



Regional Air Navigation Planning and Implementation

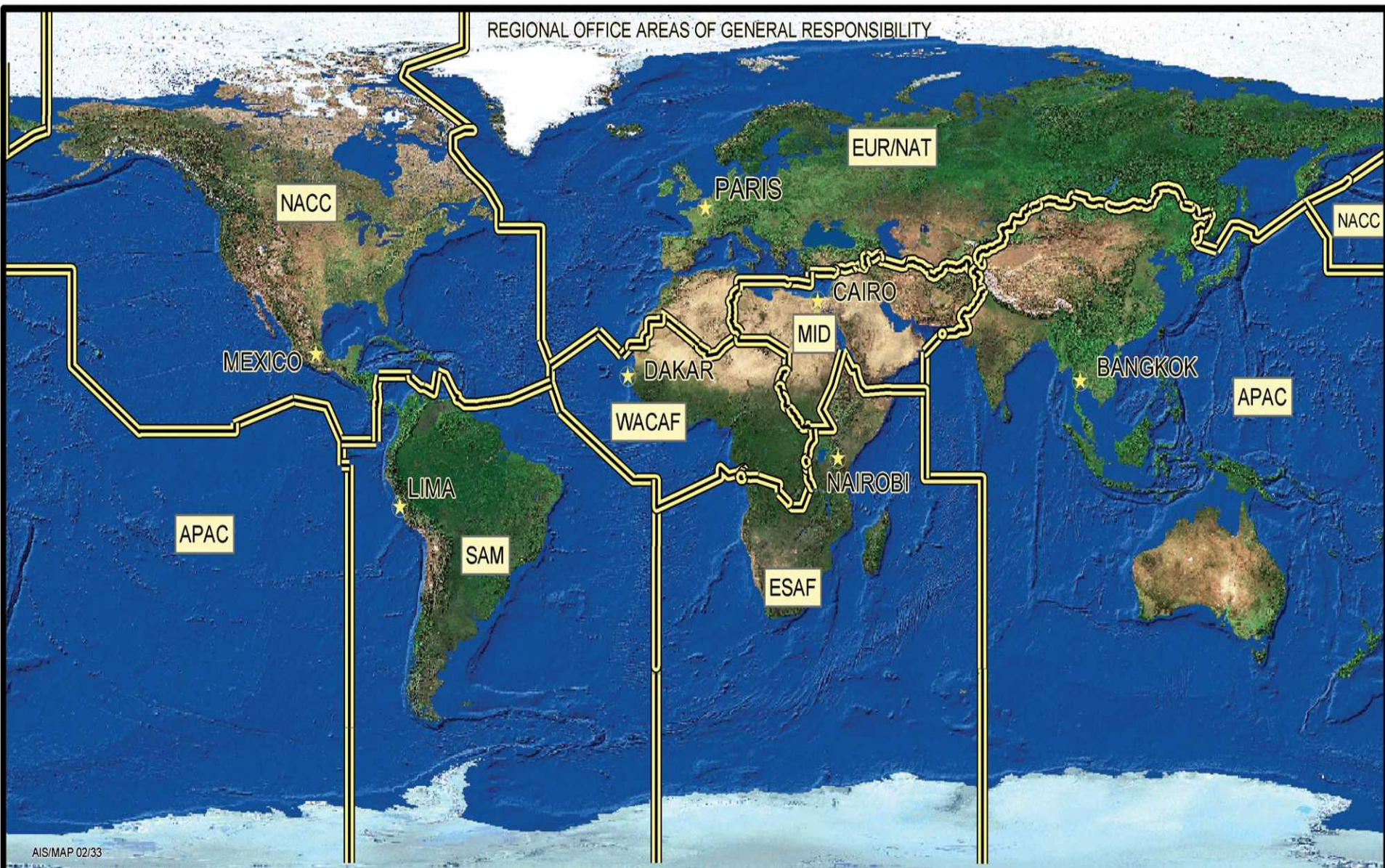
Mechanism, Process and Achievements

**Presentation by
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Regional Affairs, ICAO Montreal**

GREPECAS/12, Havana, Cuba, 7–11 June 2004



ICAO Regions

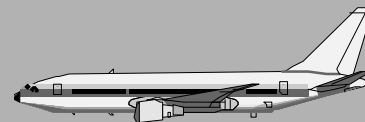
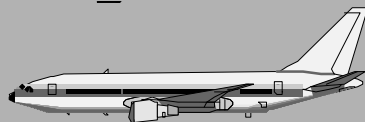
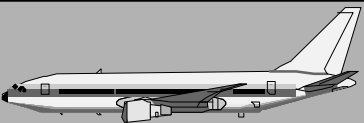


