitoring results are taken as the reference for AFS in Europe.

C.7.6 For SADIS, the Performance Indices are based on the EGGY, the EBBR and LROM SADIS Routine OPMET data monitoring results.

C.7.7 The SADIS User Guide Annexes 2 & 3 are generated based on the EGGY and/or EBBR SADIS monitoring results of the scheduled DMG EUR OPMET monitoring exercises.

C.8 DMG EUR OPMET Monitoring Periods Scheduled

C.8.1 The DMG plans the EUR OPMET monitoring periods with respect to established correlations to

- The annual METG meeting;
- The MET Panel meeting;
- The DMG meetings, three times per year;
- The scheduled updates of the ICAO Table Met II-2 OPMET data requirements.

and the output expected from the monitoring exercises:

- RODB Catalogue updates;
- SUG Annexes 2 & 3 updates;
- Performance Indices: AFTN and SADIS;
- DMG action plans.

C.8.2 The EUR OPMET monitoring exercises schedule

DMG EUR OPMET Monitoring Exercises: yearly			
Routine data	**Non-Routine data**	**Warning message monitoring**	
		(Test) WS SIGMET and Test SPECIAL AIREP (ii=[60-69])	**(Test) TCA, SWXA, VAA, WV SIGMET and Test SPECIAL AIREP (ii=[70-79])**
01 – 03 February	01 – 14 February	first Wednesday of the monitoring period between 08:00 and 12:00 UTC	Thursday after the WS SIGMET test, between 038:00 and 172:00 UTC
ICAO OPMET Performance Indices			
METAR and TAFs	eANP METAR and FC/FT TAF requirements monitoring		01 – 14 February
SIGMETs	eANP SIGMET requirements monitoring		5 Months: September - January

C.8.2.1 Routine OPMET Data monitoring period: TT = SA, SP, FC and FT

C.8.2.1.1 01 – 03 February: monitoring receipt of all Routine OPMET Data via AFS (AFTN over AMHS).

C.8.2.1.2 For eANP required data, the DMG can report on deficiencies by means of remedial actions by means of Problem Tickets with the Problem Handling Procedure application.

C.8.2.2 Non-Routine OPMET Data monitoring period: TT = FK, FV, WA, WC, WS, WV and UA

C.8.2.2.1 01 – 14 February: monitoring of all Non-Routine OPMET Data received via AFS (AFTN over AMHS).

C.8.2.2.2 Deficiencies can be reported in the Problem Handling Procedure application to be dealt with by the DMG.

C.8.2.3 Warning message monitoring: Test WS, Test WV and Test UAs

C.8.2.3.1 On the first Wednesday and the subsequent Thursday of the DMG Data monitoring period ~~the day after, both in the same week between 01 and 14 February~~: monitoring of (TEST) WS-SIGMETS, (TEST) WV-SIGMETs, (TEST) WC-SIGMETs, (TEST) SPECIAL AIREPs, (TEST) Volcanic Ash (VAA), Space Weather (SWXA) and Tropical Cyclone (TCA) Advisories.

C.8.2.3.2 ~~(TEST) WS-SIGMET and (TEST) UA-AIREP monitoring date: on the first Wednesday between 01 and 02 February at 10:00 UTC, MWOs shall first issue a Test SPECIAL AIREP bulletin (TT = UA, ii=60-69) followed by a Test SIGMET bulletin (TT = WS) for FIRs / UIRs within the area of responsibility.~~Further details can be found in chapter C.9.

~~C.8.2.3.3 In the same week between 01 and 02 February, on Thursday at 10:00 UTC~~

- ~~the Toulouse and London Volcanic Ash Advisory Centres (VAACs) should issue a Test Volcanic Ash Advisory bulletin (TT = FV) to be monitored upon by the MWOs participating to the WV-SIGMET Test monitoring exercise:~~
  - ~~VAAC Toulouse: FVXX0[1-4] LFPW;~~
  - ~~VAAC London (Backup): FVXX0[1-4] EGRR.~~
- ~~MWOs shall, at the same time, independent of any FV-message received, issue a Test SPECIAL AIREP bulletin (TT = UA, ii=70-79) followed by a Test SIGMET bulletin (TT = WV) for FIRs/UIRs within the area of responsibility.~~

~~C.8.2.3.4~~C.8.2.3.3 The DMG reports on perceived deficiencies by means of PHP (Problem Handling Procedure) application tickets for remedial action.

C.8.2.4 ICAO OPMET Performance Indices monitoring period

C.8.2.4.1 For the calculation of the eANP Volume III ICAO EUR OPMET Performance Indices: Availability and Timeliness, the DMG registers the receipt and time of required METARs, TAFs and SIGMETS during relevant periods:

- For ICAO Doc 7754 Volume II Table MET II-2 eANP AOP required SA-METAR and FC/FT-TAFs: EBBR 14-day monitoring on AFS (AFTN via AMHS) from 01 till 14 February.
- SIGMETs: LFPW 5 month monitoring on AFS (AFTN via AMHS) from September till January.

C.8.2.4.2 The DMG reports the ICAO OPMET Performance Indices to the yearly METG meeting for quality and possible remedial actions.

C.9 DMG Warning Monitoring Procedure

C.9.1 Reminding action

C.9.1.1 The Warning Monitoring Focal Point always informs the national focal points at least 2 weeks prior to the actual exercise via e-mail. In case of any updates to the procedure the focal point will highlight those accordingly. Otherwise centres are strongly requested to follow the rules ~~in order to~~to enable the Warning Monitoring Focal Point to generate results with as less effort as possible. The format~~, in which~~ to provide the national results ~~shall be provided,~~ has been defined in such a way, that the overall results can be produced automatically.

C.9.2 General Information

C.9.2.1 Regular SIGMET and SPECIAL AIREP Monitoring Exercises are used to check the routing of th~~e~~e~~o~~se messages within the ICAO EUR ~~and MID~~ Region. Based on the results, the routings are updated to ensure the dissemination to all centres.

C.9.2.2 The SIGMET~~, and~~ SPECIAL AIREP and Advisory Monitoring Exercise is conducted on a yearly basis during the Data Management Group (DMG) OPMET Monitoring period ~~from~~ **(1 to 14 February)**.

C.9.2.3 The **WS-SIGMET** and **SPECIAL AIREP** (ii=60-69) monitoring test is conducted on the **first Wednesday** of the DMG OPMET Monitoring period.~~.~~

C.9.2.4 The **WV-SIGMET**~~, and~~ **(VA) SPECIAL AIREP** (ii=70-79) and **VA-Advisory** monitoring is conducted on the **day immediately after** the WS-SIGMET monitoring exercise~~.~~ together with the **WC-SIGMET**, **TC-Advisory** and the **SWX-Advisory** monitoring.

C.9.2.5 The exact date is promulgated by the Warning Monitoring Focal Point two~~2~~ weeks in advance to all Warning Monitoring Focal Points via e-mail. ~~Note that in the MID Region, a State letter will be issued to MID States (cc'd to SIGMET focal points) at least 1 month in advance of the tests.~~ The monitoring starts ~~both~~

- on the first days at 0800 UTC and ends at 1200 UTC
- on the second day at 0300 UTC and ends at 1700 UTC~~.~~

~~C.9.2.5~~C.9.2.6 For the WS-SIGMET and SPECIAL AIREP (ii=60-69) monitoring, the Meteorological Watch Offices (MWOs) are requested to send their test SPECIAL AIREP bulletin(s) at 1000 UTC, immediately followed by (a) WS-SIGMET bulletin(s). One SIGMET should be issued for each FIR/UIR.~~-~~ The format for a SPECIAL AIREP-message is explained under paragraph C.9.3, the format of the WS-test messages under paragraph C.9.4.

~~C.9.2.6~~C.9.2.7 For the WV-SIGMET and SPECIAL AIREP for Volcanic Ash(ii=70-79) monitoring as well as the WC-SIGMET, the responsible Meteorological Watch Offices (MWOs) are requested to send, independent of any test advisory message, their test SPECIAL AIREP bulletin(s) at 1000 UTC, immediately followed by (a) test WV-SIGMET bulletin(s) and, where applicable, a test WC-SIGMET. One SIGMET should be issued for each FIR and/or UIR. The format for a SPECIAL AIREP-test message is explained under paragraph C.9.3, the format for a ~~WS~~SIGMET-test message under paragraph C.9.4.

C.9.2.8 ~~Additionally,~~ Volcanic Ash Advisory Centres (VAAC) Toulouse and London ~~are requested to~~will send a test Volcanic Ash Advisory (FV-bulletin) at 1000 UTC on the second day of the exercise. An example of the FV-test message is ~~shown~~ presented under paragraph C.9.5.

~~C.9.2.7~~C.9.2.9 Tropical Advisory Centre (TCAC) Tokyo will send a test Tropical Cyclone Advisory (FK-bulletin) at 0600 UTC and TCAC Miami at 1200 UTC on the second day of the exercise. An example of the FK-test message is presented under paragraph

~~C.9.2.8~~C.9.2.10 ~~Further in a~~Additionally, the~~,~~ Space Weather Centres (SWXC) ~~of the PECASUS, NOAA/SWPC and ACFJ consortiums~~ are ~~requested~~ invited to send a test Space Weather Advisory (FN-bulletin) within the period 0~~3~~8 UTC and 1~~7~~2 UTC. This time range is necessary as only the active SWXC is operational on a H24-basis. The other centres are only available during the day. The SWXC are spread over the whole globe making it therefore impossible that all centres send the test message at the same time. An example of the FN-test message is ~~shown~~ presented under paragraph C.9.6.

~~C.9.2.9~~C.9.2.11 The format to be used by monitoring centres to send the monitoring results to the Focal Point can be found under paragraph C.9.7.

C.9.3 Format of the SPECIAL AIREP Test Message

C.9.3.1 There are a few rules that a SPECIAL AIREP message should adhere to.

- Only one test SPECIAL AIREP should be issued per monitoring day;
- The correct ii should be used:
  - ii=60-69 on Wednesday for UAs regarding non-volcanic ash reports
  - ii=70-79 on Thursday for UAs regarding volcanic ash reports
- The correct test format should be used;
- It should be sent at 1000 UTC;

C.9.3.2 Examples of SPECIAL AIREPs for non-volcanic ash reports

```
UADN61 EKCH 061000
ARS
TEST SPECIAL AIREP PLEASE DISREGARD=
```

Or

```
UAKW61 OKBK 061000
ARS
TEST SPECIAL AIREP PLEASE DISREGARD=
```

C.9.3.3 Examples of SPECIAL AIREPs for volcanic ash reports

```
UADN71 EKCH 071000
ARS
TEST SPECIAL VA-AIREP PLEASE DISREGARD=
```

Or

```
UAKW71 OKBK 071000
ARS
TEST SPECIAL VA-AIREP PLEASE DISREGARD=
```

C.9.4 Format of WS/WV-SIGMET Test Messages

C.9.4.1 There are a few rules that test WS/WV-SIGMET messages should adhere to:

- One test SIGMET should be issued for each Flight Information Region (FIR) and Upper Flight Information Region (UIR) under the area of responsibility of the MWO;
- The **correct test format** should be used;
- It should be sent at **1000 UTC** immediately **after** the UA-test message; and
- The validity period should be from **1100 to 1105** in order to not lose delayed test messages.
- If the sequence number is used in the format [n][n]n (e.g. A01, T19,M03,..) it is recommended to use the letter "Z" when issuing the WS-test message and the letter "Y" when issuing WV-test messages

C.9.4.2 Following are some examples on how test SIGMET messages should be composed.

C.9.4.2.1 If there is no current or previously valid SIGMET for the FIR/UIR concerned (i.e. if no SIGMET has been issued prior to the test commencing), then a test WS-SIGMET shall be transmitted with sequence number (n)= **1** or **01** or **Z01**. Please take also care of including **FIR/UIR-Indicator and FIR/UIR name** in the third line as this is the correct format for SIGMET messages according to ICAO Annex 3 – *Meteorological Service for International Air Navigation and the EUR Doc 014 (EUR SIGMET and AIRMET Guide)*.

Example:

```
WSTU31 LTBA 061000
LTBB SIGMET 1 VALID 061100/061105 LTBA-
LTBB ISTANBUL FIR TEST=

WVDL32 EDZF 071000
EDUU SIGMET Z01 VALID 071100/071105 EDZF-
EDUU RHEIN UIR TEST=
```

C.9.4.2.2 If there is a currently valid SIGMET in force for the FIR/UIR concerned and no characters are used within the sequence number, the test SIGMET must be issued with the next consecutive sequence number.

Example valid WS-SIGMET:

```
WSAL31 DAAA 050750
DAAA SIGMET 2 VALID 050800/051200 DAMM-
DAAA ALGER FIR SEV TURB FCST…=
```

Example TEST WS-SIGMET:

```
WSAL31 DAAA 051000
DAAA SIGMET 3 VALID 051100/051105 DAMM-
DAAA ALGER FIR TEST=
```

Example valid WV-SIGMET:

```
WVUR31 UKBW 060950
UKBV SIGMET 1 VALID 061000/061400 UKBW-
UKBV KYIV FIR/UIR VA CLD …=
```

Example TEST WV-SIGMET:

```
WVUR31 UKBW 061000
UKBV SIGMET 2 VALID 061100/061105 UKBW-
UKBV KYIV FIR/UIR TEST=
```

C.9.4.2.3 If there is a currently valid SIGMET in force for the FIR/UIR concerned and characters are used within the sequence number, the test SIGMET should be issued by using the characters suggested under C.9.4.1. If there has been issued a test-message already that day, the sequence number must be increased.

Example TEST WS-SIGMET:

```
WSUK31 EGRR 051000
EGTT SIGMET Z02 VALID 051100/051105 EGRR-
EGTT LONDON FIR TEST=
```

Example TEST WV-SIGMET:

```
WVDL32 EDZH 061000
EDVV SIGMET Y01 VALID 061100/061105 EDZH-
EDVV HANNOVER UIR TEST=
```

C.9.5 Format of Volcanic Ash Advisory Test Message

C.9.5.1 On the second monitoring day (Volcanic Ash SIGMET and ARS), the VAACs Toulouse and VAAC London are asked to send test FV- messages.

C.9.5.2 This should be done around 1000 UTC. The message itself will look like the following example. **Note that the ii used for those messages can vary between 01 and 05**.

C.9.5.3 Example FV-message

```
FVXX01 LFPW 061020
VA ADVISORY
STATUS: TEST
DTG: 20200206/1020
VAAC: TOULOUSE
VOLCANO: UNKNOWN
PSN: UNKNOWN
AREA: EUR REGION
SUMMIT ELEV: UNKNOWN
ADVISORY NR: 2020/00
INFO SOURCE: TEST EUR DMG
AVIATION COLOUR CODE: UNKNOWN
ERUPTION DETAILS: TEST EUR DMG
```

```
OBS VA DTG: 06/1020Z
OBS VA CLD: NO VA EXP
FCST VA CLD +6 HR: 06/1620Z NO VA EXP
FCST VA CLD +12 HR: 06/2220Z NO VA EXP
FCST VA CLD +18 HR: 07/0420Z NO VA EXP
RMK: REGULAR DMG VA TEST
TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST
NEXT ADVISORY: NO FURTHER ADVISORY=
```

C.9.6 Format of Tropical Cyclone Advisory Message

C.9.6.1 On the second monitoring day, the TCACs Tokyo and Miami are asked to send FK-messages at 06 UTC (TCAC Tokyo) and 12 UTC (TCAC Miami).

C.9.6.2 One of the following headers per TCAC can be expected:

- FKPQ3[0-5] RJTD
- FKNT2[1-4] KNHC

C.9.6.3 Example FK-message

```
FKPQ30 RJTD 120600
TC ADVISORY
STATUS: TEST
DTG: 20210512/0600Z
TCAC: TOKYO
TC: TEST
ADVISORY NR: 2021/01
OBS PSN: NIL
CB: NIL
MOV: NIL
C: NIL
MAX WIND: NIL
FCST PSN +6HR: NIL
FCST MAX WIND +6HR: NIL
FCST PSN +12HR: NIL
FCST MAX WIND +12HR: NIL
FCST PSN +18HR: NIL
FCST MAX WIND +18HR: NIL
FCST PSN +24HR: NIL
FCST MAX WIND +24HR: NIL
RMK: THIS IS A TC ADVISORY TEST MSG. PLEASE DISREGARD.
NXT MSG: NIL=
```

~~C.9.6~~C.9.7 Format of Space Weather Advisory Test Message

~~C.9.6.1~~C.9.7.1 On the second monitoring day, all Space Weather Advisory Centres (PECASUS, NOAA/SWPC, ACFJ) are asked to send test FN- messages.

~~C.9.6.2~~C.9.7.2 This should be done between 0800 UTC and 1200 UTC. The message itself will look like the following example. Note that there are four different bulletin headers to be expected and that the ii can vary:

- FNXX0[1-4] EFKL
- FNXX0[1-4]~~1~~ KWNP
- FNXX0[1-4]~~1~~ YMMC
- FNXX0[1-4]~~1~~ LFPW

- FNXX0[1-4] ZBBB
- FNXX0[1-4] UUAG

~~C.9.6.3~~C.9.7.3 Example FN-message

```
FNXX01 EFKL 060810
SWX ADVISORY
STATUS:          TEST
DTG:             20200206/0810Z
SWXC:            PECASUS
ADVISORY NR:     2020/1
SWX EFFECT:      GNSS SEV
OBS SWX:         06/0810Z HNH HSH W180-E180
FCST SWX + 6 HR: 06/1400Z NO SWX EXP
FCST SWX + 12 HR: 06/2000Z NO SWX EXP
FCST SWX + 18 HR: 07/0200Z NO SWX EXP
FCST SWX + 24 HR: 07/0800Z NO SWX EXP
RMK:             TEST TEST TEST. THIS IS A TEST SPACE WEATHER ADVISORY.
NXT ADVISORY:    NO FURTHER ADVISORIES=
```

~~C.9.7~~C.9.8 Format for SIGMET Test Message Monitoring Results

~~C.9.7.1~~C.9.8.1 The format ~~Until 2015 simple EXCEL sheets have been used~~ to provide the results to the Warning Monitoring Focal Point has been aligned with the long existing format used for the DMG-Non-Routine Data Monitoring. Details on this format can be found in "D.2.8 Output Format". ~~As this is far from an efficient state of the art way to do the monitoring (many centres have to fill in that form by hand), this has been changed.~~

~~C.9.7.2~~C.9.8.2 Centres, participating at the monitoring exercise, are asked to provide their results by sending the information about the monitored data in a dedicated .csv formatted file per monitoring day:

- One file for the first Warning-Monitoring-Day, with all monitored WS- and UA-messages
- One file for the second Warning Monitoring-Day, with all monitored FV-, FN-, FK-, WV-, WC- and UA-messages

~~C.9.7.3~~C.9.8.3 The file naming rules can be found in section C.9.6.9.

