NACC/WG/2 - NI/03
30/03/08

Organización de Aviación Civil Internacional
Oficina para Norteamérica, Centroamérica y Caribe
Segunda Reunión del Grupo de Trabajo de Norteamérica, Centroamérica y Caribe (NACC/WG/2)
Ocho Ríos, Jamaica, 12 al 16 de mayo de 2008

Cuestión 3 del Orden del Día: **Desarrollos CNS**
3.6 Actividades de intercambio de datos de vigilancia

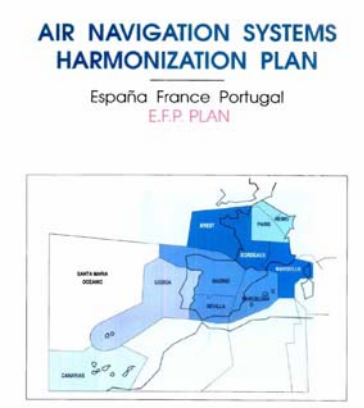
EXPERIENCIA EN LA COMPARTICION DE DATOS RADAR

(Presentada por España)

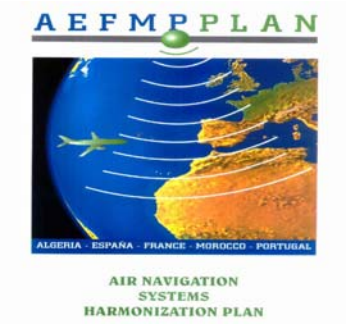
RESUMEN

Esta nota informativa presenta la experiencia de España en la compartición de datos radar con sus países vecinos, realizado a través del Plan Conjunto AEFMP, así como algunas consideraciones y aspectos relevantes a tomar en cuenta en estas actividades.

1. Introducción



1.1 El 3 de Julio de 1991, las Autoridades de Aviación Civil y los Proveedores de Servicios de Navegación Aérea de España, Francia y Portugal crearon el Plan EFP con el objetivo de armonización e integración de sus sistemas de Navegación Aérea.

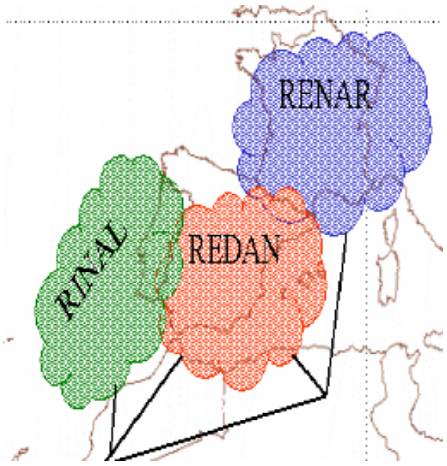


1.2 Para 1996, en vista del éxito alcanzado por el Plan EFP, se deicidio crear el Plan AEFMP Plan con Marruecos y Algeria. Los representantes de los 5 miembros procedieron a la firma del Plan el 13 de Diciembre del 1996.

1.3 Para el 23 de octubre del 2006, ambos planes EFP y AEFMP se unieron y se conformó el Plan conjunto AEFMP.

1.4 Los objetivos del Plan Conjunto AEFMP son: a) Armonizar la Provisión de los Servicios de Transito Aéreo, b) Optimizar la provisión y uso de la función de Vigilancia, 3) Optimizar la provisión y uso de la cobertura radio, d) Mejorar las comunicaciones de voz entre unidades ATS adyacentes, e) Hacer las comunicaciones ATM más eficientes y expandir el intercambio de datos entre computadoras, f) Armonizar el desarrollo e implementación de varios componentes técnicos de los Sistemas ATC, g) Mejorar el ATM.

1.5 Durante el año 2004 el Área OACI/Plan AEFMP continuó con sus actividades de coordinación de la participación en el Plan Conjunto AEFMP, y se mejoraron las comunicaciones entre ambas orillas del Mediterráneo y se avanzó en la reestructuración conjunta de diversos segmentos del espacio aéreo. Se logro una mejora de la infraestructura de comunicaciones con la interconexión de las redes y la interoperación de los sistemas. Esta infraestructura actual soporta los servicios de OLDI, data radar y AFS.



2. Consideraciones y aspectos relevantes en las Actividades de Compartición de datos Radar

2.1 Dentro del acuerdo de compartición de datos radar suscrito en el Plan Conjunto se identificaron requerimientos técnicos para la implementación de la compartición de datos radar, así como el establecimiento de los medios de coordinación y contactos apropiados. En el **Apéndice A** a esta nota, se adjunta un ejemplar genérico a este acuerdo. Para esta compartición de datos se utiliza el protocolo ASTERIX.

2.2 En el acuerdo suscrito, la rentabilidad económica no se considera explícitamente, aunque se obtiene el beneficio de la reducción de costes. El acuerdo se basa en la libre cooperación sin contraprestación económica.

2.3 Previamente al establecimiento del intercambio se realizan mediciones y evaluaciones de los datos para asegurar su adecuación y calidad. El país explotador de los datos es responsable de la evaluación y aseguramiento de la calidad de la información. Esta metodología procura asegurar que se intercambia información de datos radar oportunos, exactos y con garantía de calidad.

2.4 A través del Plan AEFMP se intercambian las categorías 1 y 2 de ASTERIX aunque se está evaluando la posibilidad de intercambiar la información de las categorías Modo S (34/48). Para evaluar la conveniencia operacional existe un documento que recoge las características básicas de los radares que tienen cobertura sobre un estado vecino. Con la base de este documento el personal operacional detecta si un radar podría ser útil para cubrir zonas sin cobertura, dar una doble cobertura o servir como back-up. En dicho caso, se procede a establecer contactos bilaterales destinados a analizar las posibilidades reales de compartición analizando grabaciones de datos y comprobando su interoperabilidad con los sistemas del demandante.

