

ATC SIMULATIONS

CAR/SAM RVSM
Seminar

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ATC Simulations

What are they?

- A replication of actual traffic flows
- Conducted in a training or laboratory environment
- Method of determining feasibility and impact of new procedures

ATC Simulations

Why do them?

- Provide information on human factor, traffic flow and safety impacts
 - Current Traffic
 - Forecast Traffic
 - Controller Workload
 - Contingency/Emergency Procedures
- Identify potential safety issues
- Identify airspace issues

ATC Simulations

Who should do them?

- ATS providers with complicated traffic flows
 - Multiple crossing or merging flows
- ATS providers with large mixed fleets
 - Domestic non-RVSM approved
 - International RVSM approved

ATC Simulations

How to develop them?

- Identify airspace to simulate
 - Sector(s)
- Collect data on current traffic volume and flow
- Create realistic scenarios using current traffic volume and forecast traffic volume
 - Use the same airspace and traffic flows for both
 - Run both scenarios using CVSM
 - Run both scenarios using RVSM
 - Keep all other procedures constant

ATC Simulations

How to conduct them?

- Brief *active* controllers on basic rules of RVSM
- Have controllers “work” the current traffic using CVSM
- Have controllers “work” the current traffic using RVSM
- Have controllers “work” the forecast traffic using CVSM
- Have controllers “work” the forecast traffic using RVSM

- Have active controllers or instructors observe each simulation

ATC Simulations

How to evaluate the results?

- Controllers provide their subjective comments
 - RVSM worked well: yes or no
 - Identify areas of difficulty
 - RVSM increased efficiency: yes or no
 - RVSM affected workload: yes or no
 - How and why
 - etc.

ATC Simulations

How to evaluate the results?

- Instructors provide their comments to the same questions posed to the controllers
 - RVSM benefits
 - RVSM concerns
 - Recommendations

What to do next?

- What issues were identified
 - Controller workload
 - Airspace design
 - Procedures
 - Traffic flows
 - Surveillance requirements
 - Communications requirements
 - Mixed fleet

and then...

- How to mitigate the problems
 - Automation improvements
 - Redesign of airspace
 - New procedures
 - Modify traffic flows (one-way routes, flight level allocation schemes, etc.)
 - Surveillance or communications improvements
 - Exclusionary airspace versus accommodation of non-RVSM aircraft

Finally

- Use the results to develop the RVSM National Implementation Plan
- Provide the results to the ATC/WG chairman for consideration in the RVSM Regional Implementation Plan

FAA Simulations

→ Alaska

- International vs. Domestic
- High density vs. Low density
- Transition Areas vs. Exclusionary
- Transition procedures
- Tactical use of CVSM
- Tactical use of RVSM
- Automation changes for RDP and FDP

FAA Simulations

→ DRVSM

- Two phases vs. “Big Bang”
 - Controller workload
 - Traffic complexity
- Altitude stratum: FL290 – FL410, inclusive

Questions?