~~C.9.7.4 Directives on compiling the monitoring results~~

~~C.9.7.4.1 Each field of the .csv file shall be separated by a semicolon (;).~~

~~C.9.7.4.2 The first line shall hold the field description as defined in the first column of the table in section C.9.6.6.~~

~~C.9.7.4.3 Example of the first line~~

~~*TT;AAii;CCCC;YYGGgg;BBB;ReceptionTime;Source;Test;ATSU;MWO;FIRIndicator;FIRName;RecvdFrom*~~

~~C.9.7.5 The actual monitoring details should start from the second line.~~

~~C.9.7.6 Per monitored message (WS, WV, UA, FV or FN), a separate line with the following information shall be provided:~~

~~Field~~	~~Length~~	~~(M)andatory/ (O)ptional~~	~~Remark~~
~~TT~~	~~2~~	~~M~~	
~~AAii~~	~~4~~	~~M~~	
~~CCCC~~	~~4~~	~~M~~	
~~YYGGgg~~	~~6~~	~~M~~	
~~BBB~~	~~3~~	~~M~~	~~Content of field per default BBB~~
~~ReceptionTime~~	~~6~~	~~M~~	~~Format: HHMMss~~
~~Source~~	~~1~~	~~M~~	~~A=AFS (AFTN/AMHS), S=SADIS, G=GTS, O=Other~~
~~Test~~	~~1~~	~~M~~	~~Y=Test message N=Actual message~~
~~ATSU~~	~~4~~	~~O~~	~~Air Traffic Services Unit, Indicator at beginning of first line after the header~~
~~MWO~~	~~4~~	~~O~~	~~MWO Indicator at the end of the first line after the header, just before the hyphen (-)~~
~~FIRIndicator~~	~~4~~	~~O~~	~~FIR/UIR Indicator at beginning of second line after the header~~
~~FIRName~~	~~50~~	~~O~~	~~As received in the SIGMET~~
~~RecvdFrom~~	~~8~~	~~O~~	~~AFTN Address of the Originator or CCCC of the GTS Centre the message has been received from. In case of GTS Centre, the last 4 digits shall be filled with ****~~

Field	Name	Length	Comment
TT	TT	2	
AAii	AAii	4	
CCCC	CCCC	4	
YYGGgg	YYGGgg	6	Filing time
BBB	BBB	3	Pad with 3 spaces if not implemented
Report “BBB”	ReportBBB	3	Pad with 3 spaces if not implemented
Report Station / FIR	Locind	4	Pad with spaces for bulletins that do not contain this information
Report Date Time	ReportTime	6	Only for routine types
TAF Validity Period	ValidityPeriod	8	Only required for FT and FC bulletins
NIL or TEST	NIL	3	Either ‘ ‘, ‘NIL’ or ‘TST’
Channel ID	ChannelId	3	AFTN only
Sequence Number	SeqNo	5	Pad with leading zeros to 5 digits
Priority	Priority	2	AFTN only
Filing Time	FileTime	6	AFTN only
Receipt Time	RxTime	6	End system UTC time on receipt: HHMMSS.
Transmission Network	Origin	8	Either AFTN origin address, ‘SADIS’, ‘GTS’ or ‘OTHER’
ATSU Location Indicator	ATSU	4	Must be present and consist of 4 alphabetical capital letters.
MWO Location Indicator	MWO	4	Must consist of 4 alphabetical capital letters.
FIR/UIR name	FIR_Name	50	All words characters between the FIR/UIR Location Indicator and preceding the "FIR" keyword are taken as parts of the FIR/UIR name.

Field	Name	Length	Comment
Remarks	RMK	(30)	Any information the monitoring centre finds feasible

~~C.9.7.6.1~~C.9.8.3.1 Examples for monitored data in the .csv format

WS;NO34;ENMI;021000;BBB;100123;A;Y;ENBD;ENVV;ENOR;NORWAY FIR;EGGYYBYA

*WS;RS31;RUSP;021139;CCA;114154;G;N;ULLL;ULLI;ULLL;SAINT-PETERSBURG FIR;OKPR*****

WS;KW10;OKBK;061000;BBB;061001;A;Y;OKBK;OKBK;OKAC;KUWAIT;OEJDYMYX

~~C.9.7.7~~C.9.8.4 ~~In the past, it was asked to only report the first reception of a certain SIGMET. Now o~~One message~~SIGMET~~ shall be as often in the results as it has been received e.g. also from other sources. ~~There are no more restrictions.~~

~~C.9.7.8~~C.9.8.5 ~~Furthermore, t~~There are no~~ more~~ restrictions to just monitor EUR-messages. All warning messages received during the monitoring period can be reported. Any ~~F~~filtering will be done ~~is up to~~by the Warning Monitoring FP.

~~C.9.7.9~~C.9.8.6 File Naming

~~C.9.7.9.1~~C.9.8.6.1 The .csv file holding the results for the WS-monitoring day **shall be** named as follows:

WS-Monitoring-YYYYMMDD-CCCC.csv (e.g. WS-Monitoring-20160902-EDZW.csv)

~~C.9.7.9.2~~C.9.8.6.2 Similarly, the results for the WV-monitoring shall be named as follows:

WV-Monitoring-YYYYMMDD-CCCC.csv

~~C.9.7.9.3~~C.9.8.6.3 It is **essential** to use this format as it is needed to support the automated handling of the results.

~~C.9.7.10~~C.9.8.7 (Non-)Required Warning-messages

~~C.9.7.10.1~~C.9.8.7.1 As some centres may not have a need for all available warning messages from the EUR-Region, the Warning Monitoring Focal Point will provide a list per State identifying the requirements, based on the past monitoring exercises. States will be asked to check this list and report back any incorrect or missing entries. Such list will NOT be provided for Non-EUR-warning messages.

~~C.9.7.11~~C.9.8.8 Using EXCEL to provide monitoring results

~~C.9.7.11.1~~C.9.8.8.1 As not all centres are able to use automated tools for providing the monitored data, there is the possibility to use an EXCEL-file. But this should only be an interim solution and not be continued for all time as this solution puts more unduly workload on the Monitoring Focal Point. The template is available from the DMG-homepage and looks as follows, with some examples for explanation:

TT	AAii	CCCC	YYGGgg	BBB	ReportBBB	Locind	ReportTime	ValidityPeriod	NIL	ChannleId	SeqNo	Priority	FileTime	RxTime	Origin	ATSU	MWO	FIR_Name	RMK
WS	BZ31	SBGL	030307			SBCW	030310							031200	GTS	SBCW	SBCW	CURITIBA	
UA	RA61	RUHB	030311				030311							031200	GTS				
WA	IY31	LIIB	030311			LIMM	030330					FF	030312	031204	LFPWYMEU	LIMM	LIIP	MILANO	
WS	BZ31	SBGL	030312			SBAO	030310					FF	030312	031222	EGGYYBYA	SBAO	SBAO	ATLANTICO	
WA	IY31	LIIB	030312			LIMM	030330					FF	030312	031236	LFPWYMEU	LIMM	LIIP	MILANO	
WS	BZ31	SBGL	030307			SBCW	030310							031300	GTS	SBCW	SBCW	CURITIBA	
WS	BZ31	SBGL	030307			SBCW	030310							031300	GTS	SBCW	SBCW	CURITIBA	
WA	IY31	LIIB	030315			LIMM	030330					FF	030313	031314	LFPWYMEU	LIMM	LIIP	MILANO	
WS	AU21	YMMC	030309			YMMM	030348							031400	GTS	YMMM	YMMC	MELBOURNE	

TTAAiiCCCC	YYGGgg	BBB	ReceptionTime	Source	Test	ATSU	MWO	FIRIndicator	FIRName	RecvdFrom		Mandatory Fields	Optional Fields
WSNO34ENMI	021000	BBB	100123	A	Y	ENBD	ENVV	ENOR	NORWAY FIR	EGGYYBYA			
WSIL31BICC	021004	BBB	101612	A	N								
WSRS31RUSP	021129	CCA	113154	G	N	ULLL	ULLI	ULLL	SAINT-PETERSBURG FIR	OKPR****			
UAIE61EIDB	021133	BBB	113727	A	N					EGGYYBYA			

~~C.9.7.12~~C.9.8.9 **No additional fields** must be added as this might cause problems for the automated analysing. If there is a need for additional information, please provide this as text in the mail when sending the results.

~~C.9.7.13~~C.9.8.10 In case of multiple reception of a bulletin via different sources, one line per reception should be used, indicating the source . ~~**Only one single character** (A/S/G)~~ in the "~~Source~~Origin" field ~~like it has been done in the old EXCEL file~~by indicating either the AFTN-address of the originating centre, "SADIS", "GTS" or "OTHER".

~~C.9.7.14 In case of reception via SADIS, it is not necessary to have an entry in the "RecvdFrom" field. It can be left blank.~~

~~C.9.7.15 The EXCEL file is provided with a macro. There might be a warning, asking you to activate macros in order to use it.~~

~~C.9.7.16 By pressing "CTRL+SHIFT+W" the macro is automatically started and the "*Save as…*" window will open. Just choose the folder where you want to save the results in csv, give it the correct filename (see section 5.6) and save it.~~

~~C.9.7.17 This file can now be sent to the Warning Monitoring Focal Point via email. As an example, the above EXCEL file has been converted. The result can be seen in the following screenshot.~~

Datei Bearbeiten Format Ansicht

```
"TT";"Aaii";"CCCC";"YYGGgg";"BBB";"ReceptionTime";"Source";"Test";"ATSU";"MWO";"FIRIndicator";"FIRName";"RecvdFrom";"";"Mandatory Fields";"Optional Fields"
"WS";"NO34";"ENMI";"021000";"BBB";"100123";"A";"Y";"ENBD";"ENVV";"ENOR";"NORWAY FIR";"EGGYYBYA";"";"";""
"WS";"IL31";"BICC";"021004";"BBB";"101612";"A";"N";"";"";"";"";"";"";"";""
"WS";"RS31";"RUSP";"021129";"CCA";"113154";"G";"N";"ULLL";"ULLI";"ULLL";"SAINT-PETERSBURG FIR";"OKPR****";"";"";""
"UA";"IE61";"EIDB";"021133";"BBB";"113727";"A";"N";"";"";"";"";"EGGYYBYA";"";"";""
```

~~C.9.7.18 In case of interdiction~~it is forbidden to run the macro due to company security regulations, you may also send the EXCEL file itself. In such case, the filename should be strictly conforming to the requirement expressed in section 5.6~~C.9.8.9.1 respectively C.9.8.9.2.~~

~~C.9.7.19~~C.9.8.11 It would be very much appreciated if respondents could send the monitoring results as soon as possible to the SIGMET monitoring focal point, and in any case **NO LATER THAN ONE MONTH AFTER THE MONITORING DATE**.

~~C.9.7.20~~C.9.8.12 For any further information, you can contact the Warning Monitoring Focal Point Mr. Michael Pichler (ROC/IROG Vienna) or Mr. Christopher Keohan (ICAO Regional Officer, MET). Contact details can be found on the ICAO Portal.

D APPENDIX D - EUR OPMET Data Monitoring Tool Specification

D.1 Introduction

D.1.1 This specification is the result of a 3-phased development of a DMG TAC OPMET data AFTN monitoring tool: 1 - the WMO bulletin, 2 - the monitoring of the transmission network envelope and 3 - real-time monitoring. Each phase built upon the previous in terms of what data is to be parsed and logged from WMO formatted bulletins distributed over AFTN.

D.1.2 The Regional OPMET Centres (ROCs) and Regional OPMET Data Bases (RODBs) are expected to participate in the DMG scheduled OPMET Data Monitoring exercises (Ref.: EUR Doc 018, APPENDIX C EUR OPMET Data Monitoring Procedure.) The output of the monitoring tools in use have to be compliant to the DMG EUR OPMET Data Monitoring Tool Specification for comparability and to enable automated processing. National OPMET Centres can contribute to the DMG monitoring exercises voluntarily and when compliant with the specification. Also, the output of monitoring TAC OPMET data on SADIS has to be compliant.

D.1.3 The output of the TAC OPMET Data Monitoring Tools is to serve the DMG Terms of References regarding the efficient, optimised distribution of TAC OPMET data and for the validation of its standardised WMO-format enabling automated processing for multi-domain purposes. The meteorological contents of the OPMET data is beyond the scope of the monitoring tools.

D.1.4 Amendment 77 recommends the international exchange of XML-formatted METAR/SPECI, TAF, AIRMET and SIGMET, VAA and TCA from November 2016. Ever since, there is a need for a IWXXM data monitoring tool in parallel of the established TAC OPMET Data Monitoring Tools.

D.1.4.1 Because the IWXXM data are a translation of the equivalent TAC OPMET bulletins, the IWXXM fields of interest include those of the corresponding fields in the original TAC formatted bulletins.

D.1.5 Tables 1 and 2 show the WMO OPMET message data types to be monitored together with the corresponding IWXXM data types.

Type	Bulletin	IWXXM
FC	9 Hour TAF Short Term Forecast report	LC
FT	24/30 TAF Hour Long Term Forecast report	LT
SA	METAR observation	LA
SP	SPECI, special METAR observation	LP

Table 1: Routine OPMET and IWXXM Data Types

Type	Bulletin	IWXXM
FA	GAMET	--
FK	Tropical Cyclone Advisory	LK
FV	Volcanic Ash Advisoryies	~~LV~~LU
FN	Space Weather Advisoryies	LN
NO	System administration message	--
WA	AIRMET	LW
WC	Tropical Cyclone SIGMET	LY
WS	SIGMET	LS
WT	Tropical Cyclone (Typhoon/Hurricane)	LT
WV	Volcanic Ash SIGMET	LV

UA	Special AIREP	--

Table 2: Non-Routine OPMET and IWXXM Data Types

D.2 TAC OPMET Data Monitoring Tool Requirements

D.2.1 General Requirements

D.2.1.1 The application shall be able to read AFTN/AMHS, GTS and SADIS media. The definitions of these media are found in

- International Standards, Recommended Practices and Procedures for Air Navigation Services; Annex 10, Volume II, Chapter 4. ➔ for AFTN
- Manual of the Global Telecommunication System; WMO No. 386 ➔ for GTS
- Manual on Codes, Volume I.1 – Part A; WMO No. 306 ➔ for alphanumeric code forms in general

D.2.1.2 Any message decomposition shall be undertaken in accordance with these documents.

D.2.1.2.1 Generally, data fields that can be parsed but are not defined in references listed under D.2.1.1 shall be ignored (e.g. AFTN envelope-fields).

D.2.1.3 All times shall be in UTC.

D.2.1.4 Bulletin boundaries shall be determined using one of the following criteria. The ability to determine either of the media: AFTN, GTS or SADIS, at runtime may also be implemented.

For AFTN formats:
SOH -> ETX control characters.

For SADIS/GTS formats:
NNN 3-character sequence number; or
STX -> ETX control characters.

D.2.1.5 Only routine and non-routine OPMET data types (specified in Table 1~~Table 1~~ and Table 2~~Table 2~~) shall be monitored.

D.2.1.6 Information Data Requirements

D.2.1.6.1 For all data types the WMO Abbreviated Header Line (AHL) shall be decomposed into the following information data fields. The value of each field shall be recorded in the corresponding field of the output file(s).

D.2.1.6.1.1 Information Data Fields:

- TT: Type of record;
- AAii: Bulletin identifier;
- CCCC: Compiling station;
- YYGGgg: AHL date/time group;
- BBB: Optional remark group.

D.2.1.6.2 A NIL bulletin (i.e. a bulletin that contains only the single word ‘NIL’) shall be recorded in the monitoring results file as one entry with the word ‘NIL’ in the NIL output field and ‘ ’ (four blanks) recorded in the station/FIR-field.

D.2.2 AFTN Data Requirements

D.2.2.1 The WMO AHL shall be defined as the line containing the STX control character.

D.2.2.1.1 The following fields shall be obtained and recorded from the AFTN envelope:

- Channel ID;
- Sequence number;
- Priority;
- Destination addresses;
- Filing time;
- Originator address.

D.2.2.1.2 The sequence number shall be padded with leading zeros to create a five-digit number.

D.2.2.2 The AFTN originator address (8 characters) shall be recorded in the NetworkType-AFTN data field of the resulting monitoring output file.

D.2.3 GTS/SADIS Data Requirements

D.2.3.1 The WMO AHL shall be defined as the first non-blank line following the sequence number (NNN).

D.2.3.2 The GTS/SADIS sequence number shall be retrieved and recorded. The number shall be padded with leading zeros to expand to 5 digits.

D.2.3.3 In the NetworkType-output field SADIS or GTS shall be recorded padded by spaces to reach the 8 character field size (‘SADIS ‘or ‘GTS ‘).

D.2.4 Routine OPMET Data Requirements

D.2.4.1 Routine OPMET bulletins (TT as defined in Table 1~~Table 1~~) shall be broken down into their constituent reports and registered at the station level.

D.2.4.2 In a bulletin, the individual reports are to be separated by ‘=’ or ‘==’ followed by zero (or more) spaces, one (or more) CR and LF.

D.2.4.3 Each report in a bulletin shall be decomposed into the following output fields. Each field shall be recorded in the corresponding field of the output file(s).

D.2.4.3.1 Routine OPMET data fields:

- ReportBBB: If present any three-letter BBB type identifier, e.g. COR or AMD. *(OPTIONAL).*
- CCCC: The ICAO location indicator of the observation or report;
- The Report-Date-Time group.

D.2.4.3.2 For TAF reports only (TT = ‘FC’ or ‘FT’)

- the report validity period;

shall also be recorded.

D.2.4.4 A NIL report (i.e. where the word ‘NIL’ appears after the station identifier) shall have the word ‘NIL’ recorded in the NIL-field in addition to the other fields.

D.2.4.5 The following statistical information shall be gathered and recorded for each bulletin in a separate statistical result file:

- Bulletin length: The bulletin length, in bytes, including the start and end of message characters.
- Format error counts: The number of fatal errors (defined below) and the number of non-fatal errors (defined below).
- Bulletin type counters: The total number of received bulletins by type (TT).

D.2.4.6 Timeliness: For a specific set of stations the timeliness of each received observation can be calculated and recorded. The definitions of timeliness can be found in Appendix F.

D.2.5 Non-Routine OPMET Data Requirements

D.2.5.1 The FIR/UIR shall be obtained from Non-Routine OPMET bulletins (TT as defined in Table 2~~Table 2~~) where applicable. The FIR/UIR shall be recorded in the station-field of the output file. If the FIR/UIR cannot be determined ‘ ’ (four blanks) shall be recorded.

D.2.5.2 If the word ‘TEST’ is found within the body of the bulletin, then the word ‘TST’ shall be recorded in the NIL-field of the output file.

D.2.5.3 The following statistical information may be gathered and recorded for each bulletin in a separate statistical result file:

- Bulletin length;
- Format error counts: The number of fatal errors (defined below) and the number of non-fatal errors (defined below).
- Bulletin type counters.

D.2.5.4 For monitoring of Non-Routine OPMET data, additional groups of interest for registration are:

- The ATSU Location Indicator;
- The MWO Location Indicator;
- The FIR/UIR name.

D.2.5.4.1 Relevant OPMET message types for parsing and registering the additional fields are:

- GAMET (TT = FA, Routine data with the format of Non-Routine SIGMETs);
- AIRMET (TT = WA);
- Tropical Cyclone SIGMET (TT = WC);
- Special Weather SIGMET (TT = WS);
- Volcanic Ash SIGMET (TT = WV);
- Special AIREP (TT = UA).

D.2.6 OPMET Data Monitoring Modes

TAC OPMET data on AFTN can be monitored either offline or in real time.

D.2.6.1 An application operating in an offline mode shall use ASCII-text formatted files as the data source including sequentially logged OPMET bulletins as received. The log files containing received OPMET bulletins shall register the UTC receipt time from the communication line per bulletin.

D.2.6.2 Real time monitoring application shall log UTC OPMET bulletin receipt time in the resulting log files.

D.2.6.3 While monitoring the OPMET data traffic, valuable statistics can be generated and registered about detected anomalies, data volumes, number of bulletins per data type, timeliness.

D.2.7 Validation Requirements

D.2.7.1 Fields obtained from the AFTN envelope shall be validated against the following:

- Channel ID shall be three digits;
- Priority shall be two alphabetical characters;
- Each Destination Addresses shall be eight alphabetical characters. There shall be a maximum of twenty-one addresses.
- Filing time shall be six digits.
- The Originator Address shall be eight alphabetical characters.

D.2.7.2 The sequence number for both AFTN and SADIS/GTS shall be either three, four or five digits.

D.2.7.3 Limited validation shall be performed upon the WMO AHL:

- TT shall be two alphabetical characters;
- AAii shall be two alphabetical characters, excluding 'ZC', followed by 0, 1 or 2 digits and filled out with a blank character for every omitted digit;
- CCCC shall be four alphabetical characters excluding 'ZCZC' or 'NNNN';
- YYGGgg shall be six digits;
- BBB if present shall be three alphabetical characters. The first character shall be either 'A', 'C', 'P' or 'R'.

D.2.7.3.1 Bulletins that fail AHL validation shall be ignored.

D.2.7.4 Individual routine reports shall be validated against the following:

- Station identifiers shall be four alphabetical characters excluding 'ZCZC' or 'NNNN', 'DUPE', 'PART';
- Report time shall be six digits whether or not followed by 'Z';
- TAF Validity period shall be four, or six, or eight digits.