2.5 En este Plan AEFMP, los sistemas eran diferentes, no existe un sistema común. Cuando un país solicita recibir los datos radar de un vecino, se analiza la interoperabilidad. De no ser interoperables, el país receptor sería responsable de realizar las adaptaciones oportunas (conversión de formatos, modificación de su sistema de tratamiento radar...) si lo considera oportuno.

2.6 Dentro del Plan AEFMP, cada país planifica independientemente basado en sus necesidades y el país que solicita recibir la señal asume los costes que genere dicha compartición, tal y como se refleja en el ejemplar de acuerdo – Apéndice A.

2.7 Con la compartición de datos radar se ha provisto de servicio radar en algunas áreas que carecían de cobertura radar, lográndose inclusive dobles o triples coberturas, y sobre todo el aseguramiento de la disponibilidad (back-up).

2.8 Uno de las consideraciones operativas a considerar en la compartición de datos radar es tener en cuenta que el MTTR aumenta debido a la complicación mayor de las coordinaciones internacionales para solucionar los fallos, así como los posibles problemas de idiomas en dichas coordinaciones.

2.9 Mayores detalles de las experiencias de España en esta compartición de datos radar se ofrecen en el **Apéndice B** a esta nota.

3. Acción sugerida

3.1 Se invita a la Reunión a tomar nota de la información contenida en esta nota.

- - - - - - - - -

APÉNDICE A

Agreement for the Shared

Use of Radar Data Between

A

AND
B

1Abril03

The present Agreement is made by and between.

On the one part, the *A* hereinafter referred to as **xxxxxxx.**, represented by Mr. XXXXXXX, *responsibility*

On the other part, *B* hereinafter referred to as xxxxx, represented by the *responsibility* Mr.XXXXXXXXX

They mutually recognise each other's capacity to enter into contracts and bind themselves by the terms of the present AGREEMENT FOR THE SHARED USE OF RADAR DATA BETWEEN *A* AND *B*

DECLARE

That they act within the framework of the AEFMP (Algeria, Spain, France, Morocco and Portugal) Technical Co-operation Plan to guarantee the safe and rapid management of the growing traffic volume, in application of the objectives set forth in said document (AEFMP Plan), and in accordance with the recommendations of ICAO, ECAC, EUROCONTROL and other international agencies involved in obtaining a radar systems coverage beyond national boundaries.

SUBSCRIBE

Being *A* and *B* responsible for the management provision of air navigation services and traffic services in *A country* and *B country*, respectively, the present Agreement regards, in one hand, the sharing by A of radar coverage provided by the stations located at *B radar location***,** which are owned and operated by B, and on the other, the sharing by B of Radar coverage provided by the stations located at *A Radar location*, which are owned and operated by *A*

Article 1. **Objective of the Agreement.**

1.1 The objective of this Agreement is to improve radar coverage and radar data availability in the Flight Information Regions where both parties are responsible for the provision of Air Traffic Services.
- xxxxxxxxx
- xxxxxxxxx
- xxxxxxxxx

Article 2. **Authorisation.**

2.1 *A* requests the requisite authorisation from *B* to receive radar data from the Stations at *B radar location* located in territory belonging to the *B country*

2.2 *B* requests the requisite authorisation from *A* to receive radar data from the stations at *A radar location*, located in *B country* territory.

2.3 Both, A and B, herewith compromise to supply the requested radar data one to the other.

Article 3. **Limitations.**

3.1 The provider will supply service to the user in an efficient manner not being responsible, in any case, for the quality of the radar data or misinterpretation of the same, as received by the user, bearing the latter any liability that might be derived to third parties from the said utilisation of radar data.

3.2 The user shall use the radar data provided only to ensure the safe, proper and continuous operation of his Air Traffic Services or activities in support of Air Traffic Services and for technical demonstration, evaluation and test purposes related to his operational tasks.

3.3 The user shall not communicate to any party not specified in this Agreement, in any matter of form whatsoever, any information supplied pursuant to this Agreement. The said information shall not be used for any purpose other than those specified hereof, without the prior written consent of the provider.

Article 4. **Rescission.**

4.1 These services are established by mutual Agreement of the interested parties and shall remain in force until either of the parties gives to the other party written notice of its intention not to continue, at least three months before that event. The rescission of the service in case of defence crisis and conflict situations will not need previous notice.

Article 5. **Installation and repartition of costs.**

5.1 *A* will provide the requested data, free of charge, to *B*

5.2 *B* will provide the requested data, free of charge, to *A*

5.3 *A* and *B* will care for the conservation, supervision, maintenance and safeguarding of it's own part of the equipment and facilities used for the interconnection and the applications in use. The related costs will not be charged to the other party.

5.4 The costs for installation of private circuits and provision of data which is subject of this agreement shall be borne as follows:

For the links between *A* and *B* the cost shall be borne by *A* for the *A country* part and by *B* for the *B country* part. (*Each national organisation pays the cost in its country's part).*

Article 6. **Maintenance.**

6.1 The routine maintenance, repair and replacement service of the equipment installed for the provision of radar data subject of this mutual data exchange agreement shall be borne by the owner of the respective equipment according to the standards of maintenance commonly adopted by the owner.

6.2 Periodic costs for rental of private circuits, private circuit line checks, service contracts or any periodic rent of fee, shall be borne by *A* for the *A country* part and by *B* for the *B country* part. (*Each national organisation pays the cost in its country's part)*

Article 7. **Modifications.**

7.1 The user is obliged to implement, at his own expense, any modification in the equipment for the provision of radar data at the provider's and the user's premises as well as for private circuits due to any decision of the provider.

7.2 The user may propose technical modifications, on the specifications for provision of radar data, to the provider. The provider shall decide on the implementation of it.

7.3 The modifications to be implemented shall be specified by the provider, in writing, to the user not less than six months before the date the modification shall be implemented.

7.4 Cost for modifications shall be disbursed by the user in accordance and as specified by the provider in writing to the user.

