ATC PROCEDURES

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Overview

- Critical RVSM Procedures
- “Lessons Learned”
- ATC Work Group Milestones
  - ConOps
  - Altitudes
  - Flight Level Allocation System (FLAS)
  - Exclusionary airspace/Transition Airspace
  - Training/Phraseology....Training Manual
  - Regional traffic vs. Domestic Traffic
- “Big Bang”

Critical RVSM Procedures

- Weather deviations
- "Andes Rule"
- Mountain Wave/Turbulence
  - Suspension of RVSM
- Flight Level Allocation System
- One way/Two way routes
- Non-approved aircraft
- Equipment failures

Weather Deviations

- Procedural kick-ins..pilot reports/forecasts
- Close coordination with IATA/IFALPA/IFATCA
- Most of CAR/SAM has DCPC.....for areas that don't, WATRS procedures will be a good starting point
- LOAs/MOUs between States can be used for management of known weather patterns

ANDES Rule

- Loss of pressurization under RVSM operations currently covered under equipment failure contingency procedures
- ATC Working Group needs to study effect of offsets/compacted traffic on “theoretical emergency descent with lateral implications”

Mountain Wave/Turbulence

- Domestic airspace may see higher occurrence than oceanic environment
- East side of Andes experiences substantial mountain wave activity
- Regional/Airway specific procedures be the answer
- Anchor States will play key role
- Suspension of RVSM, if necessary, should be minimized

Flight Level Allocation System

- Sounds complicated but merely requires regional agreement
- One way routes may be the answer
- Even with radar, standardization will be needed
- ATC Working Group is developing plan
- Annex II of ICAO Doc 4444 provides FLAS that can be used to develop a procedural system for CAR/SAM Region

Flight Level Allocation System

Assign altitudes within RVSM airspace using the following FLAS:

Aircraft within RVSM or RVSM transition airspace	Assigned route, track, course, or vector is between 000 degrees and 179 degrees magnetic	Assign any of the following cardinal altitudes	FL 290, 310, 330, 350, 370, 390, 410
Aircraft within RVSM or RVSM transition airspace	Assigned route, track, course, or vector is between 180 degrees and 359 degrees magnetic	Assign any of the following cardinal altitudes	FL 300, 320, 340, 360, 380, 400

One Way/Two Way Routes

- Assists in traffic management
- Supports hub and spoke traffic system
- Could be time sensitive
- Coupled with new RNAV routes, would be the foundation for regional TFM effort
- Must be specified in a regional RVSM plan

Non Approved Aircraft

- Stand back, this one is a tough one!!!!
- Current rules permit only very limited types/numbers of flights of non-approved aircraft into RVSM exclusionary airspace
- Allowing non-approved aircraft into exclusionary airspace can increase difficulty of meeting the TLS

Non-Approved Aircraft

- Provisions can be made for:
  - State Aircraft * ICAO
  - Maintenance Flights
  - Ferry/Delivery Flights
  - Humanitarian/Mercy Flights *ICAO
  - Climb/Descent Through Exclusionary Airspace..must be “non-stop”
- Substantial advance coordination should be considered
- Advance coordination does not guarantee aircraft will be accommodated

Non-Approved Aircraft

- Each State will decide how to handle non-approved aircraft operating totally within their FIR(s). .....But remember

These Procedures may impact the Safety Analysis...and our ability to meet the TLS

Equipment Failures

- Operators will have list/procedures identifying necessary equipment list
- ATC notification is critical
- Turnback/vertical-lateral offsets can be devised, also descent out of RVSM altitudes
- Large areas of DCPC should lessen impact

Lessons Learned

- There is no such thing as too early.....except for training
- There is no such thing as too late.....except for training
- NAT….nuisance TCAS alerts...V.7 and ACAS II should eliminate this problem
- PAC...have a plan “B” and maintain tracking record of each State’s progress

Lessons Learned

- Wake Turbulence procedures
- Training Standardization
- Harmonize dates and altitudes
- Some type of RVSM identifier is needed at the Controller's position **ATC working group
- Automation issues
- Effect of radar on RVSM operations, similar to U.S. DRVSM effort

Lessons Learned

- Remember that RVSM does not create more airplanes....
- RVSM does impact Traffic Flow Management
- QA.....one major height deviation can ruin your TLS for the whole year
- Get controllers and pilots together to work on lateral offsets and weather deviation procedures
- State representatives should participate in regional planning meetings and ATC Working Group

ATC Working Group Milestones

- First…if you don't have a representative for the ATC Working Group, don't leave the room until you give me a name...
- CONOPS…**complete**
- The blueprint for ATC aspect of RVSM implementation…critical to safety analysis