D.2.7.5 Individual reports that fail validation shall be recorded with the erroneous fields filled with 'X' characters according to the field size.

D.2.7.5.1 **Fatal errors** shall be defined as validation errors or missing data within the following fields in the AHL:

- AAii,
- CCCC,
- YYGGgg;

D.2.7.5.2 For Non-Routine OPMET Data, where applicable: (AIRMET/GAMET/SIGMET-report), the following shall be captured as fatal error:

- Invalid or missing ATSU-group. When the ATSU cannot be identified in the report, other items become doubtful to be parsed;
- Missing hyphen (-) following the MWO location indicator (MWO, FIR and FIR name are blank);
- Invalid or missing MWO location indicator (MWO, FIR and FIR name are blank);
- FIR keyword missing (FIR and FIR name are blank);
- CTA/FIR/UIR location indicator missing (FIR is blank);
- Invalid CTA/FIR/UIR location indicator (FIR is blank).

D.2.7.5.3 **Non-Fatal errors** shall be defined as validation errors, or missing data within the BBB-field of the AHL and the following report fields:

- Station location indicator,
- Report-Date-Time,
- TAF validity period;.

D.2.7.5.4 On detection of a Non-Fatal error while inspecting groups of interest, the relevant faulty group and possibly the subsequent groups of interest are left blank for registration of the received bulletin.

D.2.7.5.5 The following format tolerances should be considered as non-critical for the identification of the groups of interest:

- Excessive SPACEs used to separate groups of interest or keywords, also preceding the hyphen on the first line following the MWO Location Indicator;
- Missing Alignment Function (CRLF) following the hyphen at the end of the first line in the bulletin. Then the first hyphen sign (-) found in the text part of the bulletin is

used for enabling identification of the preceding MWO Location Indicator beyond extra SPACEs found.

- The occurrence of keywords " CTA " or " UIR " where expecting " FIR ".

D.2.7.5.6 When the CTA/FIR/UIR keyword is assumed missing, the CTA/FIR/UIR name is read from the first non-blank character following the first occurring hyphen till the " FIR ", " CTA " or " UIR " keyword.

D.2.8 Output Format

D.2.8.1 The output from the application shall be dedicated ASCII files with an extension appropriate to the field separator. The composition of the ASCII output files needs to be well documented and consistent over the DMG monitoring exercises for enabling automated processing to the extent possible.

D.2.8.2 The result files shall be generated in periods of minimum twelve (AM/PM: 2 files a day) or maximum twenty four (1 file per day) ~~or twenty four~~ hours. Following are file name examples for both possibilities to provide the monitoring results:

DMG-Monitoring-LOWM-01-02-2021-Routine-AM.csv ➔ 00-12 UTC
DMG-Monitoring-LOWM-01-02-2021-Routine-PM.csv ➔ 12-24 UTC

Or

DMG-Monitoring-LOWM-01-02-2021-Routine.csv ➔ 00-24 UTC

D.2.8.3 The ~~output~~ result file shall contain ~~the~~ **all** fields (mandatory and optional) as listed in **Table 3** ~~**Table 3**: TAC OPMET data monitoring Output Fields, in any, but consequent order of appearance (recorded left to right)~~.

~~D.2.8.2~~D.2.8.4 Data fields that can't be~~are not~~ extracted by parsing the monitored data shall be ~~stored as <reserved> field placeholders for applications implementing additional information gathering. They shall be included, but left blank~~/=padded with spaces according to field length indicated in **Table 3**, to ensure a common output file format for all applications. ~~The <reserved> fields shall be registered at the end of each record line.~~

~~D.2.8.3~~D.2.8.5 The result files shall contain only validated data. Separate files may be used to log data that fails validation.

~~D.2.8.4~~D.2.8.6 The ~~output~~ result file shall contain one record line per routine OPMET report, or one record line per non-routine OPMET bulletin.

~~D.2.8.5~~D.2.8.7 Each field shall be separated with one of the following characters.

- ',': comma for use with a '.csv' extension; or
- ';': semicolon for use with a '.txt' extension.

~~D.2.8.6~~D.2.8.8 The first line of the output file shall contain the field identifiers correctly separated.

~~D.2.8.7~~D.2.8.9 A separate results file per data type may be used. In this case the TT-field may be omitted.

~~D.2.8.8~~D.2.8.10Every field shall have a fixed length and be named as indicated in the tables below.

~~D.2.8.8.1 The Destination Address field is the last field of a record line and does not have a fixed length.~~

~~D.2.8.9 Reports for which information fields cannot be determined, or that are not gathered, these fields shall not be recorded. Each missing field shall be padded with the correct number of spaces to preserve the correct field lengths.~~

~~D.2.8.9.1 Fields where the information cannot be determined, or not gathered, shall be left blank and separated as per the file type.~~

~~D.2.8.9.2 Fields that have failed the validation shall be stored filled with X characters.~~

~~D.2.8.9.3~~D.2.8.10.1 In the case of the ReportTime- and ValidityPeriod-fields, if consisting in only four-digit group it shall be assumed that it is missing the date information and shall be prefixed with two space characters.

~~D.2.8.10~~D.2.8.11 The NIL-field shall contain either three space characters, 'NIL', or 'TST' as appropriate.

~~D.2.8.11~~D.2.8.12 Data where the length is less than the field length shall be padded with ' ' (blank spaces) to the correct length e.g. in case of the ReportTime- and ValidityPeriod-fields, if consisting in only four-digit group. In this case it shall be assumed that it is missing the date information and shall be prefixed with two space characters. ~~The Destination Address field may optionally be padded to the maximum length (188 characters).~~

~~D.2.8.12 If implemented, the RxTime field shall be six characters in length. The field shall be in the format HHMMSS~~

Field	Name	Length	Comment
TT	TT	2	
AAii	AAii	4	
CCCC	CCCC	4	
YYGGgg	YYGGgg	6	Filing time
BBB	BBB	3	Pad with 3 spaces if not implemented
Report "BBB"	ReportBBB	3	~~OPTIONAL.~~ Pad with 3 spaces if not implemented
Report Station / FIR	Locind	4	Pad with spaces for bulletins that do not contain this information
Report Date Time	ReportTime	6	Only for routine types
TAF Validity Period	ValidityPeriod	8	Only required for FT and FC bulletins
NIL or TEST	NIL	3	Either ' ', 'NIL' or 'TST'
Channel ID	ChannelId	3	AFTN only
Sequence Number	SeqNo	5	Pad with leading zeros to 5 digits
Priority	Priority	2	AFTN only
Filing Time	FileTime	6	AFTN only
Receipt Time	RxTime	6	End system UTC time on receipt: HHMMSS.
Transmission Network	Origin	8	Either AFTN origin address, 'SADIS', ~~or~~ 'GTS' or 'OTHER'
~~Destination Addresses~~Remarks	~~DestAddr~~RMK	(~~188~~30)	~~AFTN only. No fixed length~~Any information the monitoring centre finds feasible

Table 3: TAC OPMET data monitoring Output Fields

D.2.8.13 Additional groups for registration in the result files for Non-Routine OPMET data types, where relevant, are listed in the table below.

Field	Name	Length	Comment
ATSU Location Indicator	ATSU	4	Must be present and consist of 4 alphabetical capital letters.

MWO Location Indicator	MWO	4	Must consist of 4 alphabetical capital letters.
FIR/UIR name	FIR_Name	~~?~~250	All ~~words~~ characters between the FIR/UIR Location Indicator and preceding the "FIR" keyword are taken as parts of the FIR/UIR name.

Table 4: Real Time Monitoring Non-Routine data optional Output Fields

D.2.8.14 Optionally, a monitoring centre may provide statistical data. Such ~~S~~statistical data shall be logged in a separate results file. The fields in the results files will be separated in same manner as for the other results files. The statistical output file collects information gathered analysing the OPMET data traffic while monitoring and validating as suggested in the following table.

Field	Name	Comment
TTAAii CCCC	Header	
Bulletin Length	BullLen	The length in bytes
Type Counter	TypeCnt	The cumulative bulletin counter for the current bulletin type.
Format Error	FormErr	The cumulative number of format errors when this bulletin was received.
Invalid Bulletin	Inv_bulletin	Number of bulletins received with invalid AHL
Invalid Compiling Station	Inv_CCCC	Number of bulletins with erroneous Compiling Station
Invalid Filing Time	Inv_YYGGgg	Number of bulletins with faulty YYGGgg in the AFTN originator line
Invalid BBB	Inv_bbb	Number of bulletins with unknown or faulty BBB Remark in the AHL
Invalid Location Indicator	Inv_locind	Number of observations / reports with erroneous station location indicator
Invalid Report Date Time	Inv_rep_date_time	Number of reports with non-compliant Report-Date-Time group
Invalid TAF Validity Period	Inv_taf_period	Number of TAF reports with non-compliant Validity Period group
Timeliness	Timeliness	Yes or No field whether this bulletin is timely.
…		

Table 5: Possible Statistical Output Fields

D.2.8.14.1 The first line of the statistics file shall contain the field identifiers correctly separated.

D.2.8.15 The application shall log all possible status information useful about:

- the running status,
- disk space requirements,
- periodical output files' creation,
- debugging statements

with time stamps in a dedicated Debug.txt file.

D.2.9 Monitoring Tool Display

D.2.9.1 The application shall display, at least the following:

- Dynamic application status while running;
- OPMET message traffic on receipt;
- Application errors with date-time stamp for problem resolving.

D.3 IWXXM Data Monitoring Tool Requirements

~~UNDER CONSTRUCTION~~

D.3.1 General Requirements

D.3.1.1 Reference documents

- Manual on Codes (WMO No. 306) Volume I.3
- The ICAO Annex 3, *Meteorological Service for International Air Navigation* contains the global standards and recommended practices (SARP) on the content and format of operational meteorological messages.
- Tables A and B7 of the Manual on the Global Telecommunication System (WMO No. 386)
- The ICAO Doc 10003, Manual on the Digital Exchange of Aeronautical Meteorological Information specifying the IWXXM data model.
- ICAO Doc 9880-AN/466, Part II: Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS).
- The ICAO EUR Doc 020 EUR AMHS Manual provides guidance on the AMHS. This document should be kept up-to-date by ICAO Regional Office Paris.
- The ICAO EUR Doc 033 (Guidelines for the Implementation of OPMET data exchange using IWXXM in the EUR Region) describing the intended activities for the transition of TAC OPMET data towards IWXXM OPMET data production and the exchange provided by the EUR RODEX scheme.
- https://wiswiki.wmo.int/tiki-index.php?page=IWXXM-2

D.3.1.2 Any message decomposition shall be undertaken in accordance with these documents.

D.3.1.3 Only IWXXM data types specified in Table 1~~Table 1~~ and Table 2~~Table 2~~ shall be monitored.

D.3.1.4 All times shall be in UTC.

D.3.1.5 Information Data Requirements

D.3.1.5.1 For all data types the filename of the FTBP (File Transfer Body Part), used to exchange IWXXM data via AMHS, shall be decomposed and the, for the OPMET monitoring, necessary parts extracted.

D.3.1.5.2 The general structure of the filename is based on the WMO file naming convention. Following the general structure is displayed:

A_TTAAiiCCCCYYGGgg*BBB*_**C**_CCCC_YYYYMMddhhmmss**.xml.gz**

D.3.1.5.3 The elements in black and bold are fixed elements. Those are not relevant for the monitoring.

D.3.1.5.4 The following elements shall be extracted from the filename:

- TT
- AAii
- CCCC
- YYGGgg
- BBB ➔ will only be present in case of retarded (RRx), amended (AAx) or corrected (CCx) messages

~~TTAAiiCCCCYYGGgg is the current WMO header with the date time group~~

~~*BBB* is ***optional*** (as usual),~~
~~CCCC is the repeated CCCC part from TTAAiiCCCC,~~
~~YYYYMMddhhmmss is the date/time groupinto the following information data fields. The value of each field shall be recorded in the corresponding field of the output file(s).~~

~~Information Data Fields:~~
~~TT: Type of record;~~
~~AAii: Bulletin identifier;~~
~~CCCC: Compiling station;~~
~~YYGGgg: AHL date/time group;~~
~~BBB: Optional remark group.~~

D.3.1.6 General Metadata Information to be captured

D.3.1.6.1 An IWXXM message contains certain metadata which should be captured by the monitoring centre. The to be captured report attributes are:

- status (NORMAL/AMENDMENT/CANCELLATION/CORRECTION/MISSING)
- automatedStation (true/false)
- permissibleUsage (OPERATIONAL/NON-OPERATIONAL)
- permissibleUsageReason (TEST/EXERCISE)
- translatedBulletinID
- translatedBulletinReceptionTime (YYYY-MM-DDTHH:MM:SS)
- translationCentreDesignator CCCC
- translationCentreName
- translationTime (YYYY-MM-DDTHH:MM:SS)
- translationFailedTAC
- gml:id

D.3.1.7 Routine IWXXM Data Requirements

D.3.1.7.1 In regard to METAR and SPECI message the following elements are of interest to be monitored:

D.3.1.7.1.1 Location Indicator and name of the airport

```
<sam:sampledFeature>
  <aixm:AirportHeliport gml:id="uuid.f4ebfc50-b727-11e2-9e96-0800200c9a66">
    <aixm:timeSlice>
            <aixm:AirportHeliportTimeSlice gml:id="uuid.d9c22f1f-52b9-4a1f-9f8e-b5d18f7ed82e">
                <gml:validTime xlink:href="#ti-20070725T12Z">
          <aixm:interpretation>SNAPSHOT</aixm:interpretation>
                <aixm:designator>LKKV</aixm:designator>
                <aixm:name>KARLOVY VARY INTERNATIONAL</aixm:name>
                <aixm:locationIndicatorICAO>LKKV</aixm:locationIndicatorICAO>
            </aixm:AirportHeliportTimeSlice>
    </aixm:timeSlice>
  </aixm:AirportHeliport>
</sam:sampledFeature>
```

D.3.1.7.1.2 ~~Observation~~ Report Date Time

```
<om:phenomenonTime>
    <gml:TimeInstant gml:id="ti-20070725T12Z">
            <gml:timePosition>2007-07-25T12:00:00Z</gml:timePosition>
    </gml:TimeInstant>
</om:phenomenonTime>
<om:resultTime xlink:href="#ti-20070725T12Z"/>
```

D.3.1.7.2 In regard to TAF-messages the following elements are of interest to be monitored in addition to those already mentioned for METAR/SPECI:

D.3.1.7.2.1 ~~Issuance~~ Filing Time

```
<iwxxm:issueTime>
   <gml:TimeInstant gml:id="ti-EBBR1040-202001301040Z">
      <gml:timePosition>2020-01-30T10:40:00Z</gml:timePosition>
   </gml:TimeInstant>
</iwxxm:issueTime>
```

D.3.1.7.2.2 Start and End of the Validity Period

```
<iwxxm:validTime>
  <gml:TimePeriod gml:id="tp-EBBR1040-202001301100-202001311700">
     <gml:beginPosition>2020-01-30T11:00:00Z</gml:beginPosition>
     <gml:endPosition>2020-01-31T17:00:00Z</gml:endPosition>
  </gml:TimePeriod>
</iwxxm:validTime>
```

D.3.1.8 Non-Routine IWXXM Data Requirements

D.3.1.8.1 In regard to SIGMET-messages the following elements of interest are to be monitored

D.3.1.8.1.1 ATSU (Air Traffic Services Unit) Indicator

```
<iwxxm:issuingAirTrafficServicesUnit>
   <aixm:Unit gml:id="fic-enbd-uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
      <aixm:timeSlice>
         <aixm:UnitTimeSlice     gml:id="fic-enbd-uuid.98087cf1720d96336faaacd6019fa891-enbd-
310900311300-ts-uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
            <gml:validTime/>
            <aixm:interpretation>SNAPSHOT</aixm:interpretation>
            <aixm:name>ENBD FIC</aixm:name>
            <aixm:type>FIC</aixm:type>
            <aixm:designator>ENBD</aixm:designator>
         </aixm:UnitTimeSlice>
      </aixm:timeSlice>
   </aixm:Unit>
</iwxxm:issuingAirTrafficServicesUnit>
```

D.3.1.8.1.2 Meteorological Watch Office (MWO)

```
<iwxxm:originatingMeteorologicalWatchOffice>
   <aixm:Unit gml:id="mwo-envn-uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
      <aixm:timeSlice>
         <aixm:UnitTimeSlice  gml:id="mwo-envn-uuid.98087cf1720d96336faaacd6019fa891-enbd-
310900311300-ts-uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
            <gml:validTime/>
            <aixm:interpretation>SNAPSHOT</aixm:interpretation>
            <aixm:name>ENVN MWO</aixm:name>
            <aixm:type>MWO</aixm:type>
            <aixm:designator>ENVN</aixm:designator>
         </aixm:UnitTimeSlice>
      </aixm:timeSlice>
   </aixm:Unit>
</iwxxm:originatingMeteorologicalWatchOffice>
```

D.3.1.8.1.3 FIR/UIR-Indicator and FIR/UIR-Name

```
<om:featureOfInterest>
   <sams:SF_SpatialSamplingFeature                                gml:id="sampling-point-03839-
uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
      <sf:type                    xlink:href="http://www.opengis.net/def/samplingFeatureType/OGC-
OM/2.0/SF_SamplingPoint"/>
      <sf:sampledFeature>
         <aixm:Airspace        gml:id="fir-ENOR-uuid.98087cf1720d96336faaacd6019fa891-enbd-
310900311300">
            <aixm:timeSlice>
               <aixm:AirspaceTimeSlice                                    gml:id="fir-ENOR-ts-
uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
                  <gml:validTime/>
                  <aixm:interpretation>SNAPSHOT</aixm:interpretation>
                  <aixm:type>FIR</aixm:type>
                  <aixm:designator>ENOR</aixm:designator>
                  <aixm:name>NORWAY FIR</aixm:name>
                  <aixm:designatorICAO>YES</aixm:designatorICAO>
               </aixm:AirspaceTimeSlice>
            </aixm:timeSlice>
         </aixm:Airspace>
      </sf:sampledFeature>
      <sams:shape nilReason="withheld"/>
   </sams:SF_SpatialSamplingFeature>
</om:featureOfInterest>
```

D.3.1.8.1.4 Validity

```
<iwxxm:validPeriod>
   <gml:TimePeriod gml:id="tp-202001310900-202001311300-
uuid.98087cf1720d96336faaacd6019fa891-enbd-310900311300">
      <gml:beginPosition>2020-01-31T09:00:00Z</gml:beginPosition>
      <gml:endPosition>2020-01-31T13:00:00Z</gml:endPosition>
```

</gml:TimePeriod>
</iwxxm:validPeriod>

D.3.1.9 AMHS Data Requirements

D.3.1.9.1 The following information ~~shall~~ are optional to be extracted from the AMHS envelope:

- ATS Message Priority
- Filing Time
- Originator Address

D.3.1.9.2 For the AMHS originator address field the CN (Common Name) respectively the OU (Organizational Unit) of the AMHS-Address, being the 8 letter AFTN-address, ~~shall~~ is optional to be extracted and recorded in the Originator field of the resulting monitoring output file.

D.3.2 IWXXM Data Monitoring Modes

D.3.3 Validation Requirements

~~D.3.2.1~~D.3.3.1 No validation is required by the monitoring tool. The only validation performed by a monitoring tool is syntax validation and in no case validation of the meteorological contents. As with IWXXM, the syntax validation has to been performed at the origin, by the production/translation centre, before issuance of the message, it can be assumed that the syntax of all elements of interest to the monitoring tool is correct and does not require any extra syntax validation by the tool.

~~D.3.2.2~~D.3.3.2 For example: “K7XT” is not defined in ICAO Doc 7910 and should already be intercepted at the IWXXM production/translation centre before issuance. Therefore, no extra syntax validation of the ICAO Location Indicator by the monitoring tool is required.

~~D.3.3~~D.3.4 Output Format

~~D.3.3.1~~D.3.4.1 Files resulting from the IWXXM data monitoring tool shall be in ASCII-format.

