

Components of AMBEX Scheme

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I. Components of AMBEX Scheme :

The AMBEX Scheme involves a number of aeronautical meteorological stations, aeronautical telecommunication stations, aerodrome meteorological offices and other operational units.

The following operational units should be considered as components of the AMBEX Scheme :

- OPMET data Originating stations;
- National OPMET Centers (NOCs);
- AMBEX Bulletin Compiling Centres (BCCs)-AMBEX Centres;
- Regional OPMET Data Banks (RODBs) ; and
- Interregional OPMET Gateways (IROGs).

1. OPMET Data Originating Centres or Originating Centres

It is an aeronautical meteorological station or an aerodrome meteorological office, or a forecasting office, a MWO, a TCAC, or a VAAC. The duties and responsibilities of these originating stations shall be defined by the State's meteorological authority.

2. National OPMET Centres (NOCs)

Normally, the NOC is associated with the State's national AMHS/AFTN centre/switch. The role of the NOC is to collect all OPMET messages generated by the originating stations in the State and to send them to the responsible AMBEX bulletin compiling center (AMBEX BCC). Some NOCs serve also as AMBEX BCCs. National regulations shall be developed to ensure that NOCs disseminate the international OPMET data within their own State.

3. AMBEX Bulletin Compiling Centre (AMBEX BCC or, in short, AMBEX centre)

AMBEX centres are responsible for the collection of OPMET messages from originating stations or NOCs in their area of responsibility and for compiling these messages into AMBEX bulletins.

FASID Tables MET 4A and MET 4B determine the areas of responsibility (or, collection areas) of the AMBEX centres for METAR/SPECI and AIREP SPECIAL, and TAF, respectively.

AMBEX centres are responsible for the transmission of the bulletins compiled by them to :

- other AMBEX centres, according to predefined distribution lists, specific for each bulletin;
- RODBs of the AFI Region (Dakar and Pretoria); and
- NOCs or other COM or MET offices in the States in their area of responsibility, as agreed between the AMBEX centre and the States' authorities concerned.

4. Regional OPMET Data Banks (RODB)

Two centres have been designated by APIRG (APIRG/13 Conclusion 13/67, 2001), to serve as Regional OPMET Data Banks: Dakar and Pretoria.

Appendix E and AMBEX FASID Table MET 4C reflects the requirements for the operation of the AFI OPMET data banks to support the AMBEX Scheme.

The AFI Regional OPMET Data Banks (RODBs) and the AMHS/AFTN addresses to be used for direct access to the banks are shown below:

BRDO	AMHS/RSFTA Address	Centres and area of responsibility
Dakar	GOOYYZYZ	Brazzaville/FCBB Dakar/GOOO Niamey/DRNN
Pretoria	FAPRYMYX	Addis Ababa/HAAB, Antananarivo/FMMI, Cairo/HECA Pretoria/FAPR (Johannesburg/ (FAOR)**) Nairobi/HKNA ** The BCC is located at the South African Meteorological Service headquarters

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

- Collect OPMET bulletins from the AMBEX centres in their area of responsibility and store them in the database.
- Handle all types of OPMET bulletins.
- Provide facilities for “request-reply” service to authorized users.
- Maintain a catalogue of bulletins and bring changes to the bulletins when necessary according to the established procedures.
- Quality control incoming bulletins and inform AMBEX centres of any discrepancies or shortfalls.
- Monitor OPMET traffic by carrying out regular tests on the availability and timeliness of bulletins; report to the ICAO Regional Office on the results.

a. Interrogation procedures

Interrogation procedures applicable to the designated RODBs and the OPMET information stored are presented in the AFI Regional Interface Control Document (ICD) - OPMET Data Bank Access Procedures.

b. Quality Control

Guidance on the management and quality control is provided in Chapter 12 of this Handbook.

Note. — The interrogation procedures applicable to the OPMET data banks and catalogues are provided in the “AFI Regional Interface Control Document (ICD) - OPMET Data Bank Access Procedures”, published and maintained by the ICAO Regional Offices in Dakar and Nairobi.

5. Inter-regional OPMET gateways (IROGs)

IROGs are charged with task of collecting OPMET bulletins from AMBEX centres, handling all types of OPMET bulletins, providing facilities for “request-reply” service to authorized users, maintaining a catalogue of bulletins, quality controlling incoming bulletins and informing AMBEX centres on any deficiencies, monitoring the OPMET traffic and reporting to the competent ICAO Regional Office on the results.

a. AFI Region’s IROGs

AFI Region’s IROGs are associated with the two RODBs of the AFI Region. Each RODB is assigned responsibility for exchange of required OPMET information between stations and between the AFI Region and adjacent ICAO Regions.