Altitudes

- First alternative....FL290-FL410
- Second alternative....FL410-FL290
- Third alternative....simultaneous implementation at FL290-FL330 and FL330-FL410
- 290-410 makes the most sense operationally
- Having an “island” of 2000 feet vertical separation makes the airspace extremely complex
- States have agreed to FL290-410 (with limited exceptions)

Exclusionary Airspace Transition Areas

- Core areas will extend from Canada to northern FIRs of Argentina and all of Chile
- Due to natural geographic situation, Chile and Argentina can easily implement RVSM as transition areas (presence of radar is beneficial)
- Again, procedures for non-compliant aircraft weigh heavily in establishment of exclusionary airspace

Training/Automation

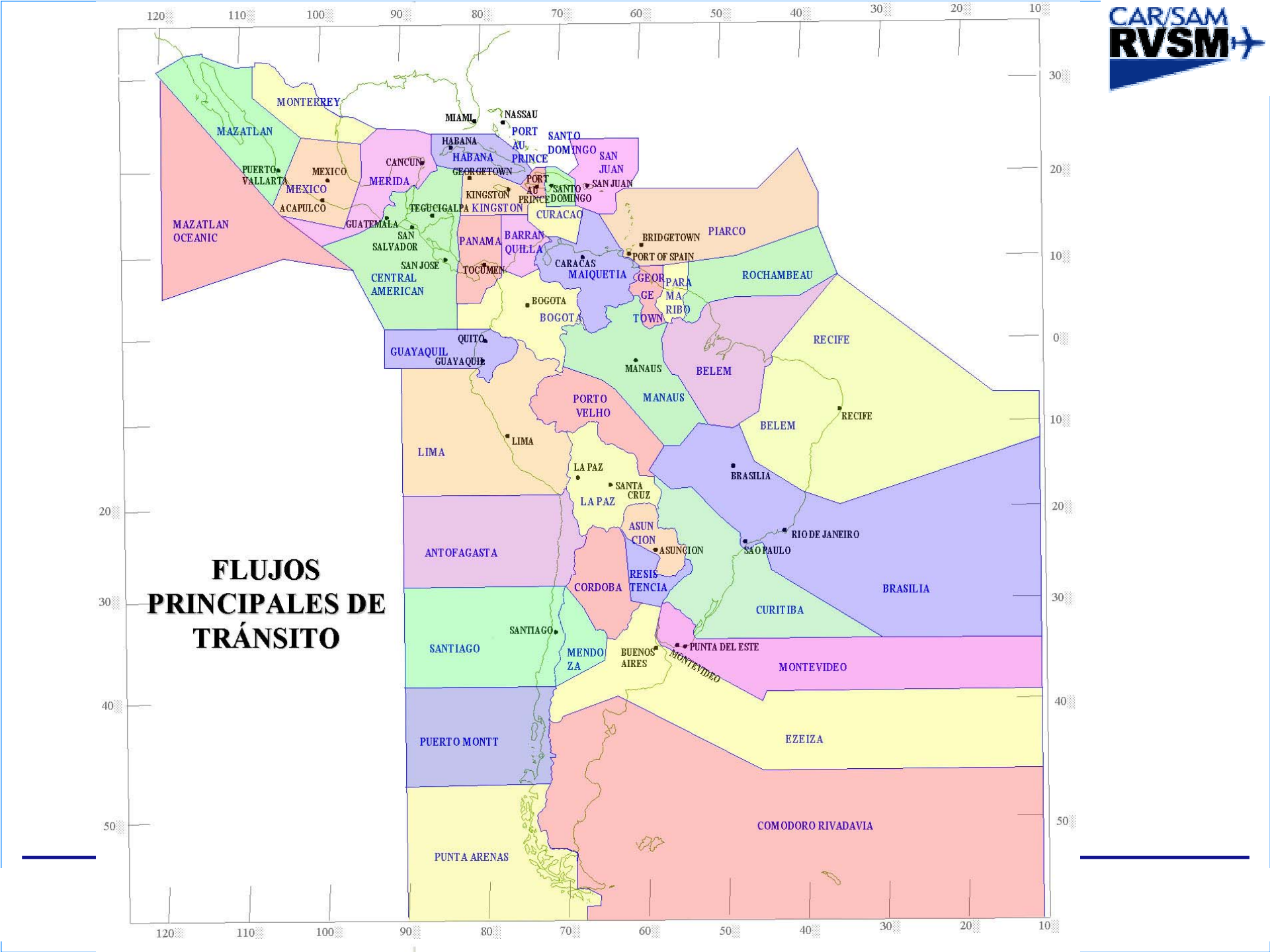
- Training manual being developed by TF based on European Model and will be distributed to the States
- Will contain milestone dates for controller training
- Standardization of phraseology and procedures is critical to safety
- Past implementations have shown that training, while important, takes less time than might be expected
- States will need to adapt training to their ops environment….radar vs. non-radar
- States should designate an internal contact for training
- States may use NOTAM/AIC as early briefing guide
- States using automated flight plan processing should ensure that their automated systems are RVSM compatible