D.3.4.2 The result files shall be generated in periods of twelve hours (AM/PM: 2 files a day). Following are file name examples for providing the monitoring results:

DMG-IWXXM-Monitoring-LOWM-01-02-2021-Routine-AM.csv ➔ 00-12 UTC
DMG-IWXXM-Monitoring-LOWM-01-02-2021-Routine-PM.csv ➔ 12-24 UTC

~~D.3.3.2 The result files shall be generated in periods of twelve (AM/PM) or twenty four hours.~~

D.3.4.3 The result file shall contain **all** fields (mandatory and optional) as listed in **Table 3**.~~The output file shall contain the fields as listed in **Table 6**: IWXXM data elements monitoring Output Fields, in any, but consequent order of appearance (recorded left to right). Data fields that are not extracted by parsing shall be stored as <reserved> field placeholders for applications implementing additional information gathering. They shall be included, but left blank, to ensure a common output file format for all applications. The <reserved> fields shall be registered at the end of each record line.~~

~~D.3.3.3~~D.3.4.4 Data fields that are not extracted by parsing shall be ~~left blank~~/=padded with spaces according to field length, to ensure a common output file format for all applications.

~~D.3.3.4~~D.3.4.5 Every field shall have a fixed length and be named as indicated below.

~~D.3.3.5~~D.3.4.6 Each field shall be separated with one of the following characters.

- ‘,’: comma for use with a ‘.csv’ extension; or
- ‘;’: semicolon for use with a ‘.txt’ extension.

~~D.3.3.6~~D.3.4.7 The first line of the output file shall contain the field identifiers correctly separated.

~~D.3.3.7 A separate results file per data type may be used. In this case the TT field may be omitted.~~

~~D.3.3.8~~D.3.4.8 The output file shall contain one line per routine IWXXM report, or one line per non-routine IWXXM bulletin.

~~D.3.3.9~~D.3.4.9 Reports for which information fields cannot be determined, or that are not gathered, shall not be recorded. The missing field shall be padded with the correct number of spaces to preserve the correct field lengths.

~~D.3.3.9.1~~D.3.4.9.1 Fields where the information cannot be determined, or not gathered, shall be left blank and separated as per the file type.

~~D.3.3.10~~D.3.4.10 The NIL-field shall contain either three space characters, ‘NIL’, or ‘TST’ as appropriate.

~~D.3.3.11~~D.3.4.11 Routine IWXXM data

Field	Name ~~IWXXM occurrence~~	Length	Requ.	Comment
TT	TT	2	M	
AAii	AAii	4	M	
CCCC	CCCC ~~metar CCCC YYYYMMDDHHMMSSZ~~	4	M	Compiling Station
	~~CCCC spect CCCC YYYYMMDDHHMMSSZ~~			
	~~CCCC taf CCCC YYYYMMDDHHMMSSZ~~			
	~~CCCC sigmet CCCC YYYYMMDDTHHMMSSZ~~			
YYGGgg	FilingTime ~~metar CCCC YYYYMMDDHHMMSSZ~~	14	M	Filing time
	~~FilingTime~~			

Field	Name ~~IWXXM occurrence~~	Length	Requ.	Comment
	~~speci-CCCC-YYYYMMDDHHMMSSZ~~			
	~~FilingTime taf-CCCC-YYYYMMDDHHMMSSZ~~			
	~~YYGGgg sigmet-CCCC-YYYYMMDDHHMMSSZ~~			
BBB	BBB	3	M	
P~~p~~ermissible Usage	~~Usage OPERATIONAL/CANCELLATION/…~~PermUsage	~~15~~2	M/O	(**OP**)erational (**NO**)n-Operational
Permissible Usage Reason	PermReason	1	M/O	(**T**)est (**E**)xercise (**N**)ot applicable
Status (former Report "BBB")	Status ~~NORMAL/MISSING/…~~	~~10~~3	M/O	NORMAL (**NOR**) AMENDMENT (**AMD**) CORRECTION (**COR**)
NIL	NIL	1	M/O	How to find NIL (~~**Y**~~**T**)ruees (~~**F**~~**N**)alse~~o~~
A~~a~~utomated Station	Auto ~~True/False~~	~~5~~1	M/O	(**T**)rue (**F**)alse~~(**Y**)es~~ ~~(**N**)o~~
~~Report "BBB"~~	~~ReportBBB~~	~~3~~	~~OPTIONAL. Pad with 3 spaces if not implemented~~	
Report Station / FIR	Locind ~~CCCC-YYYYTHHMMZ~~	4	M	~~Pad with spaces for bulletins that do not contain this information~~
Report Date Time	ReportTime ~~CCCC-YYYYTHHMMZ~~	~~10~~20	M	Only for routine types: **YYYY-MM-DDTHH:MM:SSZ**
Beginning of Validity Period	~~From tp-YYYYMMDDGGG-YYYYMMDDGGG~~ValBegin	20	M	YYYY-MM-DDTHH:MM:SSZ~~TAF bulletins~~
End of Validity Period	~~Till tp-YYYYMMDDGGG-YYYYMMDDGGG~~ValEnd	20	M	YYYY-MM-DDTHH:MM:SSZ

Field	Name IWXXM occurrence	Length	Requ.	Comment
	From beginPosition>YYYY-MM-DDTHH:MM:SSZ		SIGMET bulletins	
	Till endPosition>YYYY-MM-DDTHH:MM:SSZ			
IWXXM Version	IWXXM-Version	3	M/O	Example: 2.1, 3.0
Validation ErrorTranslation Failed	ValidErrTransFail	1?	M/O	(T)rue (F)alse(Y)es (N)o
Priority				
Filing Time	FileTime metar-CCCC-YYYYMMDDHHMMSSZ taf-CCCC-YYYYMMDDHHMMSSZ va-sigmet-CCCC-YYYYMMDDTHHMMSSZ	6		
Receipt Time	RxTime	6	M	End system UTC time on receipt: HHMMSS.
OriginatorTransmission Network	OriginatorOrigin	?1	AMHS-Address of OriginatorM	(A)FS = AFTN or AMHS (S)ADIS (G)TS
Translation Centre Designator	TranslationCentre	4	M/O	
Incomplete TranslationIWXXM-Extension	IncTrans (NO/INCOMPL/PARTIAL)Extension	1	M/O	(T)rue (F)alse(Y)es (N)o
Remarks	RMK	(10030)	O	

Table 6: IWXXM data elements monitoring Output Fields.

D.3.3.12D.3.4.12 Additional Groups

D.3.3.12.1D.3.4.12.1 Additional groups for registration in the result files for Non-Routine IWXXM data types, where relevant, are listed in the table below.

Field	Name	Length	Comment
ATSU Location Indicator	ATSU CCCC	4	Must be present and consist of 4 alphabetical capital letters.

MWO Location Indicator	MWO CCCC	4	Must consist of 4 alphabetical capital letters.
FIR/UIR name	FIR_Name NAME	?	All words between the FIR/UIR Location Indicator and preceding the "FIR" keyword are taken as parts of the FIR/UIR name.

Table 7: Non-Routine IWXXM data elements monitoring Output Fields.

D.3.4.13 Statistical data shall be logged in a separate results file. The fields in the file will be separated in same manner as for the other results files.

D.4 IWXXM Offline Data Monitoring Tool Requirements

D.4.1 ~~Statistics~~ Besides the yearly DMG-monitoring, which also covers elements of IWXXM-messages (see chapter D.3), EUR ICAO Doc 033, chapter 8 asks for the provision of additional statistics ~~of interest:~~on the exchanged IWXXM-data.

D.4.2 The following list summarizes the requested statistics:

- IWXXM data volumes
  - per type
  - per time interval
- Compression ratio
- IWXXM numbers of data per type
- IWXXM version
- IWXXM data performance
- Availability
- Timeliness
- Statistics on IWXXM-schema ~~Errors~~validation

D.4.3 Due to several open questions in regard to the above required statistics, the development of detailed specifications is on hold until more clear guidelines are available.

~~**To be defined**~~

E APPENDIX E - Distribution Determination for OPMET Data

E.1 Introduction

E.1.1 Appendix E exposes the distribution criteria for Routine and Non-Routine OPMET data as well as AFTN address details to be used in the EUR Region.

E.1.2 The distribution of OPMET data in the European Region is delegated to the National OPMET Centres (NOCs) and the Regional OPMET Centres (ROCs) Centres. Interregional OPMET data exchange is delegated to the Interregional OPMET Gateways (IROG). The principles of those entities can be found in the main part of this document:

- NOC ➔ Paragraph 3.3
- ROC ➔ Paragraph 3.4
- IROG ➔ Paragraph 3.5

E.2 OPMET data Distribution Modes

E.2.1 General

E.2.2 The OPMET data Distribution Modes is utilizing the OPMET bulletin's WMO Abbreviate Header $T_1T_2A_1A_2$ii CCCC. The ii–number determines the (inter)national Distribution Mode of the bulletin and was defined for the EUR-RODEX system as follows:

ii	Use
01-19, 20-39	Global, regional and inter-regional distribution
40-89	National and bilateral distribution = restricted distribution ***Noting:*** GAMET using series 50-59 should be distributed to regional OPMET databanks ***Noting:*** Special air-reports (ARS) using series 60-69 and special air reports for volcanic ash using series 70-79 should be distributed to regional OPMET databanks and distributed globally
90-99	Reserved

E.2.3 The restricted Distribution Mode of bulletins with ii–numbers above 39 (see above table for details) is local and based on national and/or bilateral agreements. The restricted distribution is to be applied for OPMET data of partial-operational aerodromes for specific aviation purposes such as military aviation, gliders, helicopters, balloons, scientific flights, SAR-bases, drones, …

E.2.4 SADIS (Secure Aviation Data Information Service) OPMET Programme

E.2.4.1 All OPMET data distributed on the European AFTN/AMHS (AFS – Aeronautical Fixed Service) network shall also be available via SADIS and vice versa.

E.3 RODEX-tables and AFS Addressing

E.3.1 General

E.3.1.1 RODEX stands for the Regional OPMET Data Exchange. The tables presented in paragraph E.3.xxxx determine the Distribution Mode and AFS addressing of OPMET Data as applied by the EUR-Region ROCs/IROGs.

E.3.1.2 The RODEX-tables define the ROCs'/IROGs' AoR and AFS Addressing for the distribution of the TAC as well as IWXXM OPMET data.

E.3.1.3 The DMG manages the RODEX-tables:

- to define the EUR ROCs/IROGs Area of Responsibility;
- to determine the appropriate Distribution Mode for OPMET Bulletins, and
- to apply the AFS Addressing of OPMET (EUR and Non-EUR) Data for its distribution in the EUR Region and Inter-Regionally.

E.3.2 Responsibilities within the RODEX

E.3.2.1 The following table shows the AoRs (Area of Responsibility) of the four ROCs, providing some details for~~of~~ the NOCs. Also the responsibilities of the IROGs are listed.

ROC/ IROG	Name	CCCC	NOC/ IROG	State/Region	Name	CCCC	AA
ROC	London	EGGY	NOC	Belgium	Brussels	EBBR	BX
			NOC	Denmark	Copenhagen	EKCH	DN
							FA
			NOC	Estonia	Tallinn	EETN	EO
			NOC	Finland	Helsinki	EFHK	FI
			NOC	Greenland	Nuuk	BGGH	GL
			NOC	Iceland	Reykjavik	BIRK	IL
			NOC	Ireland	Dublin	EIDB	IE
			NOC	Latvia	Riga	EVRA	LV
			NOC	Lithuania	Vilnius	EYVI	LT
			NOC	Luxembourg	Luxembourg	ELLX	BX
			NOC	Netherlands	De Bilt	EHDB	NL
			NOC	Norway	Oslo	ENMI	NO
			NOC	Sweden	Norrkoping	ESWI	SN
			NOC	United Kingdom	London ~~Exeter~~	EGGY[1)] ~~EGRR~~	UK
							BE
							~~UK~~ NT
							GI
IROG	London	EGGY	IROG	NAM	Washington	--	--
			IROG	CAR	Washington	--	--
			IROG	ASI	Singapore	--	--
			IROG	PAC	Singapore	--	--
			IROG	SAM	Brasilia	--	--
ROC	Moscow	UUUJ	NOC	Armenia	Yerevan	UDSG	AY
			NOC	Belarus	Minsk	UMMN	BY
			NOC	Kazakhstan	Almaty	UAAA	KZ
			NOC	Kyrgyzstan	Bishkek	UCFM	KY

			NOC	Russian Federation	Moscow	UUUJ	RA
							RS
			NOC	Tajikistan	Dushanbe	UTDD	TA
			NOC	Turkmenistan	Ashgabat	UTAA	TR
			NOC	Uzbekistan	Tashkent	UTTW	UZ
ROC	Toulouse	LFPW	NOC	Algeria	Algiers	DAAG	AL
			NOC	Italy	Rome	LIIB	IY
			NOC	Malta	Malta	LMMM	MP
			NOC	Morocco	Casablanca	GMMC	MC
			NOC	Portugal	Lisbon	LPMG	PO
							AZ
							EW
			NOC	Spain	Madrid	LEMM	SP
							CR
			NOC	Tunisia	Tunis	DTTA	TS
IROG	Toulouse	LFPW	IROG	AFI	Dakar	--	--
			IROG	AFI	Pretoria	--	--
ROC	Vienna	LOWM	NOC	Albania	Tirana	LATI	AB
			NOC	Austria	Vienna	LOWM[2)] ~~LOWW~~	OS
			NOC	Azerbaijan	Baku	UBBB	AJ
			NOC	Bosnia & Herzegovina	Banja Luka	LQBK	QB
			NOC	Bulgaria	Sofia	LBSF	BU
			NOC	Croatia	Zagreb	LDZM	RH
			NOC	Cyprus	Larnaca	LCLK	CY
			NOC	Czechia	Prague	LKPW	CZ
			NOC	Georgia	Tbilisi	UGTB	GG
			NOC	Germany	Offenbach	EDZO[3)] ~~EDZF~~	DL
			NOC	Greece	Athens	LGAT	GR
			NOC	Hungary	Budapest	LHBM	HU
			NOC	Israel	Tel Aviv	LLBD[4)] ~~LLBD~~	IS
			NOC	North Macedonia	Skopje	LWSK	MJ
			NOC	Poland	Warsaw	EPWA	PL
			NOC	Rep. of Moldova	Chisinau	LUKK	RM
			NOC	Romania	Bucharest	LROM	RO
			NOC	Serbia & Montenegro	Belgrade	LYBM	YG
			NOC	Slovakia	Bratislava	LZIB	SQ
			NOC	Slovenia	Ljubljana	LJLJ	LJ
			NOC	Switzerland	Zurich	LSSW	SW
			NOC	Turkey	Ankara	LTAA	TU
			NOC	Ukraine	Kiev	UKMS[5)] ~~UKBW~~ ~~UKDW~~ ~~UKLW~~ ~~UKOW~~	UR
IROG	Vienna	LOWM	IROG	Saudi Arabia	Jeddah	OEJD	--

[1)] Some bulletins are issued with CCCC=EGRR
[2)] Some bulletins are issued with CCCC=LOWW
[3)] Some bulletins are issued with CCCC=EDZF
[4)] Some bulletins are issued with CCCC=LLBG

[5)] Some bulletins are issued with CCCC=UKBW, UKDW, UKLW, UKOW

E.3.3 AFS Addressing.

E.3.3.1 The Aeronautical Fixed Service AFTN- and CIDIN- data distribution networks are being replaced by AFTN/AMHS networks managed by the national telecommunication centres (COM-Centres).

The Regional OPMET Centres exchange OPMET data from within their AoR with all other Regional OPMET Centres and send the data to the EUR OPMET Databases (Brussels, Toulouse and Vienna).

E.3.3.2 AMHS Addressing is applied for national and international (Regional and Inter-Regional) distribution of data, such as OPMET data.

E.3.3.3 The IWXXM data shall be distributed over AMHS only.

E.3.3.4 The AFS Addresses to be used are co-ordinated specifically for

- AFTN Service Messages (SVC AFTN)
- OPMET related Service Messages (SVC OPMET)
- European & North Atlantic TAC OPMET data (EUR/NAT Routine OPMET) on AMHS
- European & North Atlantic IWXXM OPMET data (EUR/NAT Non-Routine OPMET)
- The DMG EUR OPMET Data Update Procedure METNO messages on AMHS (to be found under paragraph E.-):
  - The AIRAC METNO NO(AA)98 CCCC, currently NOBX98 EBBR, for changes to the standardized EUR OPMET Database Interface Control Document (ICD);
  - The AIRAC METNO NO(AA)99 CCCC, currently NOBX99 EBBR, for amendments to current OPMET data, new and expiring OPMET data available in the European Region.
- Non-European & North Atlantic OPMET data (Non EUR/NAT OPMET);
- The European Regional OPMET Databases: Brussels, Toulouse and Vienna (addressing information to be found under paragraph A.2.3)

E.3.3.5 The AFS Addresses for the distribution of restricted OPMET data are defined nationally or by bilateral agreements.

The DMG defined and co-ordinated AFS addresses, to be used for sending OPMET-messages, are presented in the following tables. Only AMHS (as applicable for international distribution) are indicated.

E.3.3.6 For sending TAC data via AFTN, just use the details within the field CN (CAAS form➔ CN=LOWMYZYX) or OU (XF form ➔ OU=EGZZWPXX).

E.3.3.7 IWXXM-data shall only be sent via AMHS, using the addresses indicated for IWXXM-data.