ICAO Air Navigation Planning Process



Homogeneous areas - provision of services





**Homogeneous service
throughout
homogeneous airspace!**



Theory to Practice

**ICAO SARP_s
DEVELOPMENT**

**PIRG_s
Regional Offices**

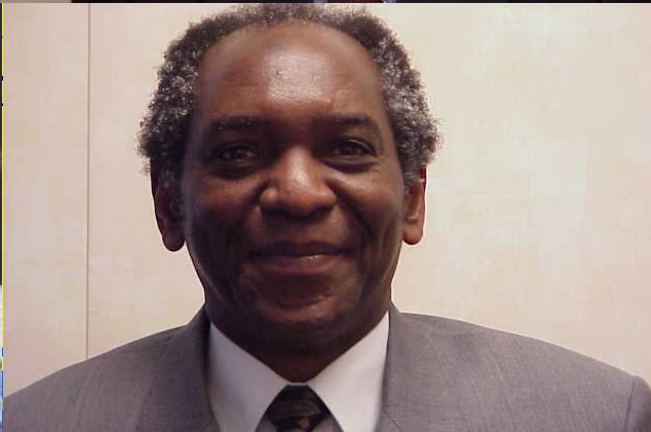


ICAO structure supporting PIRGs





Regional Directors



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12.5



A good example:

**CAR/SAM Regional Planning
and Implementation Group**



History of GREPECAS

- The Council established GREPECAS *on 20 June 1990*, through C-WP/9108 at the 15th meeting of its 130th Session (C 130/15)

Reference: State letter LT 2/8/720 dated 23 July 1990 informing States of the establishment of GREPECAS

Membership:

1/2 of the Provider States in the CAR/SAM Region

Composition:

20 States



States of the CAR/SAM Region on the Council of ICAO

- **Argentina**
- **Brazil**
- **Chile**
- **Costa Rica**
- **Cuba**
- **France**
- **Mexico**
- **Paraguay**
- **United Kingdom**
- **United States**
- **Venezuela**



GREPECAS membership - Criteria

20 States, ensuring a balanced representation

**Collective
representation**

**Representatives should
have ANS experience**

**Serve sufficient
length of time**

**Technical
advisers can
assist**



Current Members States of GREPECAS

- Antigua & Barbuda
- Argentina
- Barbados
- Bolivia
- Brazil
- Chile
- Colombia
- Costa Rica
- Cuba
- Dominican Republic
- Ecuador
- France
- Mexico
- Panama
- Peru
- Trinidad & Tobago
- United Kingdom
- United States
- Uruguay
- Venezuela



Provider and User States

Provider State:

**Geographically
situated in**

or

**has territory in the
Region**

User State:

**Not located in the
region but has air
carriers on their
register operating in
the Region**

State can be both user and provider



Other States

All CAR/SAM States entitled to representation

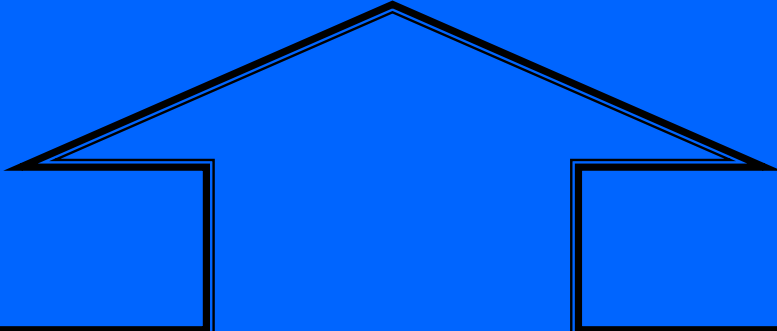
May invite other States, if deemed necessary