Regional vs Domestic

- ATC Working Group will be developing regional guidelines
- Important for States to use the regional/ICAO standards when developing domestic procedures
- Domestic procedures can impact safety analysis and TLS
- ATC working group will be available to States/ATC service providers
- Guidance material is already available in all areas of ATC procedures/training/contingencies

Why do a “Big Bang”

- Beware the unknown!!!!
- Key to safe ATC is predictability and situational awareness
- Harmonized altitudes/dates allows controllers and operators to know what is expected of them
- Complexity of a mixed operational environment could be almost impossible to predict
- Mixed environment (and associated procedures) may make it difficult, or impossible, to achieve regionally established TLS
- Doing all the work now will reduce costs/hassles later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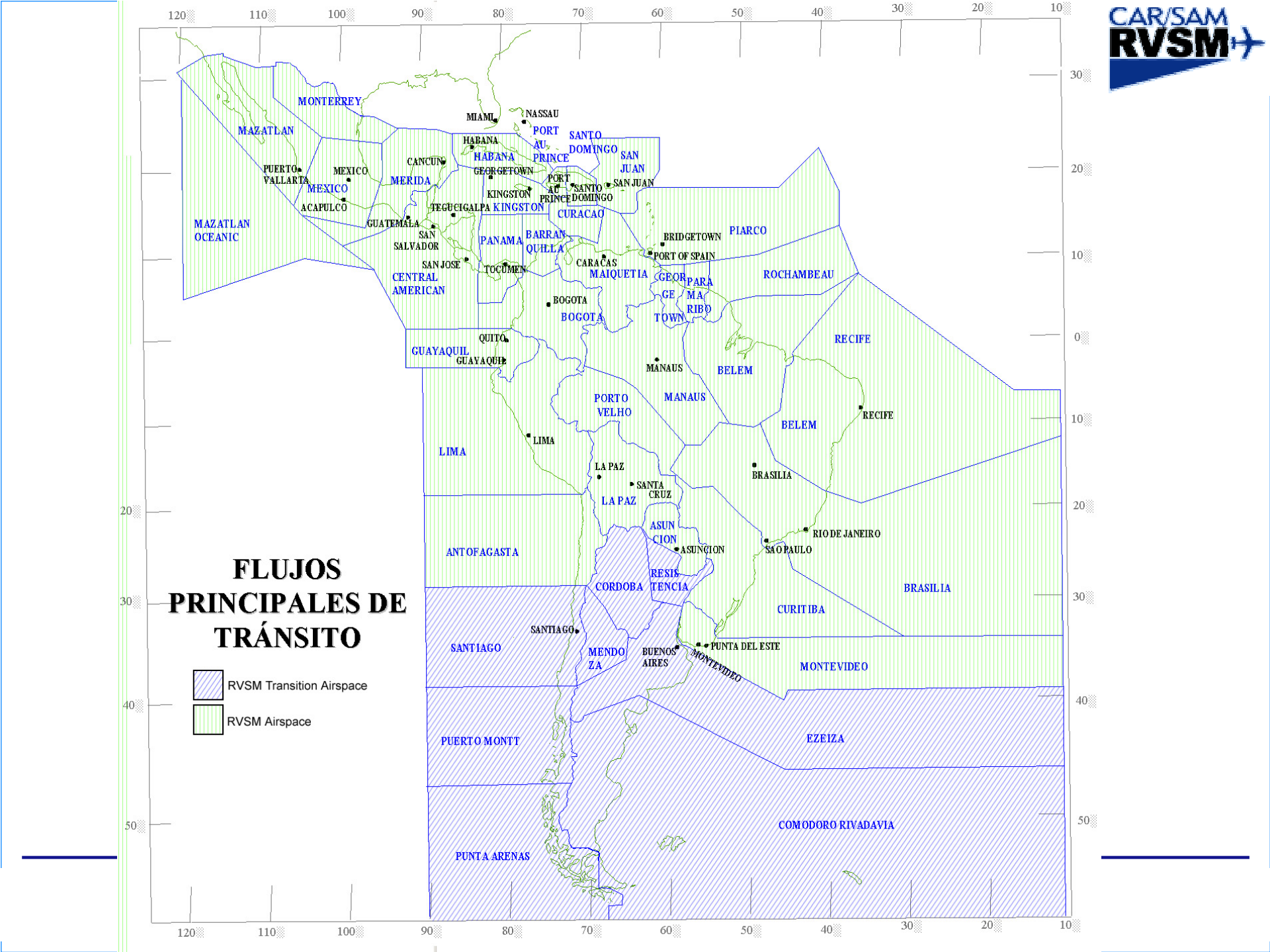
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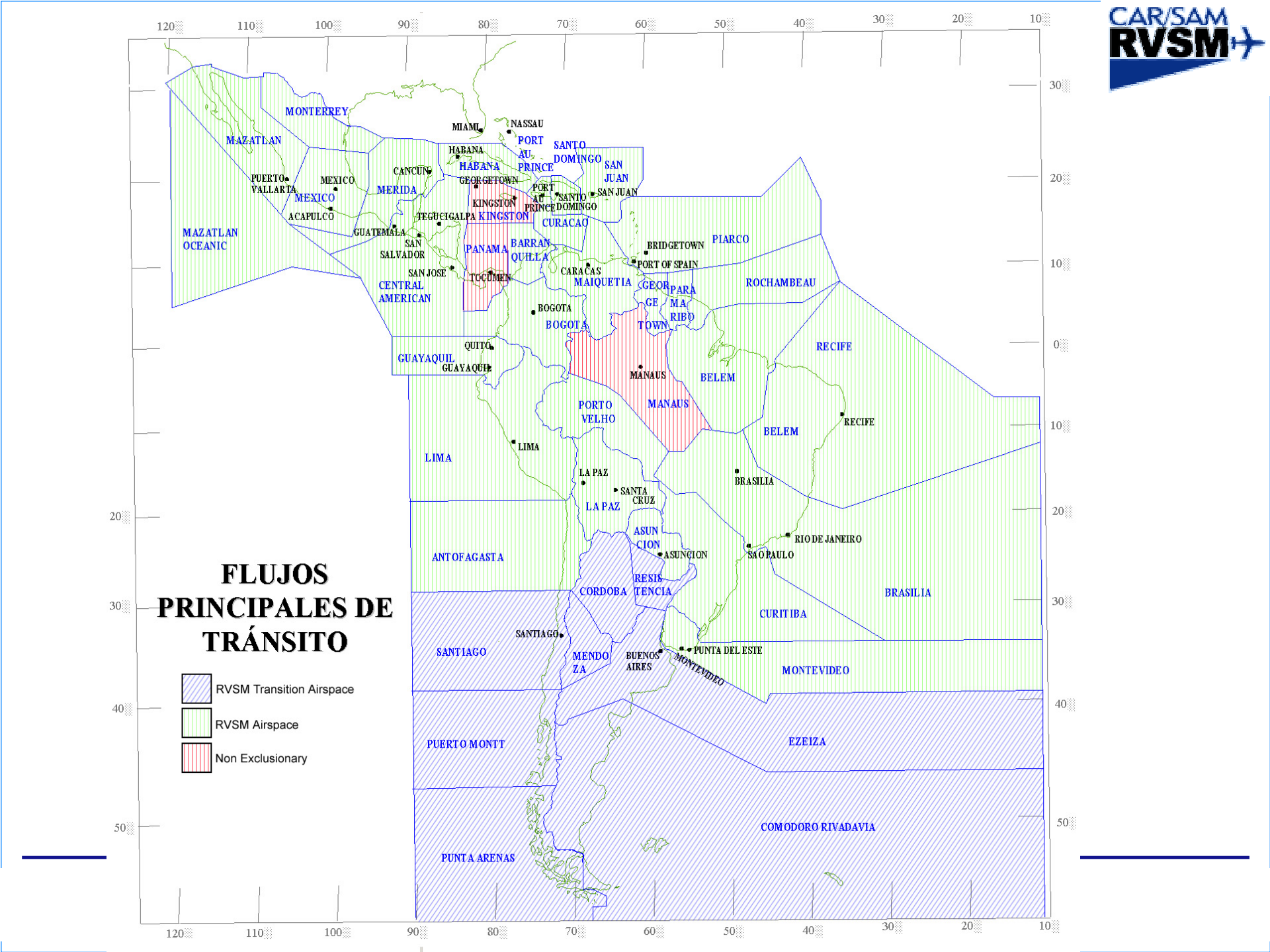
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Questions

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