Table Under Construction

Albania – NOC Tirana - LATI	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Algeria – NOC Algiers - DAAG	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Armenia – NOC Yerevan - UDSG	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Austria – ROC/IROG/RODB/NOC Vienna - LOWM	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	/CN=LOZZMLON/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From ROC LFPW	/CN=LOZZMTOU/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From ROC UUUJ	/CN=LOZZMMOS/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From IROG OEJD	/CN=LOZZMMID/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From AoR	/CN=LOWMMMXX/OU=LOWM/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
RODB TAC-Requests	/CN=LOWMYZYX/OU=LOWM/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
SVC Messages	/CN=LOWMYBYX/OU=LOWM/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	/CN=LOZZXLON/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From ROC LFPW	/CN=LOZZXTOU/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From ROC UUUJ	/CN=LOZZXMOS/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From IROG OEJD	/CN=LOZZXMID/OU=LOZZ/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
From AoR	/CN=LOWMXAOR/OU=LOWM/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
RODB Requests	/CN=LOWMYZYA/OU=LOWM/O=LOVV/PRMD=AUSTRIA/ADMD=ICAO/C=XX/
SVC Messages	???
Azerbaijan – NOC Baku - UBBB	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Belarus – NOC Minsk - UMMN	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Belgium – RODB/NOC Brussels - EBBR	

TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	/CN=EBZZYBYX/OU=EBZZ/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
RODB Requests	/CN=EBBRYZYX/OU=EBBR/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
SVC Messages	/CN=EBBRYMYX/OU=EBBR/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	/CN=EBZZYBYA/OU=EBZZ/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
RODB Requests	/CN=EBBRYZYA/OU=EBBR/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
SVC Messages	/CN=EBBRYMYX/OU=EBBR/O=EBBR/PRMD=BELGIUM/ADMD=ICAO/C=XX/
Bosnia & Herzegovina – NOC Banja Luka - LQBK	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Bulgaria – NOC Sofia - LBSM	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Croatia – NOC Zagreb - LDZM	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Cyprus – NOC Larnaca - LCLK	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Czechia – NOC Prague - LKPW	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Denmark – NOC Copenhagen - EKCH	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Estonia – NOC Tallinn - EETN	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	

SVC Messages	
Finland – NOC Helsinki - EFKL	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
France – ROC/IROG/RODB/NOC Toulouse - LFPW	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	/CN=LFPWMLON/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From ROC LOWM	/CN=LFPWMVIE/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From ROC UUUJ	/CN=LFPWMMOS/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From IROG	/CN=LFZZMAFI/OU=LFZZ/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From AoR	/CN=LFPWYMEU/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
RODB Requests	/CN=LFPWYZYX/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
SVC Messages	/CN=LFPWYMEU/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	/CN=LFPWXLON/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From ROC LOWM	/CN=LFPWXTOU/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From ROC UUUJ	/CN=LFPWXMOS/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From IROG	/CN=LFPWXAFI/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
From AoR	/CN=LFPWXMEU/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
RODB Requests	/CN=LFPWYZYA/OU=LFPW/O=LFLF/PRMD=FRANCE/ADMD=ICAO/C=XX/
SVC Messages	???
Georgia – NOC Tbilisi - UGTB	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Germany – NOC Offenbach - EDZO	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Greece – NOC Athens - LGAT	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Greenland – NOC Nuuk - BGGH	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Hungary – NOC Budapest - LHBM	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	

SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Iceland – NOC Reykjavik - BIRK	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Ireland – NOC Dublin - EIDB	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Israel – NOC Tel Aviv – LLBG/LLBD	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Italy – NOC Rome - LIIB	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Kazakhstan – NOC Almaty - UAAA	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Kyrgyzstan – NOC Bishkek - UCFM	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Latvia – NOC Riga - EVRA	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Lithuania – NOC Vilnius - EYVI	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	

SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Luxembourg – NOC Luxembourg - ELLX	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Malta – NOC Malta - LMMM	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Moldova, Rep. of – NOC Chisinau - LUKK	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Morocco – NOC Casblanca - GMMC	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Netherlands – NOC De Bilt - EHDB	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
North Macedonia – NOC Skopje - LWSK	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Norway – NOC Oslo - ENMI	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Poland – NOC Warsaw - EPWA	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	

SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Portugal – NOC Lisbon - LPMG	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Romania – NOC Bucharest - LROM	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Russian Federation – ROC/NOC Moscow - UUUJ	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	/CN=UUUJMTOU/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From ROC LOWM	/CN=UUUJMVIE/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From ROC EGGY	/CN=UUUJMLON/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From AoR	/CN=UUUJ????/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
SVC Messages	???
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	/CN=UUUJXTOU/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From ROC LOWM	/CN=UUUJXVIE/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From ROC UUUJ	/CN=UUUJXLON/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
From AoR	/CN=UUUJ????/OU=UUUJ/O=UU/PRMD=RUSSIA/ADMD=ICAO/C=XX/
SVC Messages	???
Serbia & Montenegro – NOC Belgrade - LYBM	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Slovakia – NOC Bratislava - LZIB	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Slovenia – NOC Ljubljana - LJLJ	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Spain – NOC Madrid - LEMM	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	

IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Sweden – NOC Norrkoping - ESWI	
TAC (Traditional Alphanumeric Code form)	
From ROC EGGY	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC EGGY	
SVC Messages	
Switzerland – NOC Zurich - LSSW	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Tajikistan – NOC Dushanbe - UTDD	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Tunisia – NOC Tunis - DTTA	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	
SVC Messages	
Turkey – NOC Ankara - LTAA	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
Turkmenistan – NOC Ashgabat - UTAA	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	
Ukraine – NOC Kiev - UKMS	
TAC (Traditional Alphanumeric Code form)	
From ROC LOWM	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LOWM	
SVC Messages	
United Kingdom – ROC/IROG/NOC London - EGGY	
TAC (Traditional Alphanumeric Code form)	
From ROC LFPW	/OU=EGZZMTOU/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From ROC LOWM	/OU=EGZZMVIE/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/

From ROC UUUJ	/OU=EGZZMMOS/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG ASI	/OU=EGZZMASI/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG CAR	/OU=EGZZMCAR/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG NAM	/OU=EGZZMNAM/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG NAT	/OU=EGZZMNAT/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG SAM	/OU=EGZZMSAM/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From AoR	/OU=EGZZWPXX/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
SVC Messages	/OU=EGZZMMOS/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC LFPW	/OU=EGZZXTOU/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From ROC LOWM	/OU=EGZZXVIE/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From ROC UUUJ	/OU=EGZZXMOS/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG ASI	/OU=EGZZXASI/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG CAR	/OU=EGZZXCAR/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG NAM	/OU=EGZZXNAM/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG NAT	/OU=EGZZXNAT/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From IROG SAM	/OU=EGZZXSAM/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
From AoR	/OU=EGZZ????/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
SVC Messages	/OU=EGZZMMOS/O=AFTN/PRMD=EG/ADMD=ICAO/C=XX/
Uzbekistan – NOC Tashkent - UTTW	
TAC (Traditional Alphanumeric Code form)	
From ROC UUUJ	
SVC Messages	
IWXXM (ICAO Weather Exchange Model – Data in GML/XML-format)	
From ROC UUUJ	
SVC Messages	

E.3.4 Distribution Modes for Non-OPMET Data

E.3.4.1 The next table provides directives for the AFS addressing of defined, OPMET data related, Non-OPMET messages, such as messages with a reserved WMO Abbreviated Heading TTAAii CCCC.

E.3.4.2 METNO Messages concerning the Regional OPMET Database status (see APPENDIX A) and the EUR OPMET Data Update Procedure (see APPENDIX B) are to be addressed to the ROCs over AMHS.

EUR ROC	RODEX AFS Address for METNOs
EGGY	C=XX/A=ICAO/P=EG/O=AFTN/OU1=EGZZWPXX
LFPW	C=XX/A=ICAO/P=FRANCE/O=LFLF/OU1=LFLF/CN=LFLFYBYX
LOWM	C=XX/A=ICAO/P=AUSTRIA/O=LOVV/OU1=LOWM/CN=LOWMMMXX

E.3.4.3 The MENTNOs then are getting distributed by the ROCs to the NOCs and to the Non-EUR IROGs within its AoR and according to the RODEX AFS addressing tables.

F APPENDIX F - OPMET Performance Indices

F.1 Introduction Performance Index Calculation

F.1.1 The EUR Data Management Group (DMG) of the Meteorology Group (METG) of EASPG has been tasked to observe and monitor the OPMET distribution over the EUR AFS (AFTN/AMHS SADIS) network in terms of:

F.1.1.1 the coverage of the distribution and the consistency of the distribution;

F.1.1.2 availability and timeliness for EUR eANP Vol II Table MET II-2 required Routine OPMET data: METARs and TAFs;

F.1.1.3 EUR SIGMET availability and format as per requirements listed in the eANP Vol II Table MET II-1.

F.1.2 The Routine OPMET data Availability and Timeliness indices that have been defined by the DMG provide a measure of the performance of the OPMET data. Each index is produced individually for each scheduled OPMET data type: METAR, Short and Long TAFs.

F.1.2.1 The Routine OPMET data monitoring is performed each year during 14 days: 01 till 14 February by (NOC and RODB) Brussels or any other ROC/NOC - RODB provided that the monitoring results are compliant with the EUR Doc 018, APPENDIX D: EUR OPMET Data Monitoring Tool Specification.

F.1.3 The DMG maintains the inventory of SIGMETs issued by States in the EUR Doc 014 – EUR SIGMET and AIRMET Guide. The EUR SIGMET Availability index observes and monitors OPMET deficiencies in terms of:

F.1.3.1 WS-SIGMET production and distribution.

F.1.3.2 The SIGMET monitoring is performed by Regional OPMET Centre Toulouse for a 5-month period.

F.1.4 The Routine OPMET data indices are also applied to the SADIS OPMET distribution. The results are expected to be shown on a website from the SADIS Provider.

F.1.5 The DMG is tasked to report the OPMET Performance Indices yearly to the EASPG / METG for initiating remedial actions by States against deficiencies of:

F.1.5.1 Availability and Timeliness of eANP Vol II Table MET II-2 listed required METAR and TAF of full operational aerodromes.

F.1.5.1.1 The Availability Indices for EUR Routine OPMET Data per State are presented in Table ASBU-EUR-B0-AMET 3-5.

F.1.5.1.2 The EUR States' Timeliness Indices for Routine OPMET Data are presented in Table ASBU-EUR-B0-AMET 3-6.

F.1.5.2 eANP Vol II Table MET II-1 listed WS-SIGMET Availability and format.

F.1.5.2.1 The resulting indices are listed per EUR State in Table ASBU-EUR-B0-AMET 3-7.

F.1.5.3 Progress shall be evaluated yearly by the METG resulting from the States' remedial actions taken based on the OPMET Performance Indices presented by the DMG against the most current eANP OPMET Data Requirements available to the DMG from:

F.1.5.3.1 The yearly February DMG Routine OPMET Data Monitoring Exercises

F.1.5.3.2 The ROC Toulouse SIGMET monitoring (5 months period).

F.1.6 Changes in the eANP requirements do not affect how the Performance Indices are calculated but the reader should be aware that:

F.1.6.1 The DMG is not responsible for the contents nor the maintenance of the OPMET data requirements as listed in the eANP Tables.

F.1.7 Following next, the metrics for generating the OPMET Availability and Timeliness Indices for Routine OPMET Data are presented for enabling readers to interpret the results for their State. The DMG is capable of investigating the results per State, per OPMET Data Type (TT= SA/FC/FT), per eANP full operational aerodrome, per monitoring day

F.2 Performance Indices

F.2.1 Definitions

eANP = The ICAO International electronic Air Navigation Plan.

eANP Volume II Table MET II-2 = ICAO Doc 7754 including the Routine OPMET Data, METAR and TAF requirements for AOP aerodromes; full time or partial operational.

eANP_Av = Aerodrome operability as reported in eANP Volume II Table MET II-2: "F" = Full time, "P" = Partially.

AOP = Aerodrome Operational Planning.

AHL = OPMET Bulletin Abbreviated Header Line (TTAAii CCCC YYGGgg BBB)

YYGGgg = The date-time group in the OPMET bulletin Abbreviated Header Line.

RXTime = Time of receipt (HH:MM:SS) of the bulletin (TTAAii CCCC BBB) containing the aerodrome METAR Observation of TAF Report.

ICAO EUR OPMET Performance Indices*:*

- The ICAO EUR OPMET METAR and TAF Performance Indices: Availability and Timeliness, are calculated for eANP Vol II, Table MET II-2 fully available ~~AOP~~ aerodromes (ref.: Table MET II-2, column 12 = “F”) and shall be reported per State. eANP partially available AOP aerodromes (based on Table MET II-2, column 12 = “P”) are not included in the statistics.

- The METAR and TAF Performance Indices are generated per eANP full-available aerodrome (Table MET II-2, column 12 = "F") day by day over a monitoring period of n days (n = 14). The average Performance Indices for the monitoring period are calculated for States from the daily results of its eANP full-available aerodromes.

– *METAR Availability* = for eANP required aerodromes where METAR is issued full-time every half hour, on average over a monitoring period of n days (n=14) 45.6 (=95%) of 48 observations should be available

For ~~AOP~~ eANP-listed aerodromes where METAR is issued full-time every hour, on average over a monitoring period of n days (n=14) 22.8 (=95%) of 24 observations should be available at each aerodrome.

For a partial operational ~~AOP~~ eANP aerodrome producing METAR, regardless of how frequently it is issued, at least 1 observation must be available each day. Partial operational aerodromes are not considered for generating the overall average state METAR Availability.

NIL METARs and METAR bulletins where **in the Abbreviated Header** (TTAAii CCCC YYGGgg BBB) BBB = CC@ (COR) are ignored, thus excluded.

– *METAR Timeliness* = on average 95% eANP required and available METAR observation reports (not including SPECI; no NIL, no AMD observations; including COR observations) is received maximum 6 minutes / 10 minutes after the observation time (MM observation time(s) from the YYGGgg-Group in the bulletin Abbreviated Header = DDHHMM based on monitoring): RX-Time ≤ HH:(MM + 6') and RX-Time ≤ HH:(MM + 10').

– *TAF Availability* = for eANP required aerodromes where 24- or 30-hour TAF is issued full-time (based on eANP VOL II, Table MET II-2, column 12), on average 3.8 (= 95%) TAF should be available each day.

For ~~AOP~~ eANP aerodromes where 9-hour TAF is issued full-time, on average 7.6 (= 95%) TAF reports should be available each day.

For ~~AOP~~ eANP-listed aerodromes where TAF is available partially, at least 1 TAF (COR) report not NIL, not AMD must be available each day. Partial operational aerodromes are not considered for generating the overall average State TAF Availability.

NIL TAF reports and TAF bulletins where **in the Abbreviated Header** (TTAAii CCCC YYGGgg BBB) BBB = AA@ (AMD) or BBB = CC@ (COR) are not included, thus ignored.

– *TAF Timeliness* = on average 95% eANP required and available TAF (excluding NIL and TAF reports with BBB = AMD; inclusive BBB = COR **reports**) is received within 60 minutes before the start period of validity of TAF (TAF validity period = GGGG based on monitoring): (GGGG – 60') ≤ RX-Time ≤ (GGGG + 0').

VPeriodx = GGGG-TAF Validity Period (1 .. x) based on monitoring.

Obsx = MM-METAR Observation Time (1 .. x) based on the monitored DDHHMM YYGGgg-Group in the Abbreviated Header Line (AHL).

REP_EXP = For an eANP aerodrome, the number of TAF reports and METAR observations expected according to the aerodrome operational hours indicated in the eANP Volume II Table MET II-2 column 12; "F" full or "P" partial.

REP_RX = Per eANP aerodrome, the number of received TAF VPeriodx reports: not NIL and not counting amendments (BBB = A@@), and the number of received METAR Obsx observations: not NIL and not including amendments (BBB = A@@).

FROM – TILL = For eANP aerodromes, operational hours observed by monitoring TAF-reports (also NIL and including BBB = C@@ but no BBB = A@@) and METAR-observations (also NIL, no BBB-Remark), reading the YYGGgg-Group of first till last received report/observation per day of the monitoring reference period.

F.2.2 DMG Metrics for calculating the ICAO EUR OPMET Performance Indices

F.2.2.1 General

F.2.2.1.1 The DMG processing stages for generating the Routine OPMET Data Performance Indices are described next: Availability and Timelines Indices

- Fourteen days AFTN/AMHS OPMET monitoring against the eANP Volume II Table MET II-2 OPMET Data Requirements.
- Step 1: Determination of METAR MM-Observation Times / TAF GGGG-Validity Periods per eANP aerodrome per day based on monitoring.
- Step 2: Per day, for every eANP aerodrome generation of the METAR, FC-and FT-TAF ICAO OPMET Performance Indices.
- Step 3: Per day, per State generation of the METAR, FC- and FT-TAF ICAO OPMET Performance Indices based on the monitored eANP aerodrome performance.
- Step 4: Calculation of the averages for the State's daily OPMET Performance Indices: FC/FT/SA-Availability and -Timeliness, over the 14 day monitoring period.
- Step 5: Merge of FC- and FT-Indices to TAF-Indices per Station and per day. Generation of the final average State TAF Performance Indices per State for the (x = 14) days of the reference monitoring period = 01-14/02/YYYY.

F.2.2.2 OPMET Data Monitoring

F.2.2.2.1 The multiple purpose DMG OPMET monitoring exercise (~~ref.: C.8.2~~see App. C ~~**Fehler! Verweisquelle konnte nicht gefunden werden.**~~) is applied for the development of the metrics for calculating the ICAO EUR OPMET Performance Indices:

- Monitoring period: 01 – 14 February YYYY.
- Monitoring Centre: EBBB AFTN/AMHS COM Centre or any other Centre.
- Monitored OPMET Data: all OPMET Data originating from ROC London to the EBBR Meteo via the EBBB COM Centre.
- Monitoring tool: the skeyes' OPMET Data monitoring tool online registering continuously the AMHS OPMET data traffic duplicated via AFTN to a monitoring PC day by day. The daily logs of the registered OPMET messages are processed off-line:
  - for generating files in compliance to the DMG OPMET Monitoring Tool Specification
  - for analysis by database scripts for DMG ToR purposes. Scripts for generating the ICAO OPMET Performance Indices are being developed.
- The off-line processing tool is applied for generating specific details on the received aerodrome-catalogue OPMET data registered in the day by day log files:
  - Aerodrome catalogue used: eANP aerodromes.
  - OPMET monitoring generated details: per eANP aerodrome
    - received reports/observations, NILs and not NILs, duplications, BBB-Remark, VPeriodx or Obsx, HHMMSS RXTime, AAii, CCCC, YYGGgg, AFTN Filing Time.
    - dedicated statistical files on Timeliness.

F.2.2.2.2 Special database scripts are being developed for analysing the resulting OPMET monitoring files for catalogue aerodromes, such as the eANP.

F.2.2.3 eANP Aerodrome METAR Observation Times and TAF Validity Periods

F.2.2.3.1 For the eANP aerodromes regular METAR Observation Times (Obsx) and FC/FT TAF Validity Periods (VPeriodx) are being determined from the daily monitoring result files.

– METAR Observation Times: per day, per eANP aerodrome, if METAR required according to eANP.
Observed MM-Observation times: Obs1 … Obs16, from the YYGGgg-Group (where occurring) of received METARs (BBB = Blank). From the observed MM = Obsx, only the regular ones are retained for further processing:
  - eANP aerodromes with eANP_Av= "F": number of observed Obsx > **14** per day or Obsx not determined.
  - eANP aerodromes with eANP_Av = "P": number of observed Obsx > **7** per day or Obsx not determined.
  - FROM_TILL Operational hours: FROM = HHMM from first received, TILL = HHMM from last received aerodrome METAR Report-Date-Time per day.

– TAF Validity Periods: per day, per eANP aerodrome, if FC/FT-TAF required according to eANP.
From the received FC/FT-TAF Reports per eANP aerodrome (BBB != A@@): the $G_1G_1G_2G_2$ VPeriod1 … Vperiod15 of the TAF-report Validity Period Group. Only validated VPeriods are retained for further processing: valid VPeriodx = per monitored $G_1G_1G_2G_2$
  - The **GG** in the (FC/FT)AAii CCCC YY**GG**gg Bulletin Header of the (FC/FT)-report must be <= G_1G_1 in VPeriodx = G_1G_1 G_2G_2.
  - FROM_TILL Operational hours: FROM = HHMM from first received, TILL = HHMM from last received aerodrome (FC/FT)-report Report-Date-Time per day.

– The number of (regular) METAR Observation Times (Obsx) and the number of (regular) FC/FT TAF Validity Periods (VPeriodx) can vary day by day, depending on the aerodrome operations.

F.2.2.4 eANP Aerodrome OPMET Performance (Step 2)

F.2.2.4.1 Per eANP aerodrome, the ICAO METAR/TAF Availability and Timeliness are calculated per day of the referenced OPMET monitoring period.

F.2.2.4.2 Per monitoring day, only METAR observations and TAF reports from Bulletins with YY in YYGGgg from the Abbreviated Header Line (TTAAii CCCC YYGGgg) = that day are considered. Others are discarded for processing.

F.2.2.4.3 The aerodrome OPMET Performance (re-)considers the operational hours on a daily basis.

– eANP Aerodrome METAR Availability:
Per monitoring day, only METAR observations from Bulletins with YY in YYGGgg from the Abbreviated Header Line (TTAAii CCCC YYGGgg) = that day are considered. Others are discarded for processing.

For every Obsx = MM the total number of received not NIL observations REP_RX is determined, BBB != A@@, excluding duplications.

REP_EXP Depends on the eANP_Av in the eANP: "F" or "P":

- eANP_Av = "F" => REP_EXP = 48 for METARs issued every half hour; REP_EXP = 24 where METAR issued once per hour.
- eANP_Av = "P" => REP_EXP = 1.

The aerodrome METAR Availability for the monitoring day becomes:

- (REP_RX / REP_EXP) * 100,00 or 0,00 %. The maximum METAR Availability for an aerodrome = 100,00%.
- If for an aerodrome, there are more Obsx than expected and the Availability Indix exceeds 100,00%, it becomes rounded down to 100,00%.

– eANP Aerodrome METAR Timeliness: RXTime and/or Obs
Δt = RXTime (HH:MM:SS) – HHMM in the observation Report-Date-Time Group.

An aerodrome METAR received later than 10 minutes after the HHMM from the YYGGgg- Group (DDHHMM) is too late Δt > 10'): **reports**.
Per monitoring day (=YY in YYGGgg of the AHL), for all Obsx of the aerodrome, the number of METAR observations for day = YY received on time, i.e. RXTime (HH:MM:SS) no later than 10 minutes after the observation time HHMM(00) in the AHL YYGGgg-Group (Δt ≤ 10'):

- The aerodrome timeliness on the monitored day becomes: Aerodrome METAR Timeliness = ((REP_RX - reports) / REP_RX) * 100,00 % and maximum 100,00% or 0,00%
- Per METAR Obsx, the earliest received is considered for the timeliness. Obsx duplications received later are discarded.
- If for an aerodrome, there are more Obsx than expected, even the exceeding observations are being evaluated for the Aerodrome METAR Timeliness.