Any State with its aircraft operating into CAR/SAM Region

Other States may participate as observers



International Organizations



**recognized by the
Council of ICAO to be
invited as observer to
GREPECAS meetings**



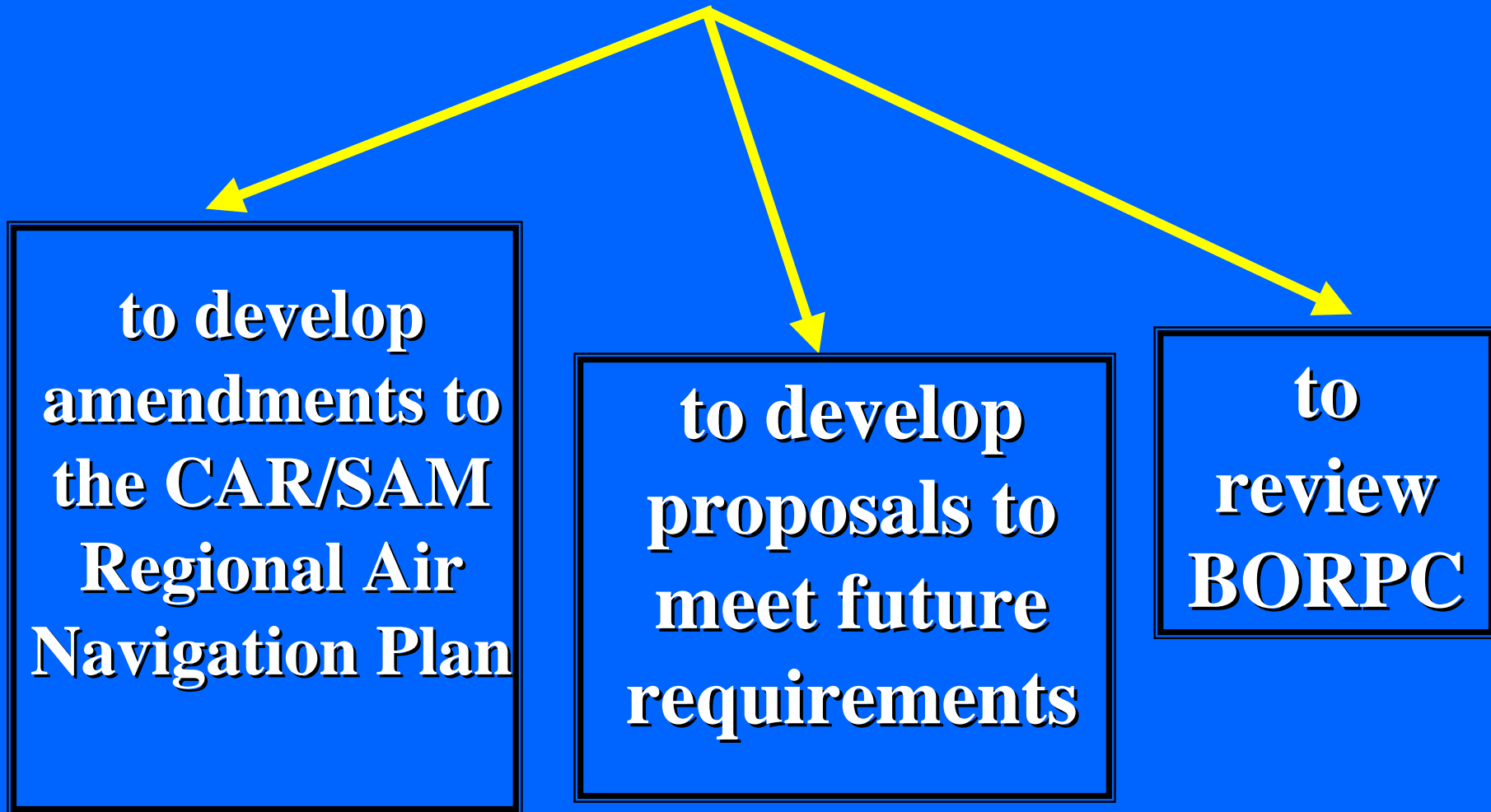
GREPECAS

Terms of Reference

- **Development of CAR/SAM Regional Air Navigation Plan**
- **Implementation of air navigation systems and services as identified in the CAR/SAM Air Navigation Plan**
- **Identification and addressing of air navigation deficiencies**