Article 8. **Interruptions.**

8.1 The provider shall give the user such notice in respect to any planned break in service as soon as possible, normally three months in advance.

8.2 The provider shall report as soon as possible any failure in the provision of radar data to the user's technical supervisor centre.

Article 9. **Liability.**

9.1 The provider shall not be considered liable for any break in the provision of radar data due to any failure or defect of private circuits.

Article 10. **Legal aspects.**

10.1 It is understood that nothing in this Agreement shall prejudice or detract from the primary obligation of the authorities whether under statue or otherwise, to ensure the safe, proper and continuous operation of Air Traffic Services.

10.2 In case of *force majeure* the provider shall not be in breach of this agreement in case of failure to perform its duties or to provide the radar data to the user.

10.3 The law of both countries shall govern this Agreement.

Article 11. **Entire Agreement.**

11.1 This Agreement and its Annex A contains the entire agreement of the parties and supersedes any and all prior agreements, understandings and communications between them related to the subject matter of this agreement. No amendment or modification of this agreement shall bind either party unless it is in writing and is signed by duly authorised representatives

11.2 Specifics, regarding technical and operational conditions inherent to the systems and equipment to which the present Agreement refers, are covered by technical specifications and maintenance protocols attached as the following Annex A to this Agreement.

11.3 The provider's and the user's Regional Authorities, in mutual consent and formal acceptance, are allowed to amend and up-date, as circumstances deem necessary, the contents of Annex A, in so far as the amendments are not in contradiction to or out of scope with the text in this Agreement.

Article 12. **Signature.**

The present Agreement will take effect on the date on which the Parties have mutually notified each other of compliance with the requirements of their internal laws in this regard.

In witness whereof, the subscribers hereof, dully authorised by their respective governments, sign the present Agreement. Executed in two original copies in English language.

In *A location,* on …….	In *B location,* on …….
For *A*	For *B*
Responsibility *Responsibility*	
Name	*Name*

AEFMP

AGREEMENT FOR THE SHARED
USE OF RADAR DATA BETWEEN
A AND *B*

(stations located at **xxxxxxxxxxxxxxxxxxxxx**)

ANNEX A TO THE AGREEMENT

A-1: TECHNICAL CHARACTERISTICS AND OPERATING CONDITIONS

A-2: MAINTENANCE PROTOCOL

A-3: TECHNICAL CHARACTERISTICS OF THE RADAR STATIONS

A-4: SIGNATURE

AGREEMENT FOR THE SHARED USE OF RADAR DATA BETWEEN *A* AND *B*

A-2 MAINTENANCE PROTOCOL

2.1 Objective

The objective of this Document is to define the maintenance procedures and co-ordination actions between, one side, the *A* Area Control Centre and, on the other side, the *B Location*, *B Location* and *B Location* Area Control centres, to be followed in order to provide the optimal conditions for continuous operation of the installations dedicated to the transmission of radar data originated by secondary surveillance radar sensors belonging to *B*, as described in Annex A-1 (Technical Characteristics) to this Agreement.

2.2 Maintenance Procedures

In site first stage maintenance, as required, will be dependable on the *B location (provider)* technical staff belonging to the provider for local installations at that Centre. This support is offered free of charges to the user. It involves the following procedures.

2.2.1 Equipment Monitoring.

The provider ACC Data Communications Technician on duty H-24 will keep a regular watch on the radar data communications system performance.

In case a warning or alarm is detected to be active, remedial action will be immediately taken by the Data Communications Technician or by the Technical Supervisor on duty at the provider Centre, always within the limited range of local capabilities. If no direct corrective measure is practicable, alerting and co-ordination action will take effect with the correspondent Technical Supervisor in the user Centre.

2.2.2 Failure and Malfunction.

In case of proven malfunction of the data links after preliminary co-ordination between themselves, the Technicians or Supervisors at the Lisboa and Madrid Centres will contact his/her respective Telecommunication Company for remedial action, as appropriated.

They will inform each other about the evolution of the failure, taking into account the information transmitted to them by their respective telecommunication companies.

2.3 Interruptions

Any programmed interruption of service or prevision of function modification will be notified to the collateral party in due time, normally three months in advance.

Non-programmed interruption or degradation of service will be notified to the collateral party as soon as possible.

2.4 Communication channels

First line on contact is the telephone. Basic English is considered as the co-ordination speech to be employed by the correspondents. A technical specific glossary ought to be defined for this purpose.

Telefax is always considered as a second line of contact E-mail could also be used.

2.5 Correspondents

The xxxxxxx, located at the xxxxxxxxxx, will be the primary correspondent to the xxxxxxx Centre in matters related to the performance of digital communications. In matters related to the radar data availability, continuity and integrity, the xxxxxxxxx, xxxx and xxxxxxx Centres will be the respectively direct correspondents to the xxxxxx Centre.

The Correspondents listed below are to be contacted on the circumstances previously described.

2.5.1 Correspondents List – **xxxxxxx Centre.**

a) For immediate action H24
xxxxxxxxxx

b) For non-immediate action (0900-1700h/Mon-Fri)
xxxxxxxxxxxxxxx

c) Postal Address: xxxxxxxx

2.5.2 Correspondents List – **xxxxxxxx Centre.**

a) For immediate action H-24.
xxxxxxxxxx

xxxxxxxxx

b) For non-immediate action (0900-1700h/Mon-Fri)

xxxxxxxxxxx

AGREEMENT FOR THE SHARED USE OF RADAR DATA BETWEEN NAV-EP AND AENA

ANNEX A TO THE AGREEMENT

A-3 TECHNICAL CHARACTERISTICS

Name of Station	**Status**	**Operational** ***Date***	**User Responsible /Other users**	**Speed**	**Range**	**SAC-SIC (in dec)**
xxxxxx	OP	x		7.5 rpm	250 Nm	104-001
xxxxxxx	OP	x		7.5 rpm	250 Nm	104-093
xxxxxxxxx	OP	x		7.5 rpm	250 Nm	104-004
xxxxxxxxx	OP	-		7.5 rpm	250 Nm	20-10
xxxxxxxxxx	OP	-		7.5 rpm	250 Nm	20-05
xxxxxxxxx	OP	-		7.5 rpm	250 Nm	20-09