– eANP Aerodrome (FC/FT) TAF Availability:
For each VPeriodx = GGGG the number of received not NIL (FC/FT)-reports REP_RX is determined, BBB != A@@, excluding duplications.

REP_EXP Depends on the TAF type TT = FC or FT and the eANP_Av in the eANP: "F" or "P":

- For TAF TT = FC and
  - **eANP_Av = "F" => REP_EXP = 8**
  - eANP_Av = "P" => REP_EXP = 1

- For TAF TT = FT
  - **eANP_Av = "F" => REP_EXP = 4**
  - eANP_Av = "P" => REP_EXP = 1

The aerodrome (FC/FT) Availability for the monitoring day becomes:

- (REP_RX / REP_EXP) * 100,00 or 0,00 %. The maximum (FC/FT) Availability for an aerodrome = 100,00%.
- Per aerodrome the most optimized series of VPeriodx determined in Step 1 is applied for the calculation of its Availability Index. For FT-TAFs, the VPeriodx in the row are to start every 6 hours, maximum 24hours/6 = 4 per day. In a series of VPeriods, each VPeriod has the same result for G_1G_1 modulo 6. Maximum two series of VPeriods are considered (FT TAF every 3 hours, 8 per day). Per aerodrome the series with all VPeriods for the same day of monitoring is retained for the calculation of the Availability Index (also for the Timeliness Index), or else the longest series having the most 6 hourly VPeriods. Other FT VPeriodx are ignored.

– eANP Aerodrome (FC/FT) TAF Timeliness
Per monitoring day (=YY in YYGGgg of the AHL), only VPeriodx of the aerodrome from that day: Validity Period = YY@@/@@@@ or (YY+1)00/@@@@ are considered. Others are discarded for processing.

Δt = RXTime (HH:MM:SS) – start time of TAF Validity Period.

An Aerodrome TAF (FC or FT) received more than 60 minutes before the Validity Period is too early (Δt < -60') ; received later than the start of the Validity Period is too late (Δt > GGGG + 0') = **reports**.
A TAF-report received between **60** minutes (- 60' ≤ Δt ≤ GGGG) before, and till the start of its Validity Period is on time.
For all VPeriodx of the aerodrome, the number of reports received on time:

- Aerodrome FC/FT Timeliness = ((REP_RX – reports) /REP_RX) * 100,00 %
- Per FC- and FT-TAF, the earliest received is considered for the Timeliness. VPeriodx duplications received later are discarded.
- Per aerodrome the most optimized row of VPeriodx determined in Step 1 is applied for the calculation of its Timeliness Index. For FT-TAFs, the VPeriodx in the row are to start every 6 hours, maximum 24hours/6 = 4 per day and each having the same result for G_1G_1 modulo 6. The series with the most VPeriodx G_1G_1 starting on the day of monitoring or else the longest series is applied for the calculation of the aerodrome FT-Timeliness (idem dito FT-Availability) Index. Other FT VPeriodx are ignored.

F.2.2.5 State OPMET Performance (Step 3)

F.2.2.5.1 After generating the eANP aerodrome ICAO OPMET Performance Indices, the Performance Indices are calculated per State as the average of its eANP aerodromes' Performance Indices per day for the number of days of the monitoring period.

– State METAR Availability:
Per State, the average of METAR Availability of its eANP aerodromes is calculated day by day:

$$\frac{\text{SUM (\% Availability of eANP METAR required Aerodromes of the State)}}{\text{Number of eANP METAR required Aerodromes of the State}}$$

– State METAR Timeliness:
Per State, the average of METAR Timeliness of its eANP aerodromes is calculated per day:

$$\frac{\text{SUM (\% Timeliness of eANP METAR required Aerodromes of the State)}}{\text{Number of eANP METAR required Aerodromes of the State}}$$

– State (FC/FT) TAF Availability:
Per State, the average of FC/FT Availability of its eANP aerodromes is calculated per day:

$$\frac{\text{SUM (\% Availability of eANP FC or FT required Aerodromes of the State)}}{\text{Number of eANP FC or FTrequired Aerodromes of the State}}$$

– State (FC/FT) TAF Timeliness:
Per State, the average of FC/FT Timeliness of its eANP aerodromes is calculated day by day:

$$\frac{\text{SUM (\% Timeliness of eANP FC or FT required Aerodromes of the State)}}{\text{Number of eANP FC or FT required Aerodromes of the State}}$$

F.2.2.6 Average State FC/FT/SA-Availability and –Timeliness (Step 4)

F.2.2.6.1 After generating the daily averages for the State's ICAO OPMET Performance Indices for all its eANP required locations, for each State the overall averages are calculated for the fourteen day monitoring period referred to.

F.2.2.7 Average State TAF Performance Indices per State (Step 5)

F.2.2.7.1 Merge of FC- and FT-Indices to TAF-Indices per Station and per day. For every Station, occurring FC-Performance is discarded where FT-TAFs are produced also. Hence, for those Locations the TAF-Performances in fact are the FT-Performances since the FC-Performances are discarded. From the daily TAF (FC and FT, FT where both FCs and FTs are issued) Location Availability and Timeliness Indices, for each day the State Performance Indices are getting generated. Then, the State average TAF Availability and Timeliness Indices are produced for the referenced monitoring period.

TAF = TT = FC and FT

F.2.2.7.2 TAF Availability per State

Aerodrome = Aerodrome Full operational.

REP_RX = FC / FT TAF-Reports received per day not NIL; not counting BBB=A@@.

REP_EXP = TAF-Reports expected per day = 8 for TT = FC and 4 for TT = FT for Full operational aerodrome.

N = Number of aerodromes (Full operational) per State.

Day = monitoring day starting at 1 till 14.

$\text{Availability}_{\text{aerodrome}}$ = Aerodrome Availability per Day = $\left(\frac{\#REP\_RX}{\#REP\_EXP}\right) * 100{,}00\%$, minimum 0,00% and maximum 100,00%.

$\text{Availability}_{\text{State}}$ = Average State Availability for number of monitoring days.

$$\text{Availability}_{\text{State}} = \frac{\sum_{aerodrome=1}^{N}\left(\sum_{day=1}^{14}\left((Availability_{aerodrome})_{Day}\right)\right)}{\frac{N}{Day}}\ \%$$

F.2.2.7.3 TAF Timeliness per State

Aerodrome = Aerodrome Full operational.

REP_RX = Received TAF-Reports per day, not NIL and not counting BBB=A@@.

reports = TAF-Reports per day received too early or too late: RXTime > 60' too early against the TAF Validity Period (@@G_1 G_1 G_1 G_1/@@ G_2 G_2 G_2 G_2) or TXTime later than the start of the TAF Validity Period @@G_1 G_1 G_1 G_1.

$\text{Timeliness}_{\text{aerodrome}}$ = Aerodrome Timeliness per Day = $\left(\frac{\#REP\_RX - reports}{\#REP\_RX}\right) * 100{,}00\%$

$\text{Timeliness}_{\text{State}}$ = Average State Timeliness for number of monitoring days.

$$\text{Timeliness}_{\text{State}} = \frac{\sum_{aerodrome=1}^{N}\left(\sum_{day=1}^{14}\left((Timeliness_{aerodrome})_{Day}\right)\right)}{\frac{N}{Day}}\ \%$$

F.2.2.7.4 METAR Availability per State

Aerodrome = Aerodrome Full operational.

REP_RX = Observations received per day not NIL; not counting BBB=C@@; not counting BBB=A@@.

REP_EXP = Observation expected per day = 24 or 48 for Full operational aerodrome.

N = Number of aerodromes (Full operational) per State.

day = monitoring day starting at 1 till 14.

$\text{Availability}_{\text{aerodrome}}$ = Aerodrome Availability per Day = $\left(\frac{\#REP\_RX}{\#REP\_EXP}\right) * 100{,}00\%$ minimum 0,00% and maximum 100,00%.

$\text{Availability}_{\text{State}}$ = Average State Availability for number of monitoring days.

$$\text{Availability}_{\text{State}} = \frac{\sum_{aerodrome=1}^{N}\left(\sum_{day=1}^{14}\left((Availability_{aerodrome})_{Day}\right)\right)}{\frac{N}{Day}}\ \%$$

F.2.2.7.5 METAR Timeliness per State

Aerodrome = Aerodrome Full operational.

REP_RX = Observations received per day not NIL; not counting BBB=C@@; not counting BBB=A@@.

REP_EXP = Observation expected per day = 24 or 48 for Full operational aerodrome.

N = Number of aerodromes (Full operational) per State.

day = monitoring day starting at 1 till 14.

reports = Observations per day received too late: RXTime > 10' too late against the HHMM in the Report-Date-Time Group (DDHHMMZ).

$\text{Timeliness}_{\text{aerodrome}}$ = Aerodrome Timeliness per Day = $\left(\frac{\#REP\_RX - reports}{\#REP\_RX}\right) * 100{,}00\%$

$\text{Timeliness}_{\text{State}}$ = Average State Timeliness for number of monitoring days.

$$\text{Timeliness}_{\text{State}} = \frac{\sum_{aerodrome=1}^{N} \left(\sum_{day=1}^{14} \left((Timeliness_{aerodrome})_{Day}\right)\right)}{\frac{N}{Day}} \%$$

F.2.2.8 Average State TAF Performance Indices per State

F.2.2.8.1 Merge of FC- and FT-Indices to TAF-Indices per Station and per day. For every Station, occurring FC-Performance is discarded where FT-TAFs are produced also. Hence, for those Locations the TAF-Performances in fact are the FT-Performances since the FC-Performances are discarded. From the daily TAF (FC and FT, FT where both FCs and FTs are issued) Location Availability and Timeliness Indices, for each day the State Performance Indices are getting generated. Then, the State average TAF Availability and Timeliness Indices are produced for the referenced monitoring period.

F.2.3 Report for States

F.2.3.1 States that have not attained the 95% threshold for Availability and/or Timeliness are entitled to request for a report that shows the details for remedial or corrective actions. Possible actions are:

- Update the eANP Volume II Table MET II-2 OPMET data requirements also considering the METAR/SPECI and TAF Availability parameter (eANP Column 12) indicating Full or Partial Operability.
- Optimize the compilation and the distribution of data in terms of Availability and Timeliness.
- Resolve OPMET data format errors.
- DMG Monitoring corrective actions.
- DMG metrics for calculating the ICAO OPMET Performance Indices.

F.2.3.2 ICAO EUR, METG, DMG Members, ROCs can request reports from other States.

F.2.3.3 The DMG just calculates and reports the ICAO OPMET Performance Indices based on the yearly 01-14 February OPMET Data Monitoring Exercise.

F.2.3.4 The DMG does not interpret the resulting Performance Indices for States nor does it initiate any actions on behalf of States.

F.2.3.5 The DMG can accommodate States' request for reporting the details of the Performance Indices results. The levels of details to be considered are related with the calculation metrics:

- Relevant monitoring details: data received or not; receipt time; NIL or not NIL; received CORs, RTDs, AMDs, format errors.
- From Step 1, the monitored aerodrome METAR MM-Observation Times / TAF Validity Periods on daily basis.
- From Step 2, per day of the referenced DMG OPMET data monitoring period: the figures of States' Availability and Timeliness Indices and of the eANP aerodromes per State.

F.2.3.6 Because of the large volumes of data involved and restricted time allowance, the intention is to anticipate to formal requests for information from States that have been reported with OPMET Performances below the thresholds. The presented information at first shall be limited to formal lists of details on the State's aerodromes that have not attained the Availability and/or Timeliness thresholds. This should be sufficient for States to investigate internally the production and distribution of eANP OPMET data.

F.2.3.6.1 First level of details includes: with reference to the DMG OPMET Data Monitoring Exercise, per State and all the State's eANP full-operational aerodromes with faulty Availability and/or Timeliness results.

F.2.3.6.1.1 For METAR:

- SAobstime_Catalogue_Mon_*DDMM_State*: For every day, all the State's full-operational aerodromes with faulty Availability and/or Timeliness results and the information determined by Step 1 of the metrics: regular Observation Times (MM = Obs1 ... Obs5); indicative Operational Hours (From – Till), percentages of Availability and Timeliness on that day.
- ICAO_OPMET_SA_FULL_FAULT_PERFORMANCE_ *DDMM_State*: Per day from the results of Step 2, for the State, from aerodromes with Available and/or Timeliness below 95% the monitored valid METARs are listed to show up shortcomings.

F.2.3.6.1.2 For TAF:

- (*FC/FT*)vPeriod_Catalogue_Mon_*DDMM_State*: For every day of the reference DMG monitoring period, from full-operational locations with insufficient TAF Availability and/or Timeliness (below 95%), the observed valid TAF Validity Periods (VPeriod1 ... VPeriod10 = $G_1G_1G_2G_2$); indicative Operational Hours (From – Till), percentages of Availability and Timeliness are listed.
- ICAO_OPMET_*(FC/FT)*_FULL_FAULT_PERFORMANCE_*DDMM_State*: from Step 2, list of received FC/FT-TAFs from aerodromes with low TAF Availability and/or low TAF Timeliness per day of the reference DMG monitoring period.

F.2.3.6.2 The DMG does also calculate the ICAO OPMET Performance Indices:

- for all Non-EUR Region States;
- for eANP Partial Available aerodromes.

Data missing because of format errors can be traced.
The information is available on explicit and motivated request to the DMG.

G APPENDIX G - RODEX Backup Procedure

~~UNDER CONSTRUCTION~~

G.1 Introduction

G.1.1 Purpose

G.1.1.1 With the replacement of the MOTNE- by the RODEX-system (Regional OPMET Data Exchange) in 2009, the possibility has been created to implement a backup functionality between the three remaining ROCs (Regional OPMET Centre). This document provides a description of

- the principles of the backup-procedure
- the scenarios in which backup will be applied
- the ROC specific procedures to be followed

G.1.1.2 With the implementation of the fourth ROC, namely ROC Moscow, the first version of the backup procedure was reworked and changed in order to improve the efficiency.

G.1.1.3 The purpose of the backup-procedure is to guarantee the availability of alphanumeric as well as IWXXM OPMET-data at all NOCs (National OPMET Centre) in case of a long-term outage of a ROC due to e.g. fire, flood or technical problems caused by a massive soft- or hardware failure.

G.1.2 Backup in case of COM-Centre Outage

G.1.2.1 No backup procedure is defined for a COM-Centre Outage.

G.1.2.2 A ROC is associated to its national AFS COM-centre for the RODEX exchange of the OPMET data. A failure of the COM-centre causes the ROC to become unreachable and therefore unable to exchange date to/from its AoR. Also, the NOC functionalities are concerned meaning, that national data can't be disseminated as well as international data received via the AFS.

G.1.2.3 To be able to provide OPMET data backup in case of a failure of the COM-centre a ROC is connected with, it would be necessary that each NOC and IROG in the ROC AoR manually changes the address of the failing ROC to the address of the backup-ROC. Otherwise, it would not be possible to provide a certain level of backup.

G.1.2.4 Apart from the missing meteorological data and the impact to many NOCs, a COM-centre outage will have a much bigger impact on flight operations as this will also affect the dissemination of flight plans, NOTAMs and a lot of other important operational data.

G.1.2.5 Therefore, such an outage is not handled by this procedure.

G.1.3 Backup in case of RODB Outage

G.1.3.1 **No backup procedure is defined for a Regional OPMET-DB outage**.

G.1.3.2 If one of the three EUR-OPMET-DBs is not available, users can query one of the two remaining databases. All three databases hold almost the same content. Further details about

the RODBs can be found in Doc.018, Appendix A (Interface Control Document) *which can be found on the website of the ICAO EUR/NAT Office.*

G.1.4 Normal operation

G.1.4.1 The following picture gives a rough overview on the alphanumeric data flow in normal operations.

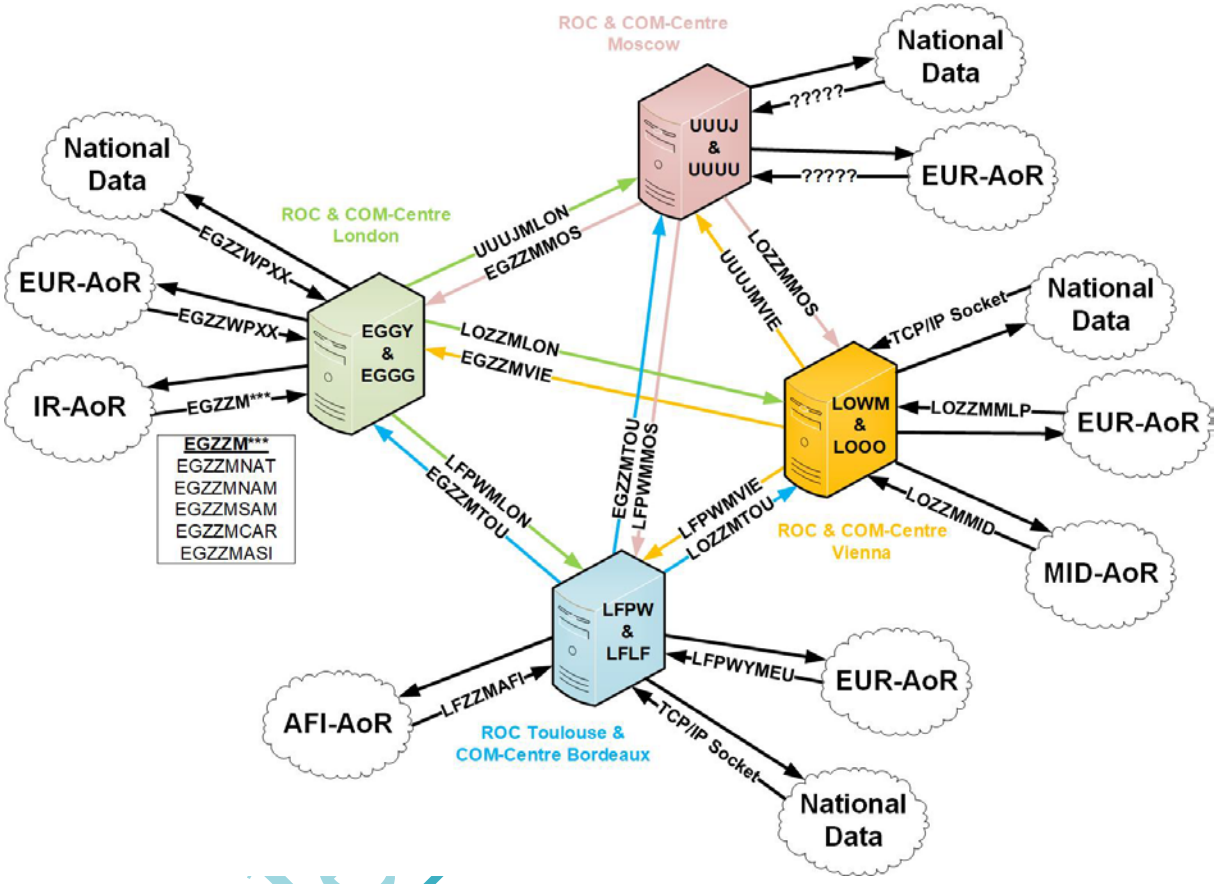


Figure 1: Alphanumerical OPMET Data flow in normal operations

G.1.4.2 There are special AMHS-addresses used for data exchange between the three ROCs compared to those used by the NOCs in their AoR. This is to prevent looping of data in case of an outage. If e.g. ROC London would experience a long-term outage causing the activation of the backup procedure, the COM-Centre London will send all data addressed to EGZZWPXX and EGZZM*** directly to the two remaining ROCs. If the two remaining ROCs would also use EGZZWPXX, this would result in receiving back their own data from COM-Centre London. Although suppression of double receptions is implemented at all three ROCs, looping of data can't be ruled out completely. Therefore, those special addresses where implemented.

G.2 Rules to be Followed

G.2.1 General

G.2.1.1 The most important principal is the following:

The whole Backup Procedure is based on the usage of the ICAO AFS only by exchanging data via AFTN or (ext.) AMHS.