GREPECAS planning tasks





GREPECAS implementation tasks

➤ to facilitate implementation of facilities and services with due regard to:

safety

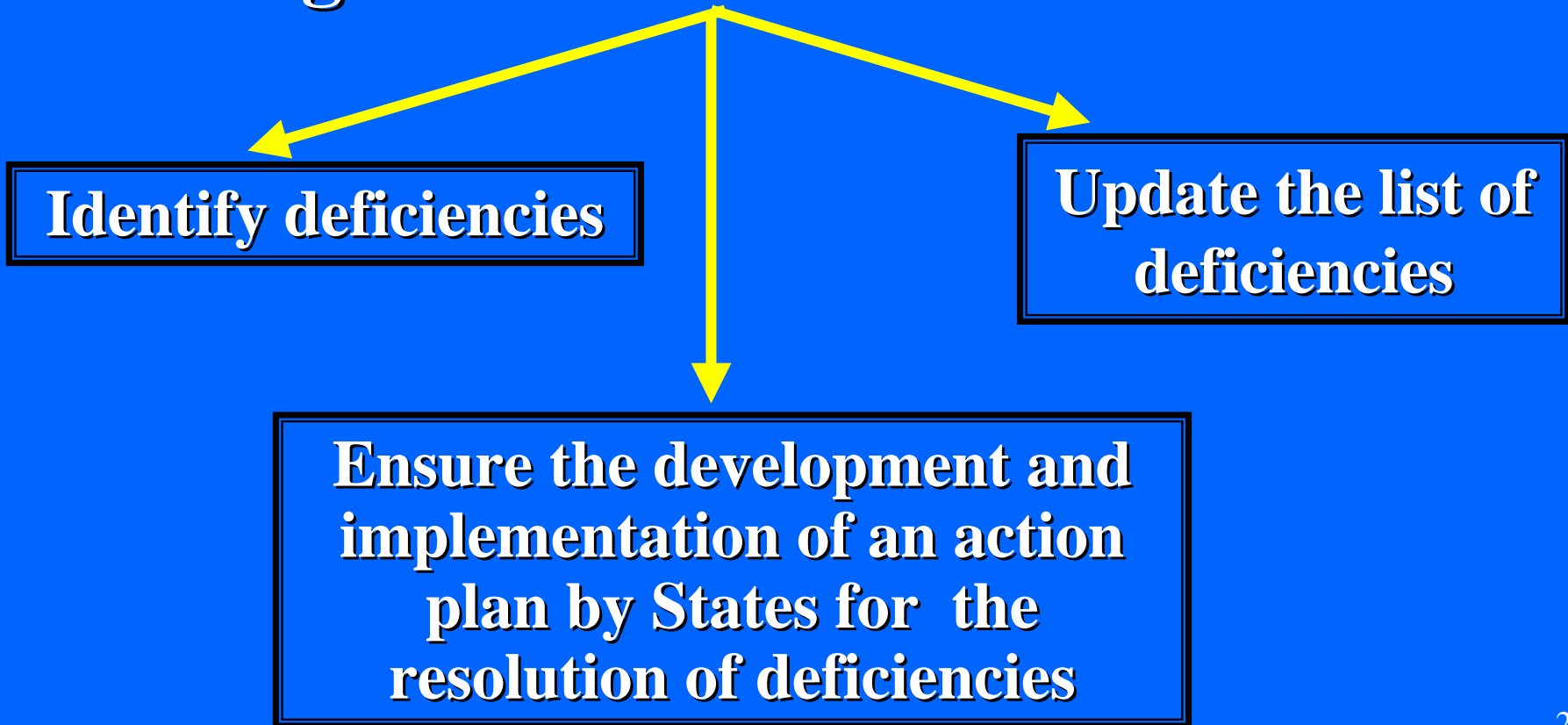
costs and benefits of
implementation
options