Referencial

Earth Model WGS84
a= 6378137m (Raio)
e= 0.08189189 (Excentricidade); $e^2=f(2-f)$; f=1/298.25723563

ARTAS (Centro sistema)	**38 45 49N**	**09 08 22W**	**0.0m**
Radar	**Latitude**	**Longitude**	**Antenna altitude**

AGREEMENT FOR THE SHARED USE OF RADAR DATA BETWEEN *A* AND *B*

ANNEX A TO THE AGREEMENT

A-4 SIGNATURE

Annex A to the Agreement for the shared use of radar data between *A* and *B* is herewith endorsed and signed by the provider's and user's respective Regional Authorities who are directly responsible for the accomplishment of the Annex and in compliance with Article 11 of the Agreement.

In xxxxxxx, on ……..

For xxxxxxxxxx

In xxxxxxxxx, on ……..

For xxxxxxx**.**

- - - - - - - - - -

1

La compartición Radar en el marco del Joint AEFMP plan

2

Índice

3

1-El nacimiento del "Joint AEFMP Plan"

- **Historia del Plan:**
  - **1990:España, Francia y Portugal crearon el plan EFP.**
  - **1996: Se decide extender el Plan, y nace el Plan AEFMP incluyendo a Argelia y a Marruecos.**
  - **2003: Se crea el "Joint AEFMP Plan como resultado de la fusión de ambos planes.**

Compartición RADAR en el marco del "Joint AEFMP Plan"

4

2-Objetivos principales del Plan

- **Optimizar la provisión y uso de la función de vigilancia y cobertura radio modernizando instalaciones , instalando nuevos recursos, y/o compartiendo datos de (SSR) o radio en beneficio de los países colindantes**

Compartición RADAR en el marco del "Joint AEFMP Plan"

5

2-Objetivos principales del Plan

- **Mejorar las comunicaciones voz entre las unidades ATC adyacentes implementando estableciendo redes o señalización estandarizada.**

Compartición RADAR en el marco del "Joint AEFMP Plan"

6

2-Objetivos principales del Plan

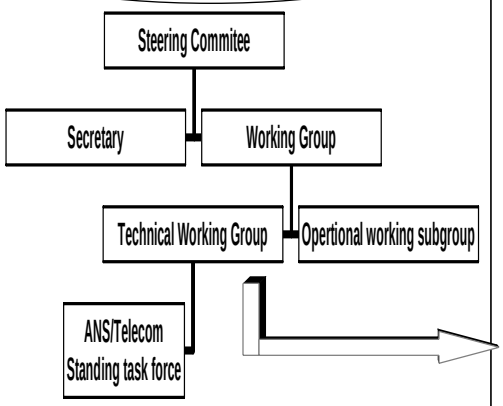
- **La realidad es que además de coordinar estos aspectos, el plan, con sus reuniones ha creado un entorno de relaciones y conocimiento de los "vecinos" que propicia la resolución más rápida de descoordinación u otros problemas**

Compartición RADAR en el marco del "Joint AEFMP Plan"

7

3-Funcionamiento del Plan

La Secretaría del Plan cambia a otro país cada año



- **Coordinar las acciones necesarias para asegurar conformidad con los mandatos**
- **Evaluar los shortcomings de los recursos técnicos en condirnación con los ATS de AEFMP**
- **Proponer al WG crear o deshacer ad-hoc TFs relacionadas con aspectos técnicos.**
- **Proponer reuniones entre expertos.**
- **Proveeer al WG de la información necesaria para asistir al Secretary en la elaboración del the Joint AEFMP RCIP.**

8

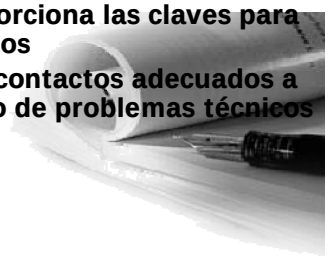
3-Funcionamiento del Plan

- **Subgrupo técnico:**
  - **Este grupo celebra 2 reuniones al año.**
  - **El TECH revisa los mandatos y el radio y radar sharing y prepara un informe para el WG .**
  - **Reporta el cumplimiento de estos mandatos y propone acciones convenientes.**
  - **Propone la creación TF específicas.**

9

3-Funcionamiento del Plan

- **¿Como se lleva a cabo esta compartición?:**
  - **Se estudian todos los emplazamientos de interés para la compartición y se mantiene un documento actualizado.**
  - **Además existen documentos de "Radar Sharing" firmados de forma bilateral entre países.**
    - **Este documento proporciona las claves para solucionar contenciosos**
    - **Además contiene los contactos adecuados a los que acudir en caso de problemas técnicos**



10

4-Áreas de covertura

11

4-Áreas de covertura

En el caso de AENA:

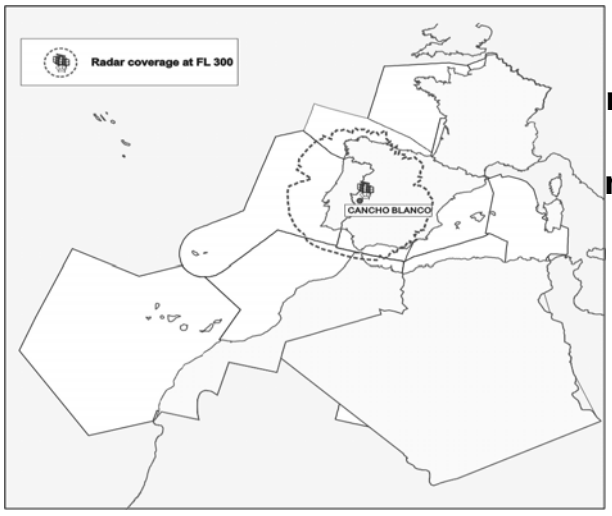
Compartición RADAR en el marco del "Joint AEFMP Plan"