G.2.1.2 National procedures already in place, covering an outage of the MET-Switch, are not described within this document. Furthermore, planned outages due to hardware changes or software updates are not covered in this document, as those are normally no long-term outages. Such events are covered by national procedures.

G.2.2 When to activate the procedure?

G.2.2.1 It is not possible to define fixed values for when the backup procedure shall be initiated. This decision is up to ROC/IROG and must be considered by the management in close coordination with the IT-department and operators.

G.2.2.2 Nevertheless, if an outage occurs that lasts more than 30 minutes and it is obvious that the system will not be up and running again within a short period of time the respective ROC shall at least contact the remaining ROCs to inform them about the actual situation.

G.2.2.3 Further details on the Initiation of the backup procedure can be found in paragraph G.10

G.2.3 Which centre is the Backup?

G.2.3.1 It has been agreed between the ROCs that the most efficient and effective setup is to define pairs of ROCs which will back up each other in case of a long-lasting outage.

G.2.3.2 The following two pairs were defined:

- Pair one: ROC London ⇔ ROC Toulouse
- Pair two: ROC Moscow ⇔ ROC Vienna

G.2.3.3 In order to be able to provide the backup functionality, the ROCs should regularly exchange and update their routing information as well as information about the compilations, national or due to bilateral agreements, done. The ROCs agreed on the following principles.

G.2.4 Exchanging Routing Information

G.2.4.1 The ROC backup pairs will exchange their OPMET routing tables to allow preparing for the situation when back up for the partner-ROC has to be provided. It has been agreed that the backup routing tables will only consist of WMO headers for bulletins that have been agreed to be exchanged under the ICAO EUR DMG RODEX exchange mechanism. Routing for "national only" as well as "bi-lateral" exchange will not be implemented in a ROC backup situation.

Note – The original mechanism for identifying ROC routing tables and location was the Regional OPMET Data Catalogue (RODC) system but this project has been left at the design stage due to DMG resource constraints for some time and is presently gradually reconsidered and evaluated.

G.3 ROC Routing Table format, content and update frequency

G.3.1 The routing information should be provided, where possible, as a field separated (e.g. csv) plain text file using an ASCII character set to allow for the automated insertion of the data into switching systems.

G.3.2 The content should consist of pairs of the AFTN-address where the data shall be sent to and the WMO bulletin header to be sent.

e.g.
```
EBZZYBYX,SAUK31 EGGY
LOZZMLON,FCUK31 EGGY
LFPWMLON,FCUK31 EGGY
LFPWMLON,FTUK31 EGGY
```

G.3.3 The routing tables to be used for a ROC back up should ideally be exchanged after each AIRAC date to reflect changes based on the latest METNO message.

G.4 Exchanging Compilation Information

G.4.1 Where possible, the backup ROC shall also take over the responsibility to issue the national compilations for the failing ROC. In order to be able to fulfil this task the following information should be shared amongst the concerned ROCs:

- OPMET Bulletin Abbreviated Header (TTAAii CCCC)
- Content (ICAO Location Indicator of aerodromes included per OPMET ABH
- Frequency and time to produce METAR-, TAF-bulletins
- National specialities (if any)

G.4.2 Each ROC is responsible to update the above information in case of any changes to the production.

G.4.3 If not received via AFS, possible solutions should be discussed on how the single reports could be provided in a backup situation.

G.5 General Impact in Case of an Outage

G.5.1 Impact on NOC, ROC & IROG Functionalities

G.5.1.1 In case of an outage of a ROC, also the functionalities as a NOC are impacted. Therefor the following services can’t be provided:

- Compilation and distribution of national routine OPMET data
- Distribution of national non-routine OPMET data
- Centres in the RODEX AoR will not be provided with OPMET data
- Centres in the RODEX AoR will not have their data disseminated

G.5.1.2 In case a ROC also provides IROG functionalities, the following services can’t be provided in addition:

- OPMET data from outside the EUR/NAT region will not be relayed.
- EUR/NAT OPMET data will not be provided to other ICAO-regions

G.5.2 Impact on SADIS

G.5.2.1 In case of a ROC London outage there is also an effect on SADIS because the UK Met Switch provides the SADIS OPMET Gateway functionality. This means, that OPMET data (TAC & IWXXM) would not be provided to SADIS.

G.5.2.2 For SADIS as such there is already an established contingency option via the USA administered 'WAFS Information File Service' (WIFS). SADIS users who have arranged backup accounts with the WIFS provider may, subject to certain restrictions, access WIFS under contingency scenarios.

G.6 Technical Setup of ROC London

G.6.1 The following figure depicts a high-level overview of the system set up at ROC London.

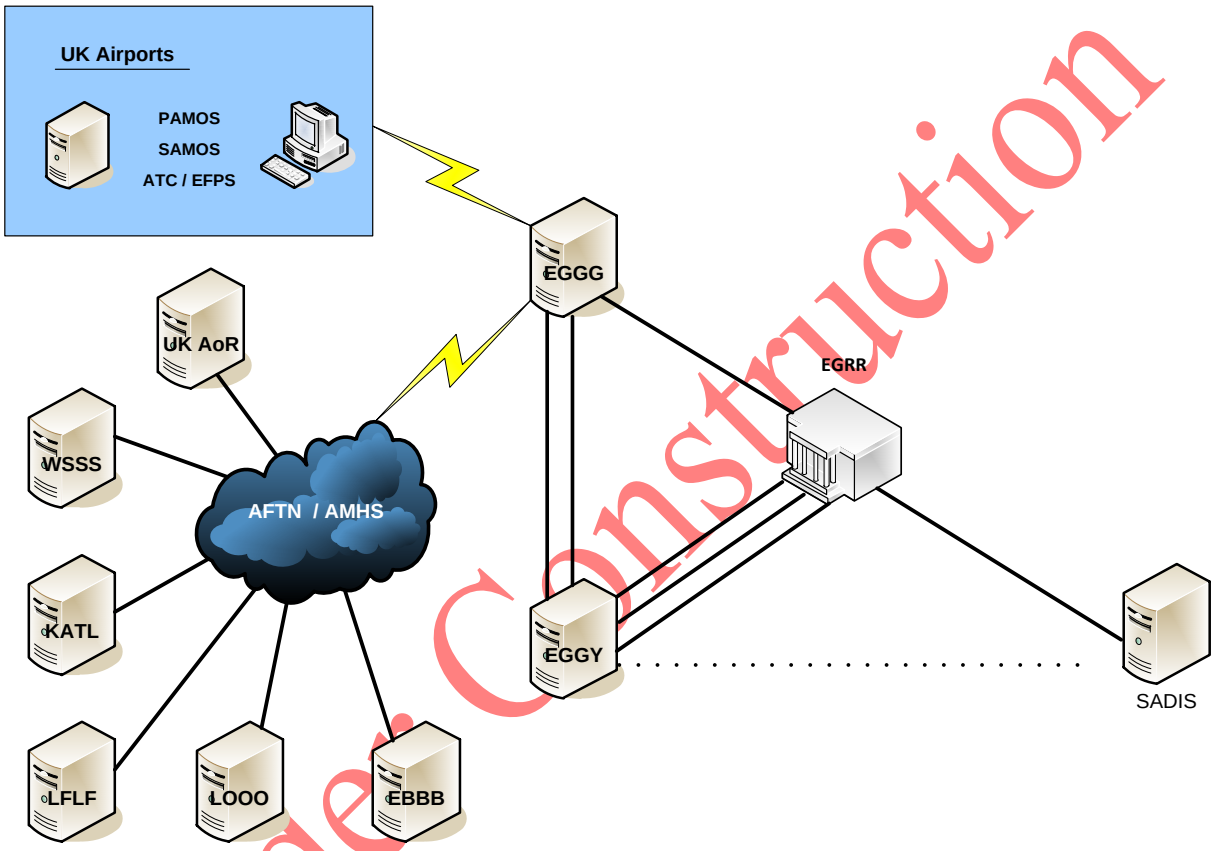


Figure 2: Technical Setup ROC London

G.6.2 The diagram should be self-explanatory, however it should be noted that currently ROC London is reliant on both the Com Switch, AMS-UK, and the OPMET Switch, CoreMet, to operate normally. Although the OPMET Switch has external connections, the primary method of OPMET distribution, excluding SADIS, is via AFTN.

G.6.3 All OPMET data sent to EGGY for distribution, whether from inside EUR/NAT, outside EUR/NAT or from the UK MWO, is received first by the Com Switch which forwards it to the OPMET switch. The OPMET switch then performs compilation and assigns onward routing. The OPMET switch currently assigns PDAIs to the OPMET data which is then translated at the Com switch for final distribution via AFTN PDAI.

G.6.4 This current method of distribution, PDAI distribution, is being withdrawn and the UK is moving toward multiple addresses for each bulletin.

G.7 Technical Setup ROC Toulouse

G.7.1 The following figure depicts a high-level overview of the system set up at ROC Toulouse.

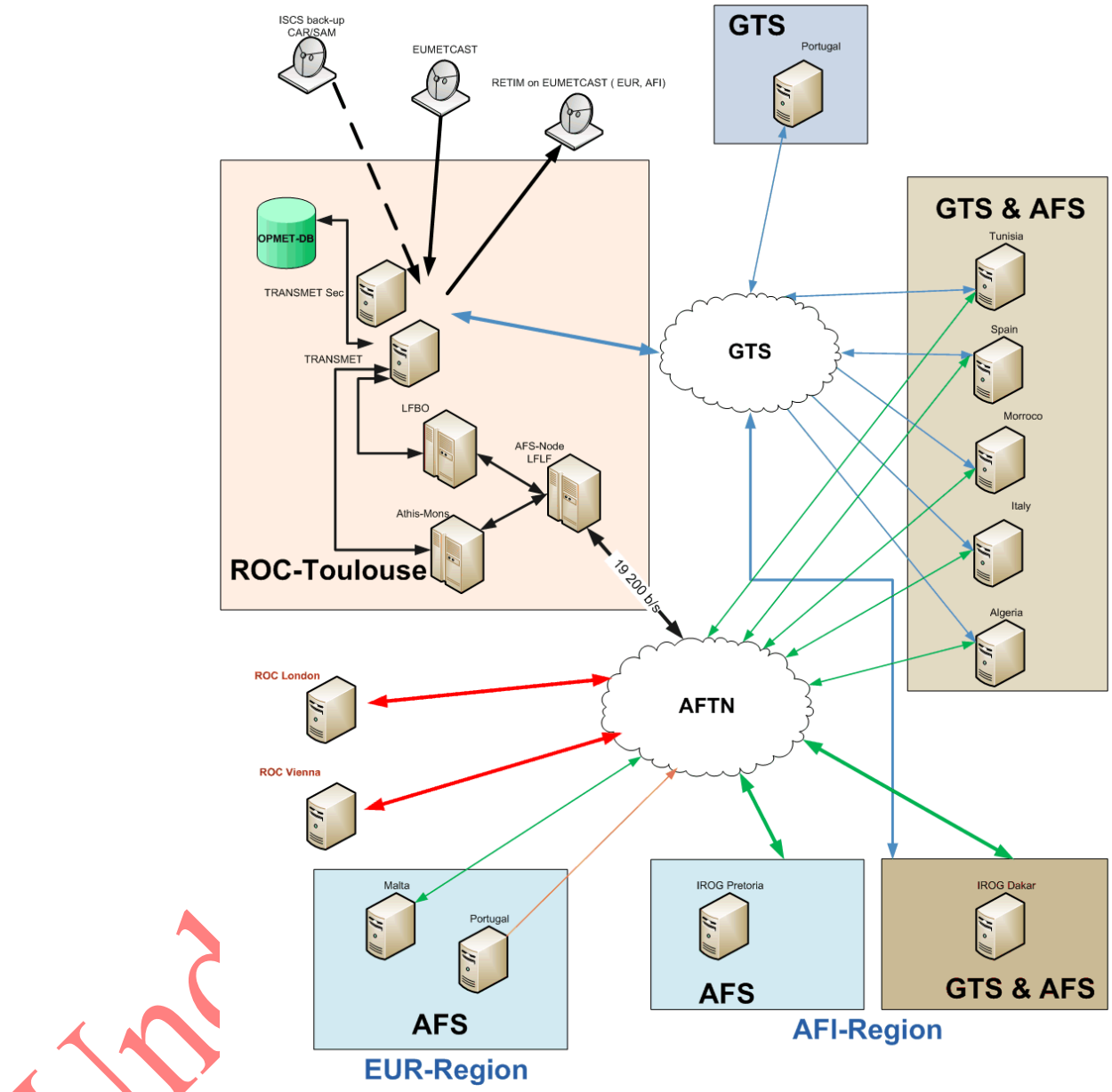


Figure 3: Technical Setup ROC Toulouse

G.7.2 This overview shows that ROC Toulouse is exchanging OPMET data both via AFS and/or AMHS (extend) and GTS as back-up where feasible.

G.7.3 All States within the area of responsibility of ROC Toulouse send their data by AFTN/AMHS to ROC Toulouse and also by GTS as a permanent back-up link, using the duplicate erase functions of the TRANSMET MSS to avoid multiple dissemination of the same data.

G.7.4 All States within the area of responsibility of ROC Toulouse receive their data by AFTN/AMHS and by GTS, except from Portugal which is using SADIS for receiving OPMET-data.

G.7.5 Malta sends and receives OPMET data via AFTN only.

G.8 Technical Setup ROC Vienna

G.8.1 The following figure depicts a high-level overview of the system set up at ROC Vienna.

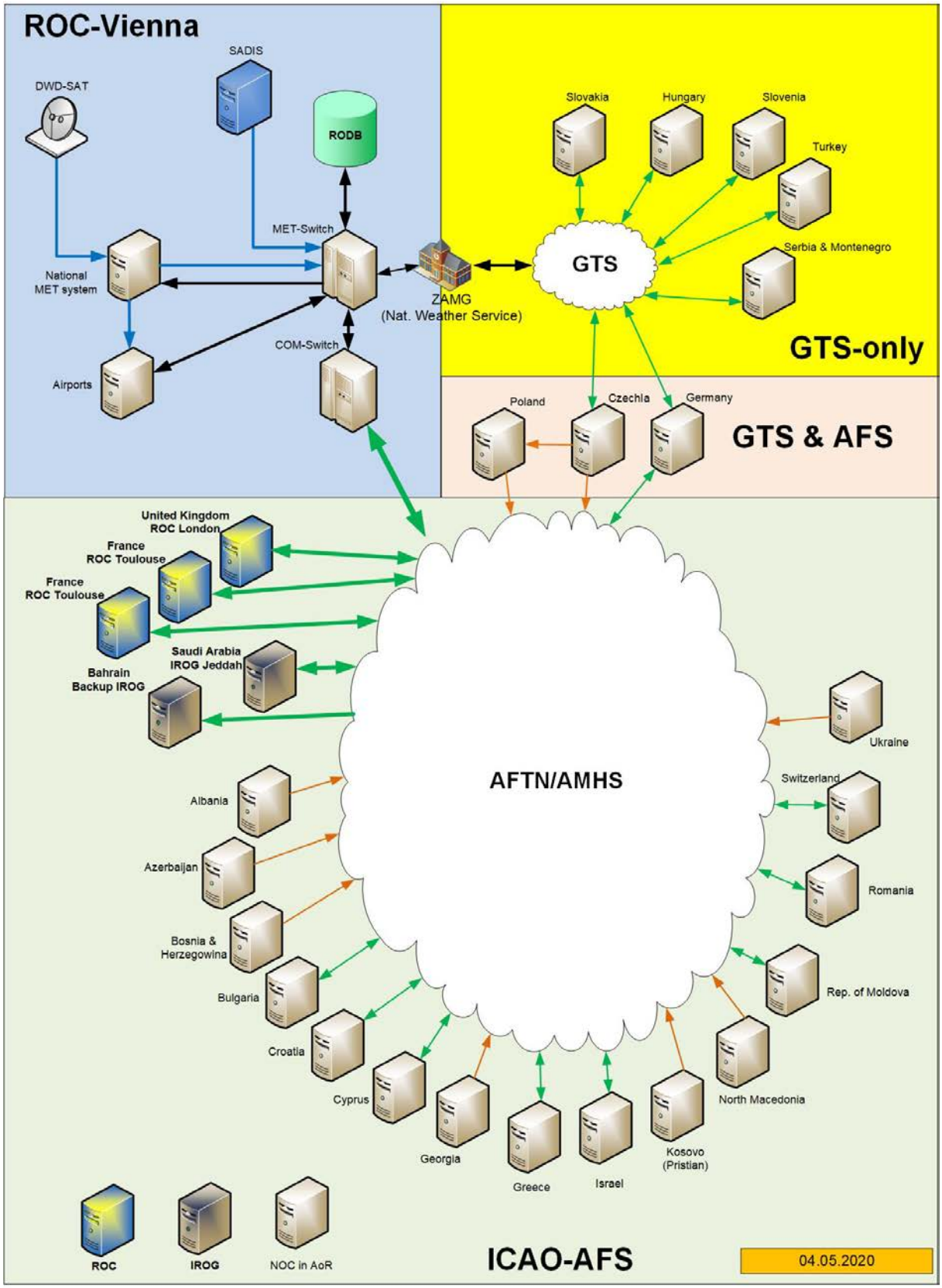


Figure 4: Technical Setup ROC Vienna

G.8.2 The MET-Switch as well as the OPMET-DB and the COM-Switch are located within the same network. The ATM-system, which is not depicted in the figure, is connected via AFTN to be supplied with needed OPMET-data.

G.8.3 There is also a WAN connection to the Austro Control internal MET-system MEDAS (Meteorological Database and Application Server). This system is used by meteorologist as well as observers for their daily work. A MEDAS-server is situated at each international aerodrome. There is also one server in the ACG HQ, functioning as a backup for the systems at the airports.

G.8.4 The MET-switch also has direct connection to SADIS as an alternative data source.

G.8.5 A leased line connection to ZAMG (Austrian National Weather Service) is used to achieve connectivity to the WMO-GTS network. This must be mentioned due to the fact that some centres are not connected via AFS but via GTS only to exchange OPMET-data.

G.8.6 In many countries National Weather Services (NWS) have been contracted by ANSPs to provide OPMET products. These organizations often do not have an AFTN-connection for international exchange and therefore only use GTS. The OPMET data is provided to ANSPs directly via dedicated communication lines based on national agreements.

G.8.7 As the whole backup procedure is based on the usage of the ICAO AFS, this leads to the problem that there is no possibility to exchange OPMET data via AFS with some centres in the AoR of ROC Vienna. For which states this is the case can be identified from the figure in G.8.1.

G.8.8 In some states, there is at least an AFTN-system at an airport that could be used in a backup situation.

G.8.9 When looking at the Vienna AFS-connections depicted in the figure in G.8.1, it can be seen that there are a lot of countries that do send OPMET-data directly to ROC Vienna but are not supplied by the ROC. Those get their data from other sources like GTS or SADIS.

G.8.10 Due to the above-described situation, it is, in a backup scenario, not possible to provide backup for the whole AoR of ROC Vienna.

G.9 Technical Setup ROC Moscow

G.9.1 The following figure depicts a high-level overview of the system set up at ROC Moscow.[PM1]

G.10 ROC Outage Procedure

G.10.1 Normal Operation - General

G.10.1.1 The figure in paragraph G.1.4.1 depicts the routing between the ROCs in normal conditions.

G.10.1.2 Differences in the technical implementation by the ROCs/IROGs can be found in the respective paragraphs G.6 (London), G.7 (Toulouse), G.8 (Vienna) and G.9 (Moscow).

G.10.1.3 A ROC is receiving most alphanumerical and IWXXM-OPMET data via the national COM-Centre. The same applies to IROGs receiving OPMET data from other ICAO-regions.

G.10.1.4 National OPMET data is, in most cases, exchanged via dedicated national networks. Some centres use the COM-centre also for national purposes, like ROC London.

G.10.1.5 In some cases, other networks (e.g. GTS) are used by ROCs to receive OPMET data from centres in the AoR. In such a case OPMET-data from/to those centres can't be backed up due to the basic principal of the whole procedure:

The whole Backup Procedure is based on the usage of the ICAO AFS only by exchanging data via AFTN or (ext.) AMHS.