the need to facilitate
financing of
preferred options



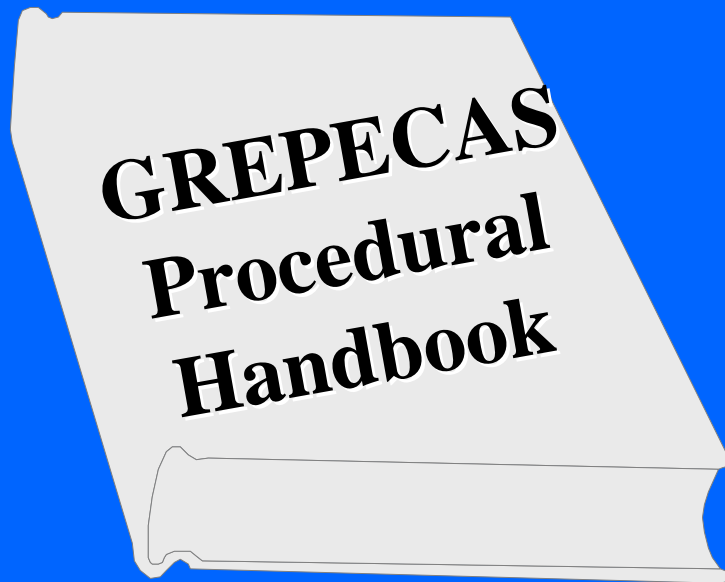
GREPECAS deficiencies tasks

➤ to facilitate the resolution of air navigation deficiencies:





GREPECAS Procedural Handbook



Contains

- TOR
- Working methods
- Procedures



GREPECAS meetings held to date

- **1st Venezuela 1991 (7 days)**
- **2nd Florida 1992 (5 days)**
- **3rd Argentina 1993 (5days)**
- **4th Panama 1994 (6 days)**
- **5th Lima 1995 (7 days)**
- **6th Mexico 1996 (7 days)**
- **7th Lima 1997 (5 days)**
- **8th Dom. Rep. 1998 (10days)**
- **9th Brazil 2000 (6 days)**
- **10th Spain 2001 (6 days)**
- **11th Brazil 2002 (6 days)**



CAR/SAM RAN meetings held to date

- **CAR/SAM/1** **Lima** **1976**
- **CAR/SAM/2** **Chile** **1989**
- **CAR/SAM/3** **Argentina** **1999**



GREPECAS contributory bodies

- **Subgroups charged with preparatory work for planning and implementation of facilities**
- **Consist of specialists familiar with the area**
- **TOR given with expected target date for completion of tasks**
- **Subgroups, as small as possible and includes all States and international organizations**
- **Work reviewed by GREPECAS**
- **Dissolved when task completed**



Supporting documentation: —Working Paper (WP)

- **Format:** Standard
- **Agenda items:** covers one
- **Structure:**
 - Introduction
 - Discussion
 - Conclusion
- **Submission:** 30 days in advance



Supporting documentation: — Information Paper (IP)

GREPECAS -IP/XX

- **Factual information on developments of technical *or* administrative matters of interest to the group**
- **IP is not discussed at the meeting**
- **IP is not translated**



Supporting documentation: — Discussion Paper (DP)

- provided on an ad hoc basis
- provided during the course of the meeting
- disseminated only to participants at the meeting

Purpose:
to assist
participants in
discussions

Subject matter:
deals with specific
matter *or* with the
development of
Conclusions