12

4-Áreas de covertura

- **rzano**

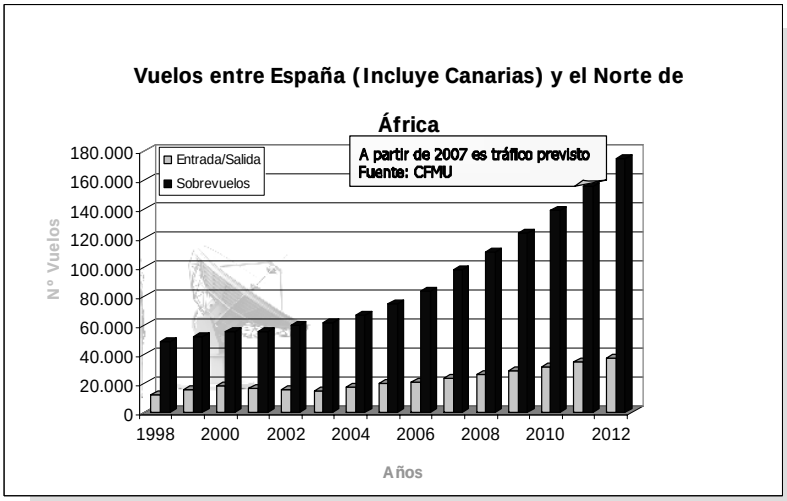
nco



Compartición RADAR en el marco del "Joint AEFMP Plan"

13

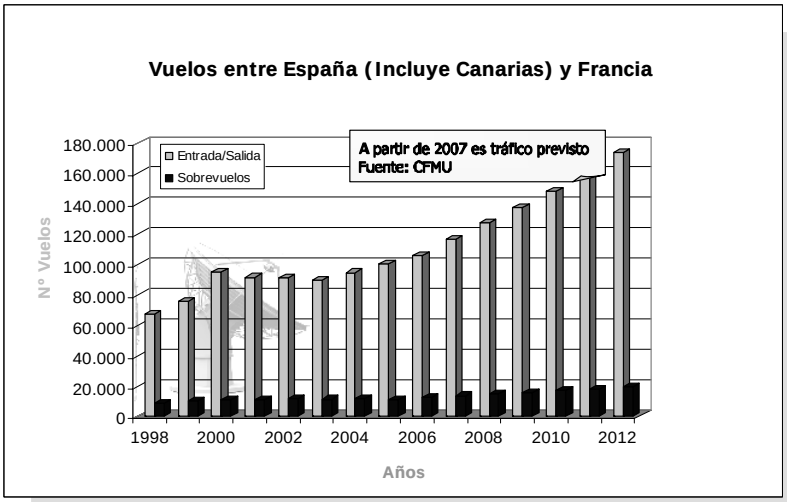
4.1- Tráfico controlado por estos radares



Compartición RADAR en el marco del "Joint AEFMP Plan"

14

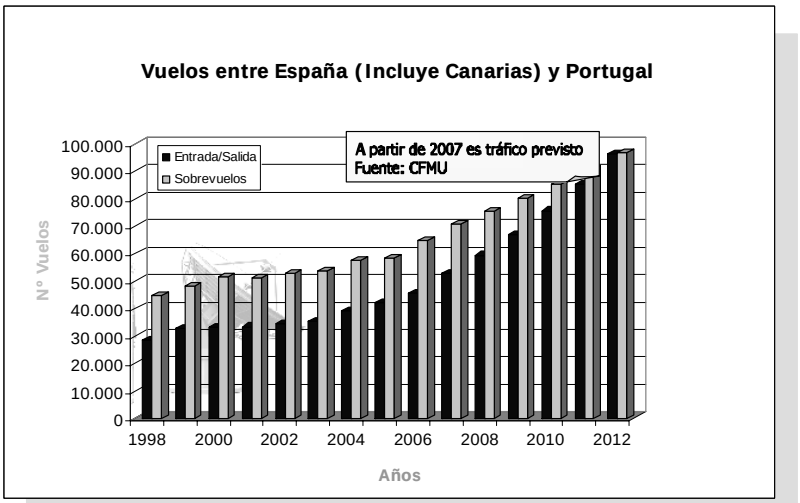
4.1- Tráfico controlado por estos radares



Compartición RADAR en el marco del "Joint AEFMP Plan"

4.1- Tráfico controlado por estos radares

15



Compartición RADAR en el marco del "Joint AEFMP Plan"

4.2- Aspectos técnicos a tener en cuenta al compartir

16

Se generan los datos:
- **Formato**

Envío de los datos:
- **Protocolo de tx a través de la red**

Recepción de datos:
- **Especificaciones SCR**

Compartición RADAR en el marco del "Joint AEFMP Plan"

17

4.2- Aspectos técnicos a tener en cuenta al compartir

- **Algunos aspectos a tener en cuenta de los datos generados en cabecera:**
  - **Formato, categoría.**
    - **Los países europeos siguen el formato ASTERIX (aún así a veces hay que realizar ajustes)**
  - **Periodo de rotación de la antena**
  - **Modo S**

18

4.2- Aspectos técnicos a tener en cuenta al compartir

- **Tx a través de la red**
  - **Protocolos: adaptarse a las posibles migraciones . Ej :X.25 a IP**
  - **Atravesar pasarelas (X.25 , X.75…)**
  - **Especificaciones de los nodos**

19

4.2- Aspectos técnicos a tener en cuenta al compartir

- **Recepción de datos**
  - **Asegurar que las características del SCR (elemento de comunicación que adapta el formato que recibe al necesario para la aplicación), soportaran de manera correcta los datos que recibe.**
  - **Adaptar, en definitiva, los datos que se reciben para su correcta utilización, en colaboración con el país que los cede.**