G.10.1.6 The received OPMET data is sent by the COM-centre without any delay to the ROC/IROG where it is treated according to the "Message Validation Procedure" described in chapter 12 of the EUR OPMET Data Management Handbook.

G.10.1.7 After this process, the data is disseminated according to the definitions in the local routing table to national users, ROCs and NOCs in the EUR-AoR as well as to I/R-Gateways in the other ICAO-regions. The routing within the EUR-region is based on the different requirements stated by the users in the AoR.

G.10.2 Procedure to start the backup

G.10.2.1 This procedure is also displayed as a flow chart, which can be found under paragraph G.11 as Attachment A.

G.10.2.2 If, due to technical or other reasons, a ROC is getting unavailable, all incoming messages routed to that ROC would queue at the dedicated COM-Centre which has to take care of that data according to national procedures. Hence, no data from the AoR (regional and interregional) of the failing ROC will be routed to the remaining ROCs. NOCs in the AoR will neither receive any OPMET-data via the AFS.

G.10.2.3 Initial information about an outage should be given to the other ROCs if the outage is at least lasting 30 minutes and it can be foreseen the system will not be up and running within a short time.

G.10.2.4 The failing ROC will work on the recovery of the system based on local procedures. It is up to the management to decide whether the backup procedure has to be activated.

G.10.2.5 As a minimum, the remaining ROCs should be updated regularly about the actual situation.

G.10.2.6 Once the management has decided to activate the backup procedure, the designated Backup-ROC will be informed using the communication means defined between the two ROCs (phone, mail, FAX,…).

G.10.2.7 Actions by the Backup-ROC

G.10.2.7.1 Once activated, the Backup-ROC has to conduct the following tasks:

- activate the predefined backup routing
- take over the compilation of bulletins for the failing ROC (if possible)
- issue the following notification message

NO$A_1A_2$01 $C_AC_AC_AC_A$ YYGGgg
ATTENTION ALL CENTRES!!!!

DUE TO A TECHNICAL PROBLEM THE EUR-REGIONAL OPMET CENTRE $C_BC_BC_BC_B$ IS DOWN UNTIL FURTHER NOTICE.

REGIONAL OPMET CENTRE $C_AC_AC_AC_A$ HAS STARTED TO PROVIDE OPMET DATA BACKUP FOR CENTRES IN THE $C_BC_BC_BC_B$ AREA OF RESPONSIBILITY

AS FAR AS POSSIBLE REGIONAL OPMET CENTRE $C_AC_AC_AC_A$ WILL PROVIDE COMPILATIONS OF NATIONAL OPMET DATA FOR REGIONAL OPMET CENTRE $C_BC_BC_BC_B$=

A_1A_2	= Country Code of Backup-ROC (UK, FR, OS, RS)
$C_AC_AC_AC_A$	= Location Indicator of Backup ROC (EGGY, LFPW, LOWM, UUUJ)
$C_BC_BC_BC_B$	= Location Indicator of failing ROC (EGGY, LFPW, LOWM, UUUJ)

G.10.2.8 Actions by the failing ROC

G.10.2.8.1 The failing ROC has to conduct the following tasks:

- alter distribution lists at the national COM-centre by adding the addresses of the remaining ROCs for all OPMET data addressed to the failing ROC
- Initiate the issuance of a NOTAM according to the following draft

Axxxx/YY NOTAMN
Q) xxxx/Qxxxx/IV/NBO/A/000/999/5129N00028W005
A) xxxx
B) YYMMDDhhmm
C) YYMMDDhhmm EST
E) DUE TO A TECHNICAL PROBLEM REGIONAL OPMET CENTRE [LONDON | TOULOUSE | VIENNA | MOSCOW] IS NOT AVAILABLE. BACKUP FOR OPMET-DATA IS PROVIDED BY REGIONAL OPMET CENTRE [LONDON | TOULOUSE | VIENNA | MOSCOW]. Description of effects for pilots!![PM2]

G.10.2.8.2 Due to different national procedures and technical setups, different possibilities for national entities to send data to a Backup-ROC, for further compilation and dissemination, are applicable. Those are:

- ROC London
  - Inform UK MET-Office to start backup procedure by sending all Warnings and TAF-messages directly to LFPWMLON for compilation

- ROC Vienna
  - Inform local forecasters and observers at the airports to the backup procedure via AFS to send OPMET-data directly to UUUJMVIE in order to enable ROC Moscow to compile and disseminate national OPMET-data[PM3]
- ROC Toulouse
  - Inform LF production centres to send all their data via E-mail to London (Details regarding possibility of that solution have to be discussed)
- ROC Moscow
  - To be investigated

G.10.3 Backup in Operation

G.10.3.1 General

G.10.3.1.1 The following figure depicts the situation after the backup procedure has been activated.

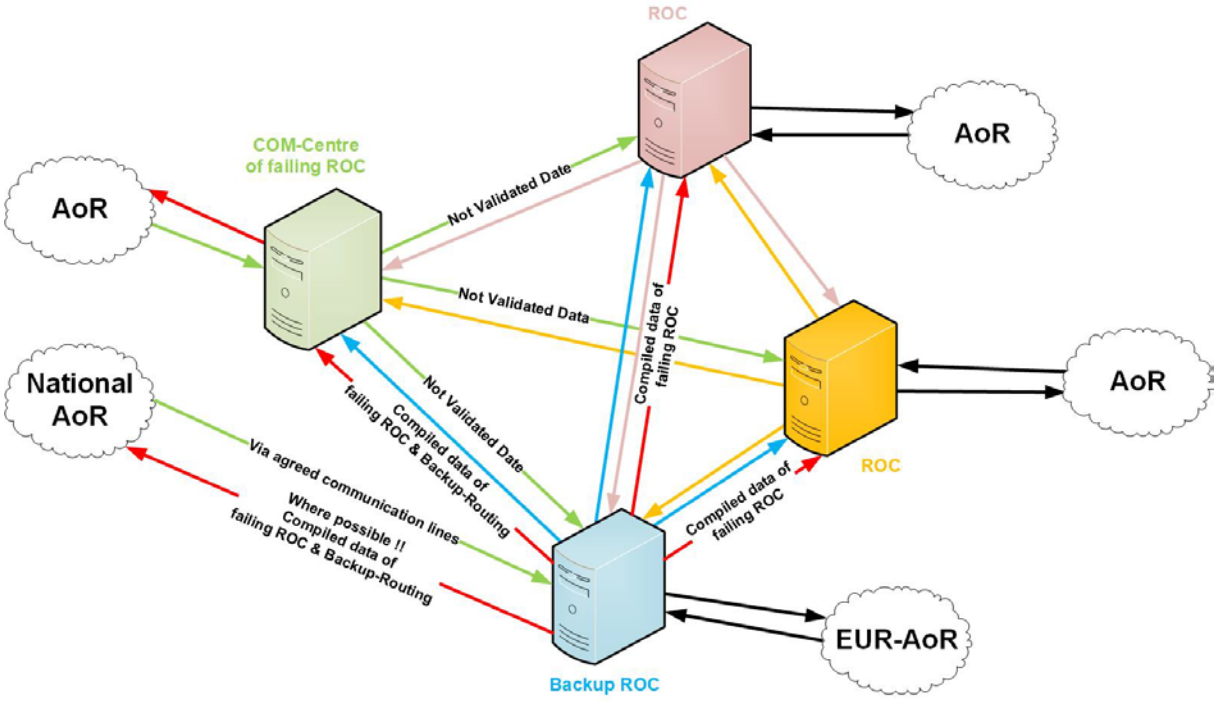


Figure 5: Data Exchange in Case of ROC-Backup

G.10.3.1.2 In this situation not validated data is relayed by the COM-Centre related to the failing ROC to the three remaining ROCs. This may have as a consequence that operators are facing additional message to be corrected if no functionalities are provided by the message switching system to exclude data of other AoRs from the validation process.

G.10.3.1.3 The Backup ROC is now not only serving the centres in its own AoR but also those in the AoR of the failing ROC. The data is sent via the AFS directly to the respective centres.

G.10.3.1.4 Additionally, where this is possible, the Backup-ROC is compiling the national data of the failing ROC and sends it to the other ROCs as well as to centres in the AoR of the failing ROC.

G.10.3.2 Effect on SADIS

G.10.3.2.1 SADIS is not seen as part of the AFS in regard to OPMET data exchange. Nevertheless, some states use SADIS as the main source for OPMET-data. The majority od states use SADIS as an additional source.

G.10.3.2.2 For centres using the AFS for OPMET data exchange, in most backup situations the availability of OPMET-data via SADIS is guaranteed. Centres using other communication lines only (e.g. GTS), will not be able to have their data exchanged in case of a failure of their responsible ROC due to the basic principal of the whole procedure:

The whole Backup Procedure is based on the usage of the ICAO AFS only by exchanging data via AFTN or (ext.) AMHS.

G.10.3.2.3 In case of an outage of ROC London, no OPMET data is provided to UK Met Office for provision via SADIS. The provision of EUR-OPMET data to IROG Washington is still done and therefore all data should be available via WIFS.

G.10.4 Procedure to recover from Backup Operation

G.10.4.1 As soon as all problems have been solved and the failing ROC is ready to resume normal operation, the following actions (according to the flow chart in **Attachment D**) shall be performed:

- The failing ROC shall contact the Backup-ROC in order to co-ordinate the time to stop the Backup Procedure
- The failing ROC shall contact national entities to inform about the time of stopping the Backup Procedure

G.10.4.2 It is recommended that this co-ordinated time will be after the compilation of the next planned METAR-bulletin, in case this service was provided by the Backup-ROC.

G.10.4.3 At the coo-ordinated time the Backup-ROC will

- stop the backup routing and compilation of national data of the failing ROC
- issue a NO-message to inform all centres that the failing ROC is back in service

NO$A_1A_2$01 $C_AC_AC_AC_A$ YYGGgg
ATTENTION ALL CENTRES!!!!

THE EUR-REGIONAL OPMET CENTRE $C_BC_BC_BC_B$ WILL RESUME OPERATION AT HH:MM UTC.

REGIONAL OPMET CENTRE $C_AC_AC_AC_A$ WILL STOP BACKUP SERVICE.

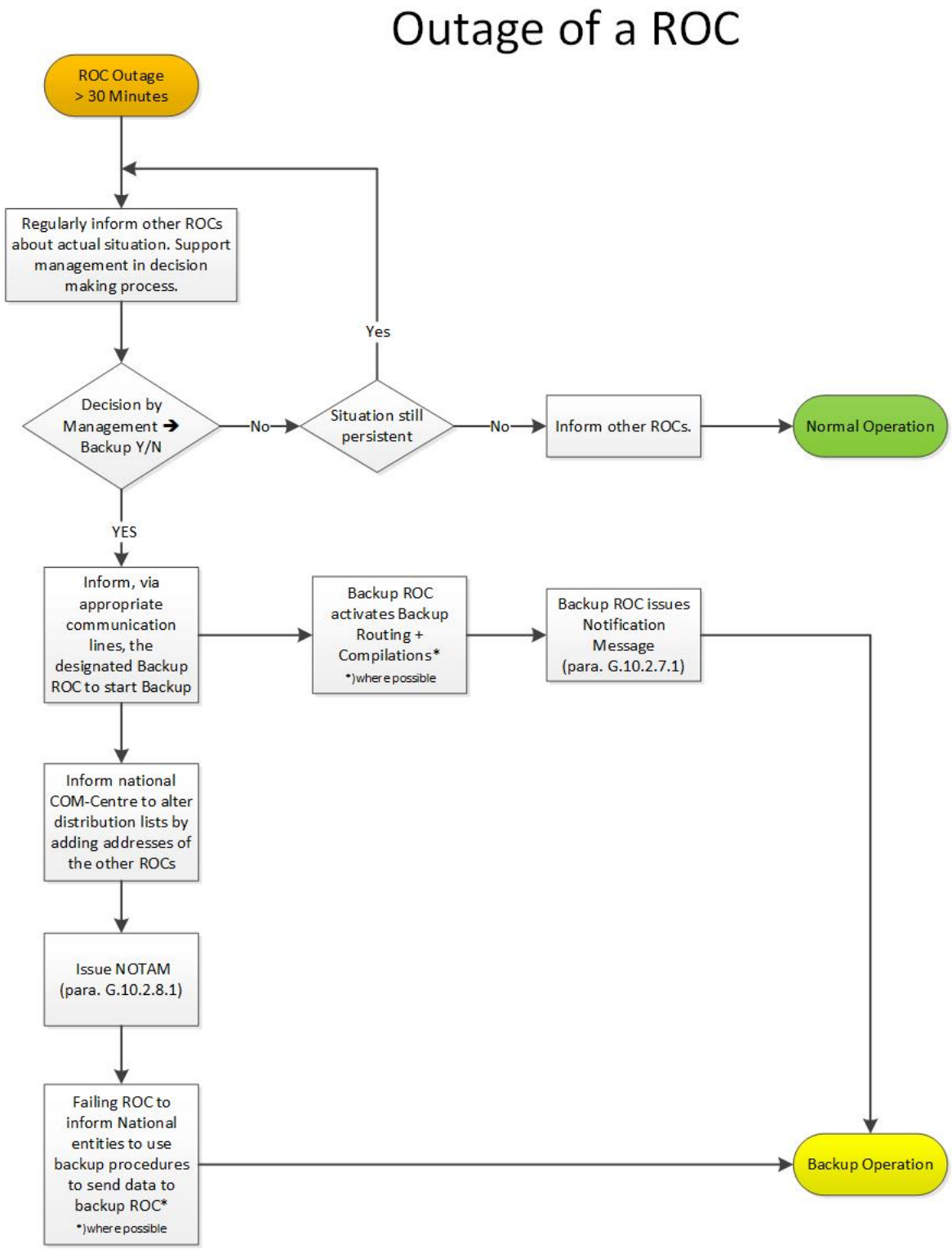
A_1A_2	= Country Code of Backup-ROC (UK, FR, OS, RS)
$C_AC_AC_AC_A$	= Location Indicator of Backup ROC (EGGY, LFPW, LOWM, UUUJ)
$C_BC_BC_BC_B$	= Location Indicator of failing ROC (EGGY, LFPW, LOWM, UUUJ)

G.10.4.4 In parallel the COM-Centre related to the failing ROC will

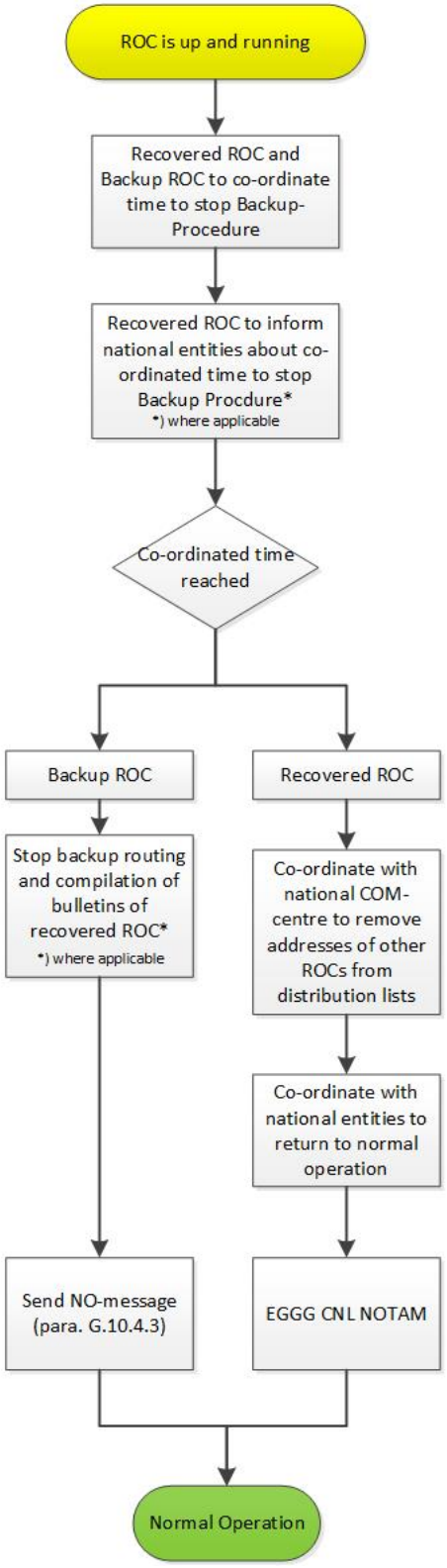
- update the disseminations lists by removing the addresses of the other ROCs and send all OPMET data to the failing ROC
- cancel the NOTAM

G.10.4.5 Within a short period, there may occur double transmissions of OPMET data within the AoR of the failing ROC.

G.11 Attachment A – Flow Charts for Outage and Recovery of a ROC



Recovery of a ROC



H APPENDIX H – List of Acronyms

ACC	Area control centre
AFI	African region
AFS	Aeronautical Fixed Service (throughout this document AFS refers to the ground segments, namely AFTN and AMHS)
AFTN	Aeronautical fixed telecommunication network
AHL	Abbreviated header line
AIRMET	Information concerning en-route weather phenomena which may affect the safety of low level aircraft operations (up to FL 100 (FL 150 or higher in mountainous areas)).
AMHS	ATS Message Handling System
AMO	Aerodrome meteorological office
ANP	Air navigation plan
AOP	Aerodrome operational planning
AoR	Area of responsibility
ASI	Asia region
AST-TF	AFS to SWIM Transition Task Force (former AFSG)
AST-TF/PG	AST-FT Planning Group
AST-TF/OG	AST-TF Operations Group
ATM	Air traffic management
ATSU	Air traffic services unit
BMG	Bulletin Management Group (predecessor of DMG)
CAR	Caribbean region
CIDIN	Common ICAO data interchange network
CNS	Communication, navigation and surveillance
COM	Telecommunication
CONOPS	Concept of operations
DB	Databank
DMG	Data Management Group
eANP	Electronic Air Navigation Plan
EANPG	EUR Air Navigation Planning Group
EASPG	EUR Aviation Systems Planning Group
EUR	European region
FASID	Facilities and services implementation document
FIR	Flight information region (global FIR map at following link: http://gis.icao.int/flexviewer/)
FTBP	File Transfer Body Part
GAMET	Area forecast for low-level flights.
GTS	Global Telecommunications System
IAVW	International Airways Volcano Watch
ICAO	International Civil Aviation Organisation
ICD	Interface control document
IROG	Inter-Regional OPMET Gateway
ISCS	International satellite communication system
IWXXM	ICAO Meteorological Information Exchange Model
METAR	Aerodrome routine meteorological report (in meteorological code)
METG	Meteorological Group of the EASPG
MID	Middle East region
MOTNE	Met Operational Telecommunications Network Europe
MOTNEG	Met Operational Telecommunications Network Europe Group
MWO	Meteorological watch office

NAM	North American Region
NAT	North Atlantic Region
NOC	National OPMET Centre
OPMET	Operational meteorological (information)
PAC	Pacific region
ROC	Regional OPMET Centre
RODB	Regional OPMET Databank
RODC	Regional OPMET Data Catalogue
RODEX	Regional OPMET Data EXchange
RQM	Meteorological databank request in TAC-format
RQX	Meteorological databank request in IWXXM-format
RPG	Regional Planning Group
SADIS	Secure Aviation Data Information Service
SAM	South American region
SARPs	Standards and recommended practices
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations
SPECI	Aerodrome special meteorological report (in meteorological code)
SWIM	System Wide Information Management
SWX	Space Weather
SWXA	Space Weather Advisory Message
SWXC	Space Weather Centre
TAC	Traditional Alphanumeric Code
TAF	Aerodrome forecast (in meteorological code)
TCA	Tropical cyclone advisory
TCAC	Tropical cyclone advisory centre
ToR	Terms of Reference
UTC	Coordinated Universal Time
VA	Volcanic ash
VAA	Volcanic ash advisory
VAAC	Volcanic ash advisory centre
VSAT	Very small aperture terminal
WAFC	World area forecast centre
WAFS	World area forecast system
WIFS	World Area Forecast System (WAFS) Internet File Service (backup SFTP SADIS)
WMO	World Meteorological Organisation
XML	Extensible Markup Language