Conclusions

**Merit attention
of States**

**Further action
by ICAO**

Decisions

**Aimed at
GREPECAS &
its Bodies**



Meeting — Draft Report

**GREPECAS
Draft Report**

**Draft report
is prepared by
the Secretariat**

1/2

**GREPECAS
Draft Report**

**Approved
by
GREPECAS**

2/2

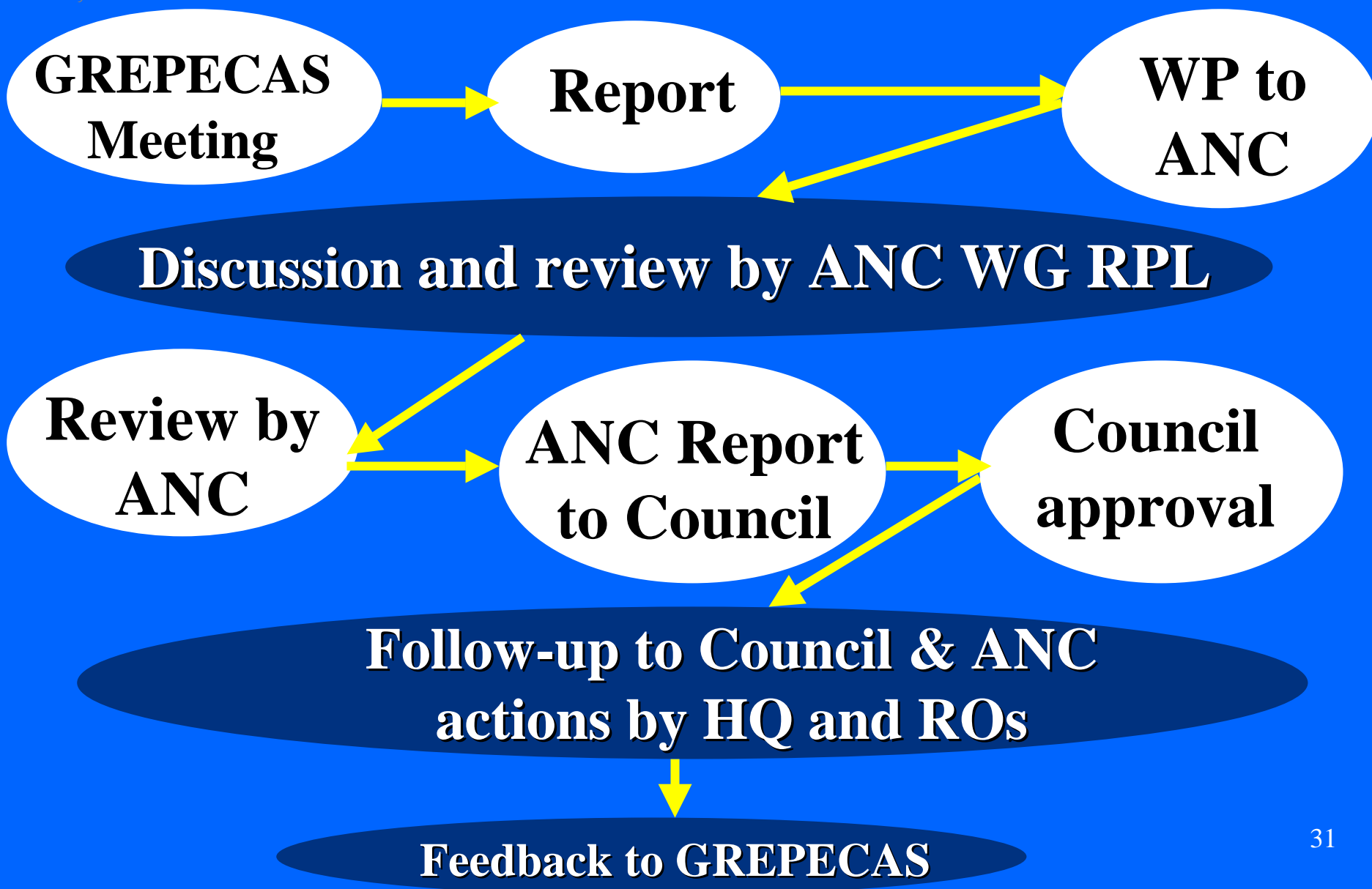


Report contains...

- **History of the meeting**
- **Summary of the discussions**
- **Conclusions and Decisions arrived at the meeting**
- **Future work programme**



GREPECAS Report review process





CAR/SAM

“Success Stories”



Projects in the CAR/SAM Regions

- **Required navigation performance (RNP)**
- **Reduced vertical separation minimum (RVSM)**
- **Reduced horizontal separation**
- **Area navigation (RNAV)**
- **Revision ATS route structures**
- **Interconnection of regional and subregional digital ground/ground data and voice communication networks**



Aerodrome Operations

- **In relation to ICAO provisions on aerodrome certification, the CAR/SAM States were urged to establish the necessary legislation and regulatory procedures for certification of aerodromes, with a view to ensuring aerodrome operational safety, regularity and efficiency**



Aerodrome Operations

- **Three CAR/SAM Aerodrome Certification Workshops**
 - coordinated by both the NACC and SAM Regional Offices
 - **Trinidad and Tobago, May 2002**
 - **Santiago, Chile, September 2002**
 - **Buenos Aires, March 2004**

- **Three ICAO/US Airport Certification Inspectors Workshops for States and Territories in the CAR/SAM Regions**
 - coordinated by the ICAO NACC Regional Office
 - **Miami, Florida (English), September 2003**
 - **Miami, Florida (Spanish), October 2003**
 - **Mexico City, March 2004**