20

5-Futuro

- **Además de todo lo anterior comentado, el plan coordina aspectos como la migración de tecnologías obsoletas a actuales.**
  - **La más destacada hoy en día:**
    - **Paso de X.25 a IP**

21

Muchas gracias por su atención

Compartición RADAR en el marco del "Joint AEFMP Plan"

1

Radar sharing

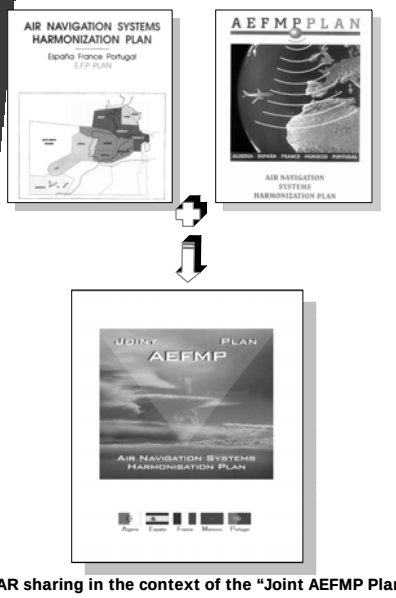
in the context of the Joint AEFMP plan

2

Contents

1-Creation of the "Joint AEFMP Plan"

3



- **History of the Plan:**
  - **1990: Spain, France and Portugal created the EFP plan.**
  - **1996: It was decided to expand the Plan and the AEFMP Plan was created, including Algeria and Morocco.**
  - **2003: The "Joint AEFMP Plan" was created as a result of the fusion of both planes.**

RADAR sharing in the context of the "Joint AEFMP Plan"

2- Main objectives of the Plan

4

- **Optimise the provision and use of the surveillance and radio coverage function upgrading facilities, installing new resources and / or sharing SSR or radio data benefiting adjacent countries**

RADAR sharing in the context of the "Joint AEFMP Plan"

2-Main objectives of the plan

5

- **Improve voice communications among adjacent ATC units by implementing and establishing networks or standardised signaling.**

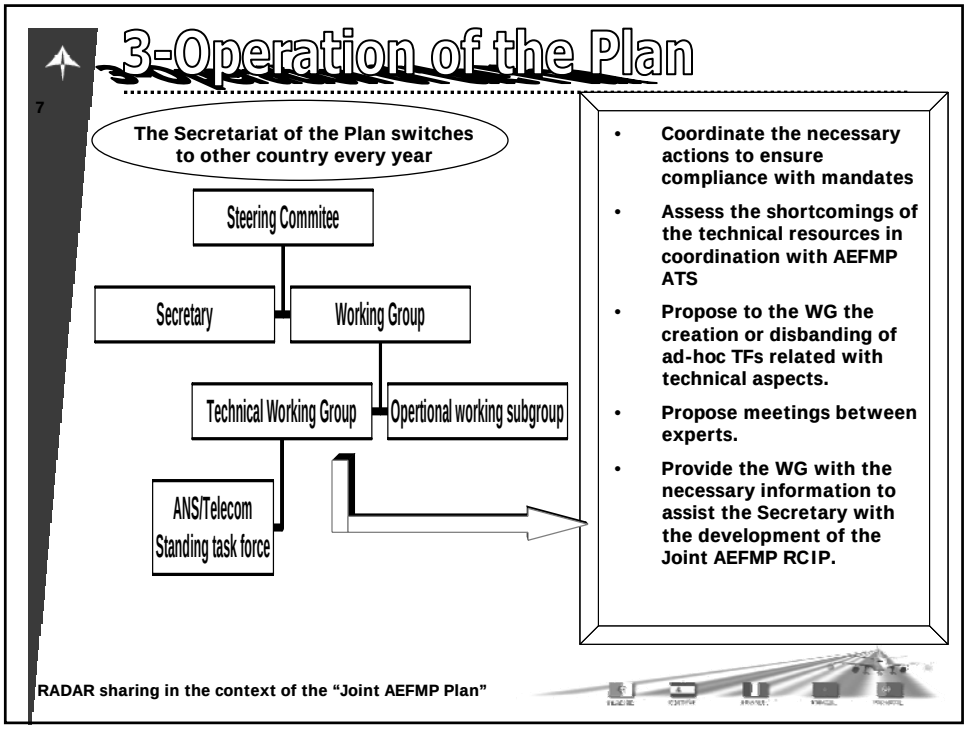
RADAR sharing in the context of the "Joint AEFMP Plan"