AMBEX IROG	For Exchange of OPMET data between Regions
Dakar	AFI and EUR; SAM, NAM, CAR; MID, ASIA/PAC as backup to Pretoria
Prétoria	AFI and MID; ASIA/PAC, EUR; SAM, NAM, CAR as backup to Dakar

The OPMET data exchange scheme between regions through an IROG is based on predetermined distribution responsibilities.

The RODBs and IROGs shall facilitate the global exchange of OPMET data carried out through the SADIS satellite broadcast. To that end, close liaison shall be maintained between the IROGs and the corresponding SADIS gateway. Availability of AFI data on SADIS shall be monitored and any systematic shortfall of data identified shall be reported to the relevant ICAO regional office.

IROGs shall arrange for relaying all AMBEX bulletins to a corresponding OPMET Gateway in the other ICAO regions concerned.

In particular :

- *Dakar IROG* shall relay all AFI bulletins to ROC Toulouse in the EUR Region, which serves the EUR, SAM, NAM and MID Regions, and shall receive and store all required OPMET bulletins from these Regions;
- *Pretoria IROG* shall relay all AFI bulletins to ROC Toulouse in the EUR Region and IROG Bangkok in the the APAC Region, and shall receive and store all required OPMET bulletins from MID, APAC, EUR, and SAM Regions.

b. Principles applied to IROGs

The following principles shall apply to IROGs:

- IROGs shall have reliable and efficient AMHS/AFTN connection to the regions for which they have exchange responsibilities with adequate capacity to handle the OPMET data flow between the regions;
- IROGs shall be associated with AMHS/AFTN relay centres capable of efficiently handling the volume of traffic anticipated;
- IROGs shall be capable of handling all OPMET data types.

To avoid duplication of the OPMET traffic and information, all inter-regional OPMET exchanges shall be directed through the IROGs. Inter-regional exchanges via direct AMHS/AFTN addressing from the originator or AMBEX centre to recipients in the other ICAO Regions should be avoided, except when bilateral or other agreements require such direct exchanges.

II. OPMET Data Exchange between AFI, EUR, MID and APAC Regions

1. Dakar IROG

a. Outgoing responsibilities

The whole set of METAR, TAF, AIREP SPECIAL and SIGMET bulletins, as described in appendices A, B, C and D of this Handbook, received by RODB DAKAR shall be distributed

to Rio de Janeiro and ROC Toulouse, which shall send them to the SADIS and to the EUR ROCs serving other adjacent regions.

b. Incoming responsibilities

Bulletins containing the required international OPMET data as indicated in the FASID Table MET 1A (or 2A) shall be sent by Rio de Janeiro, Jeddah and ROC Toulouse to IROG DAKAR, that shall send the bulletins according to States requirements.

Regular contacts with adjacent IROGs shall ensure the efficiency of data exchange. A list of exchanged bulletins shall be agreed and updated, as necessary.

2. Pretoria IROG

a. Outgoing responsibilities

The whole set of METAR, TAF, AIREP SPECIAL and SIGMET bulletins, as described in appendices A, B, C and D of this Handbook received by Pretoria RODB shall be distributed to Rio de Janeiro, Jeddah, Bangkok and ROC Toulouse, that shall then send to the SADIS and to the EUR ROCs that serve other adjacent regions.

b. Incoming responsibilities

Bulletins containing the required international OPMET data as indicated in the FASID Table MET 1A (or 2A) shall be sent by Rio de Janeiro, Jeddah, Bangkok and ROC Toulouse to PRETORIA IROG, that shall send the bulletins following States requirements.

Regular contacts with the adjacent IROG(s) shall ensure the efficiency of data exchange. A list of exchanged bulletins shall be agreed and updated, as necessary.

The following principles shall apply to IROGs :

- IROGs shall have reliable and efficient AMHS/AFTN connection to the regions, for which they have exchange responsibilities, with adequate capacity to handle the OPMET data flow between the regions;
- IROGs shall be associated with AFTN relay centres capable of efficiently handling the anticipated volume of traffic; and
- IROGs shall be capable of handling all types of OPMET data.

In order to avoid duplication of OPMET traffic and information, all inter-regional OPMET exchange shall be directed through the IROGs. Inter-regional exchanges via direct AMHS/AFTN addressing from the originator or AMBEX centre to recipients in the other ICAO Regions shall be avoided, except when bilateral or other agreements require such direct exchanges.

III. Implementation of AFI RODB Backup Procedures

In accordance with APIRG/19 meeting Conclusion 19/43 Dakar and Pretoria RODBs shall implement:

- and maintain an identical OPMET bulletins catalogue;
- the AFI Interface Control Document (ICD);
- the same data validation criteria ; and
- conduct monitoring activities in order to ensure that the databanks contain required OPMET data at all times.