Aeronautical Information Services

- **World Geodetic System – 1984 (WGS-84) in the CAR/SAM Regions**
 - **13 States/Territories fully implemented all elements**
 - **23 States/Territories nearly fully implemented except for minor elements**
 - **8 States/Territories partly implemented**
 - **Progress made to determine coordinates of the common points in the boundaries of the FIRs to complete the implementation**



Aeronautical Information Services

- **Based on the CAR/SAM “Coordinated Plan for the Implementation of National and Regional Data Banks” and on the “Common Operating Procedures Manual for the Integrated Automated AIS System”, important advances made in the NOTAM database as well as in the development of AIS automated systems. (23 States and COCESNA have developed AIS Automation)**
- **Guidance to develop an AIS Quality Management systems in the CAR/SAM Regions is being developed by the GREPECAS AIS/MAP/SG. Some States and COCESNA have already developed QM Systems**



Air Traffic Management

- **ACAS II (Aircraft Collision Avoidance System)**
 - **Mandatory use of Pressure – Altitude Reporting Transponders**
 - **Urged States in the CAR/SAM Regions to take necessary measures to promulgate national regulations meeting the requirements of Annex 6 provisions which came into effect 1 January 2003**



Air Traffic Management

- **RNP (Required Navigation Performance) & RNAV (Area Navigation) Implementation**
 - **Requested CARSAMMA to start collecting data on RNP approved aircraft and use IATA information**
 - **Encourage States/Territories and international organizations to draft National RNAV Route Implementation Programmes**
 - **RNP trial demonstrations in designated routes has begun**



Air Traffic Management

➤ RVSM implementation

- The CAR/SAM Regions continued activities towards a target date of 20 January 2005 for implementation of RVSM FL290 – FL410 (inclusive).**
- A CAR/SAM Regional Safety and Monitoring Agency (CAR/SAMMA) has been established in Brazil, with the focus on monitoring RVSM and RNP/RNAV implementation in the CAR/SAM Regions.**



Communications

- **Regional ground/ground communication network**
 - **Harmonization of AFS communication circuits is being achieved through the implementation of CAMSAT, MEVA and E/CAR digital networks in the CAR Region, together with the projects underway to update and modernize the last two of these networks, and the implementation of the REDDIG in South America, all representing an excellent digital platform for the establishment of the ATN backbone network**



Communications

- **Aeronautical Telecommunication Network (ATN)**
 - **The transition plan and related technical/planning documentation are under development, with initial focus on ground-ground applications such as ATS message handling system (AMHS) and ATS inter-facility data communications (AIDC)**



Navigation

- **Global Navigation Satellite Systems (GNSS)**
 - **Activities with respect to SBAS and GBAS development continue to take place through RLA Technical Co-operation Projects**
 - **WAAS and EGNOS non-preoperational trials in CAR and SAM Regions and the collection of data on ionospheric effects in the equatorial zone completed**
 - **Studies continue towards expanding the WAAS and EGNOS as well as obtaining SBAS system alternatives for CAR/SAM regions**



CNS/ATM Systems

- **Regional Plan CNS/ATM Systems**
 - **A living document**
 - **The CAR/SAM regional plan for CNS/ATM is under continuous review and now includes updated timelines in terms of implementation of various elements of CNS/ATM systems.**



Traffic Forecasting

- **AGA/AOP Traffic Forecasting Study Group**
 - **States are being encouraged to obtain traffic forecast information for a 5- and 10-year horizon**
 - **Additional resources are required and the States to designate experts to participate in the TFG meetings and support the provision of data to develop forecasts**



Meteorology

- **World Area Forecast System (WAFS)**
 - **ISCS Provider State to coordinate training on the use of GRIB and BUFR code forms in coordination with ICAO and WMO**
 - **The modus operandi between GREPECAS and the WAFSOPSG, stipulates that the WAFSOPSG is responsible for the global and regional planning of the WAFS, while GREPECAS continues efforts towards its implementation**



Air Navigation Deficiencies

- **GREPECAS adopted the revised uniform methodology, in addressing the deficiencies of the CAR/SAM Regions**
- **The CAR/SAM Regional Offices are in the process of collecting action plans from States for the resolution of air navigation deficiencies**
- **With a view to enhancing safety, the CAR/SAM Aviation Safety Board continued to address the States/Territories Regional Urgent Deficiencies**