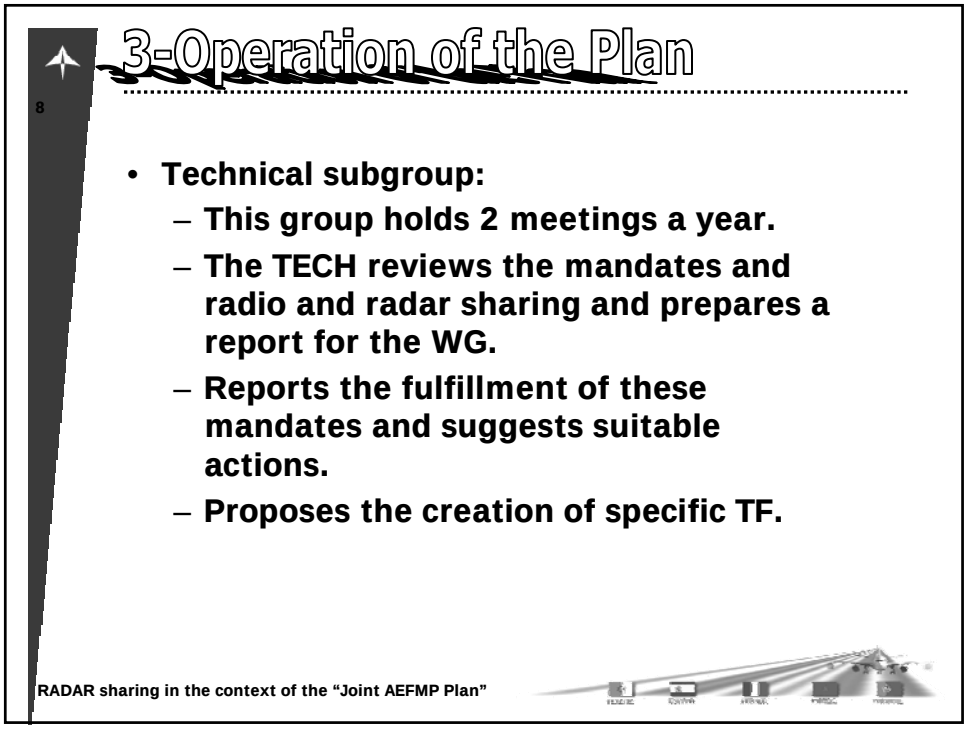
2-Main objectives of the Plan

6

- **In fact, besides coordinating these aspects, the plan, through its meetings, has created a relationship and "neighbour" knowledge environment that fosters a faster resolution of lack of coordination or other problems.**

RADAR sharing in the context of the "Joint AEFMP Plan"

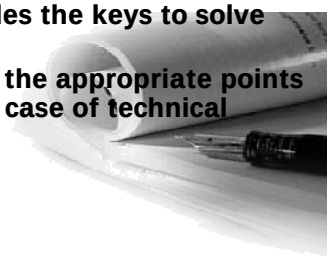

3-Operation of the Plan
7
The Secretariat of the Plan switches to other country every year
Steering Commitee
Secretary
Working Group
Technical Working Group
Opertional working subgroup
ANS/Telecom Standing task force
• Coordinate the necessary actions to ensure compliance with mandates
• Assess the shortcomings of the technical resources in coordination with AEFMP ATS
• Propose to the WG the creation or disbanding of ad-hoc TFs related with technical aspects.
• Propose meetings between experts.
• Provide the WG with the necessary information to assist the Secretary with the development of the Joint AEFMP RCIP.
RADAR sharing in the context of the "Joint AEFMP Plan"


3-Operation of the Plan
8
• Technical subgroup:
– This group holds 2 meetings a year.
– The TECH reviews the mandates and radio and radar sharing and prepares a report for the WG.
– Reports the fulfillment of these mandates and suggests suitable actions.
– Proposes the creation of specific TF.
RADAR sharing in the context of the "Joint AEFMP Plan"

3-Operation of the Plan

9

- **How does this sharing work?**
  - **All the relevant sites for sharing are studied and an updated document is kept.**
  - **Moreover, there are "Radar Sharing" documents signed bilaterally between countries.**
    - **This document provides the keys to solve disputes**
    - **Moreover, it contains the appropriate points of contact to reach in case of technical problems**



4-Coverage areas

10

11

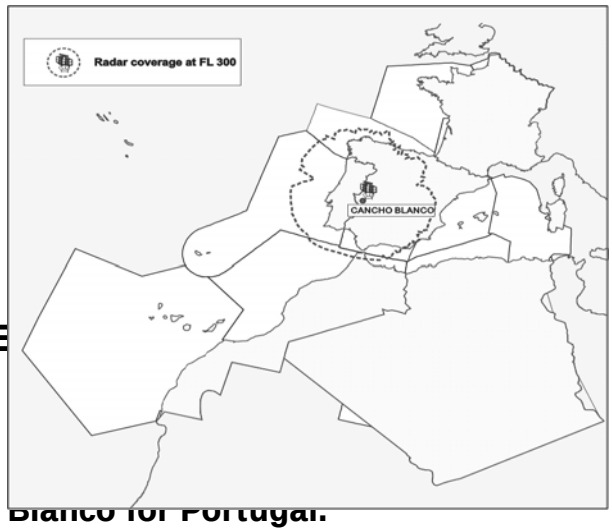
4-Coverage areas

Case of AENA:

RADAR sharing in the context of the "Joint AEFMP Plan"

12

4-Covrerage areas



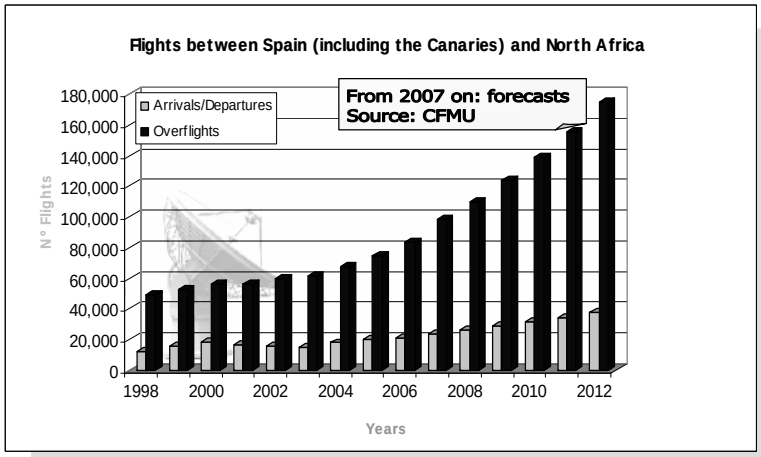
- **AE**
  - –
  - –

Blanco for Portugal.