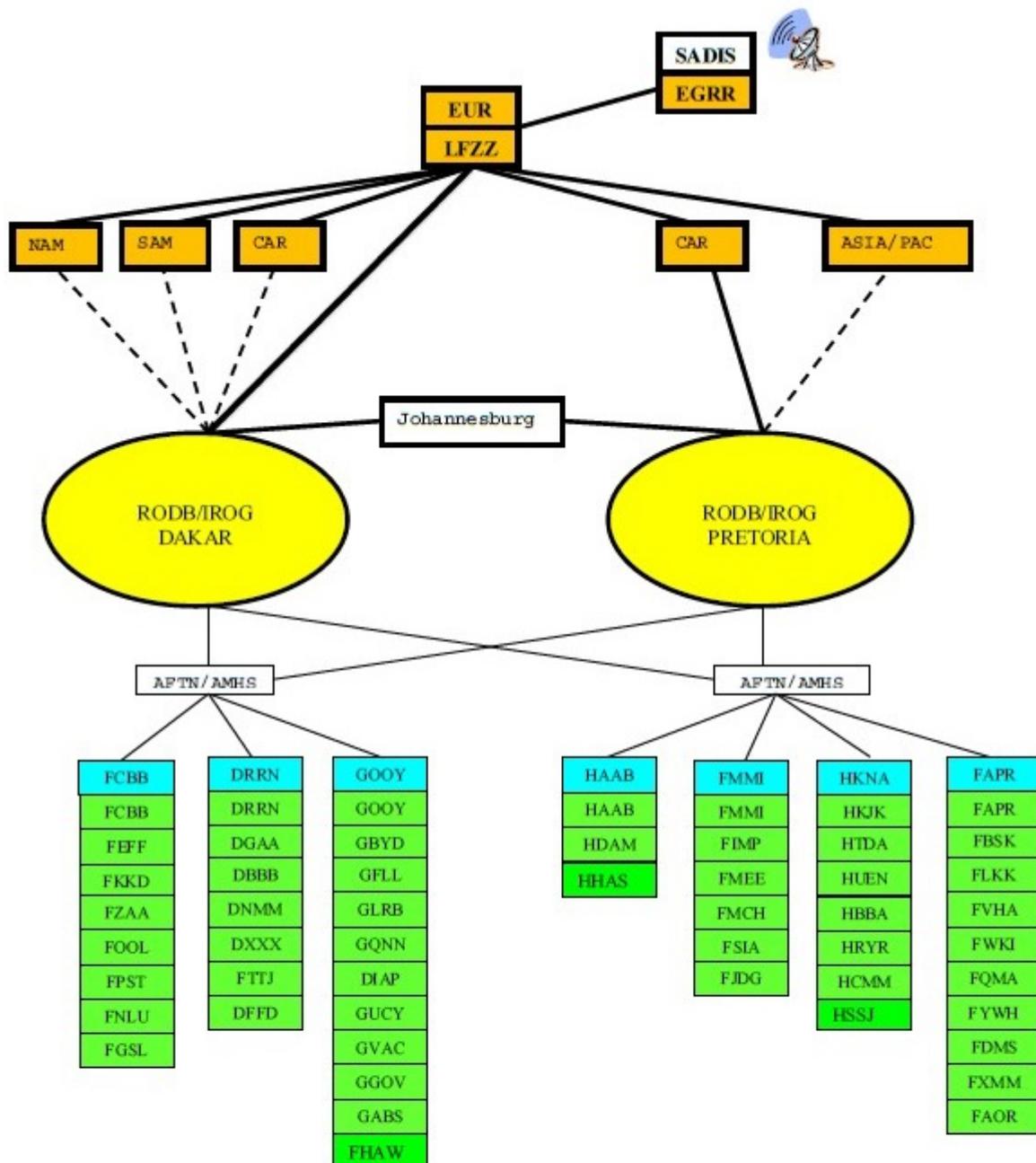
The bulletin compiling centres (BCCs) disseminate OPMET data to both Dakar and Pretoria RODBs using appropriate AMHS/AFTN addresses, and the AFI OPMET Management Task Force (MTF) include AMHS/AFTN addresses of both RODBs in the AFI ICD.

IV. Structure of AMBEX Scheme

The overall structure of the AMBEX Scheme is presented in **Diagram 1**

The AFI Communications Main Flow Chart is presented in **Diagram 2**

1. Diagram 1 : AMBEX Scheme Overall Structure



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V. AMBEX Scheme Products

The AMBEX Scheme prepares and delivers to aviation users the required OPMET information in the form of bulletins. The Scheme shall handle all types of OPMET information in alphanumeric bulletin form and shall provide facilities and services for scheduled and non-scheduled delivery of OPMET information to users.