AVSEC

- **Encouraged States/Territories to commit towards full implementation of multilateral convention on Aviation Security**
- **Participating actively in the ICAO Aviation Security Plan of Action, including the training and audit processes**
- **Created an Aviation Security Committee to assist States towards AVSEC implementation in the CAR/SAM Regions**



AVSEC

- **ICAO/Canada Aviation Security Awareness Training Programme in the Latin America and Caribbean Regions (GREPECAS AVSEC/COMM and WHTI/GEASA initiative)**
 - **Workshops and seminars to be coordinated by ICAO and conducted in English and Spanish separately**
 - **Workshops March 2004 – March 2005**
 - **One scheduled each month preceding ICAO audits**
 - **Seminars**
 - **English – Caribbean – Aug/Sept 2004**
 - **Spanish – South America – March 2005**



Conclusions

- **CAR/SAM Region is active; has developed its plans for the implementation of most of its Air Navigation Plan including CNS/ATM systems.**
- **CAR/SAM Region is considered an important link between other regions of ASIA/PAC, Europe, Africa and NAM.**
- **Commitments and collaboration shown by the States will have to continue for successful and timely implementation of the air navigation systems in the CAR/SAM Region.**
- **The Mexico and Lima Regional Offices are committed as part of the global network in alleviating air navigation deficiencies.**



ICAO's Regional Offices in Mexico and Lima



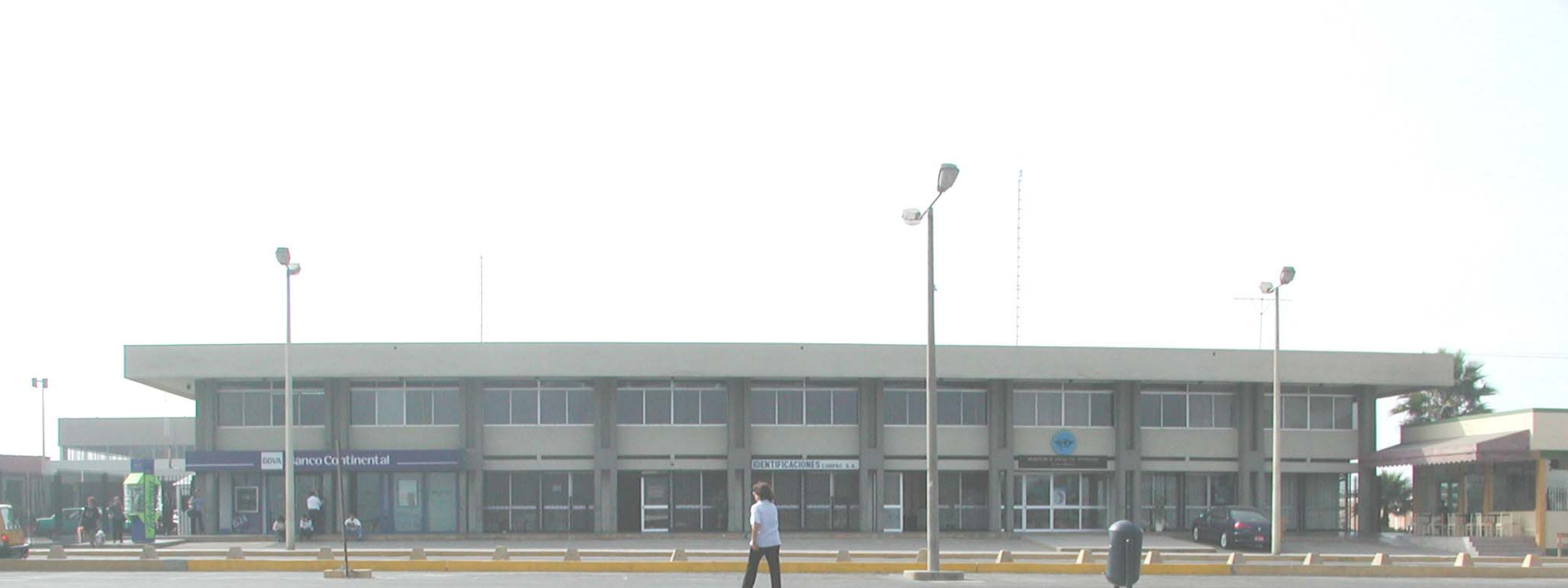
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Thank you!