RADAR sharing in the context of the "Joint AEFMP Plan"

13

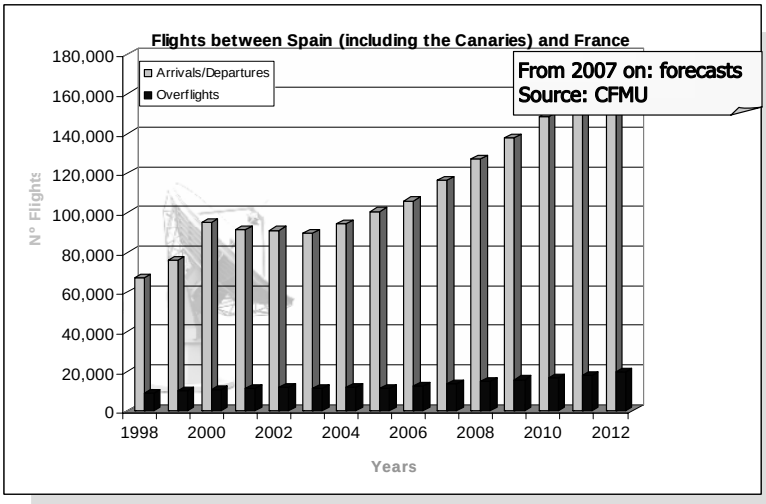
4.1- Traffic controlled by these radars



RADAR sharing in the context of the "Joint AEFMP Plan"

14

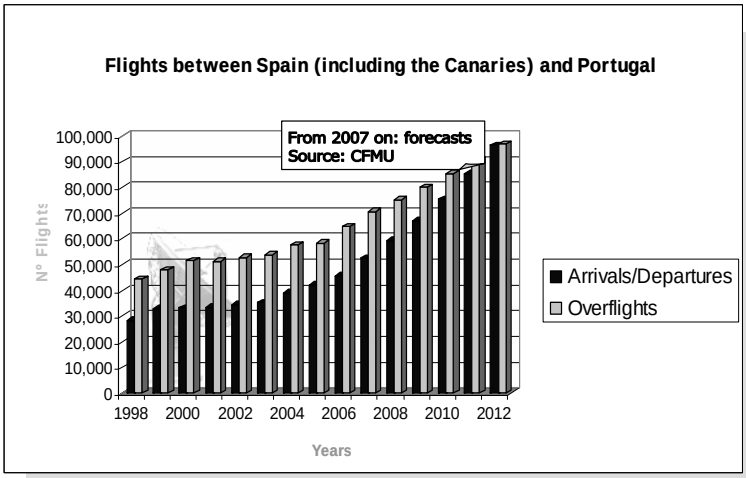
4.1- Traffic controlled by these radars



RADAR sharing in the context of the "Joint AEFMP Plan"

4.1- Traffic controlled by these radars

15



RADAR sharing in the context of the "Joint AEFMP Plan"

4.2- Technical aspects to consider when sharing

16

Data is generated:
- **Format**

Sending data:
- **Tx Protocol through the network**

Receiving data:
- **SCR specifications**

RADAR sharing in the context of the "Joint AEFMP Plan"

4.2- Technical aspects to consider when sharing

17

- **Some aspects to consider concerning data generated in radar head:**
  - **Format, category.**
    - **European countries follow ASTERIX format (even so, sometimes adjustments must be made)**
  - **Antenna rotation period**
  - **S Mode**

4.2- Technical aspects to consider when sharing

18

- **Tx through the network**
  - **Protocols: adapting to the possible migrations, i.e.: X.25 to IP**
  - **Walk through gateways (X.25 , X.75...)**
  - **Links specifications**

4.2- Technical aspects to consider when sharing

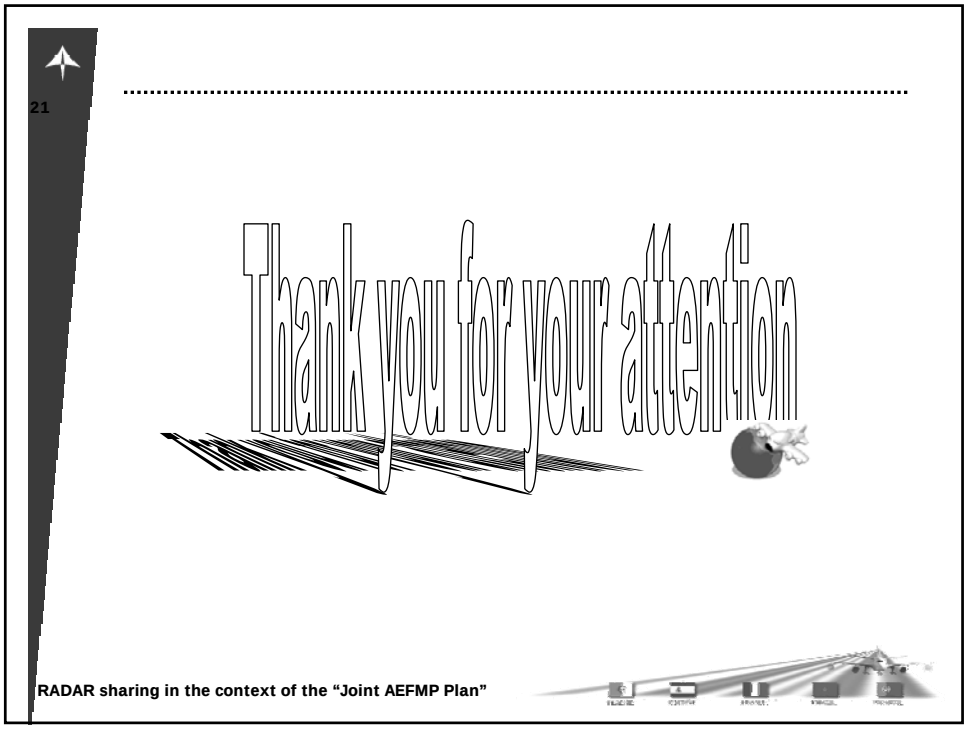
19

- **Receiving data**
  - **Ensure that SCR features (communication element adapting the received format to the one necessary for the application) will adequately support the received data.**
  - **Adapt, the received data for its correct use, in collaboration with the country who transfers the data.**

5-Future

20

- **In addition to the aforementioned, the plan coordinates aspects such as migration from obsolete technologies to current technologies.**
  - **The most outstanding to date:**
    - **Migration from X.25 to IP**


21
Thank you for your attention
RADAR sharing in the context of the "Joint AEFMP Plan"