Overview of Dynamic Airspace Configuration

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Dynamic Airspace Configuration and Traffic Flow Management are complementary aspects of airspace supply-demand relationship:
- TFM modifies traffic demand to match available airspace resources.
- DAC modifies airspace resources to accommodate traffic demand.

DAC research areas:
- Restructured airspace
- Generic airspace
- Adaptable airspace
Restructured Airspace

- Design new classes of airspace to provide user benefits

- Segregate traffic with different equipage/characteristics
  - Tube network can give priority to high-equipage aircraft
  - Flexible transition corridors can accommodate new types of vehicles such as unmanned aircraft systems (UAS) and commercial spacecraft

- Key questions
  - What operational concepts can provide system-level benefits?
  - What are the appropriate equipage requirements and mix for tubes?
• Simplify airspace control functions to provide staffing flexibility

• Controllers currently need specialized knowledge of sectors
  – Examples: handoff frequencies, flow patterns, crossing restrictions
  – Certified on ~6 sectors in their Area of Specialization

• Key questions
  – How can we remove the need for some specialized information?
  – How should we present necessary specialized information to controllers?
Adaptable Airspace

• Dynamically adjust sector boundaries to accommodate:
  – Time-varying traffic volume/complexity
  – Modified traffic flows due to weather re-routing

• Key questions
  – What are the appropriate criteria for airspace design?
  – When and how should the sector boundaries be adjusted?

• Both questions have algorithmic and human factors aspects
Presentations

• Comparing Airspace Design Methods  
  Shannon Zelinski

• Benefit of Regional Airspace Reconfiguration in the Presence of Convective Weather  
  Jaewoo Jung

• Airspace Design and Assessment Tools  
  Tom Prevot

• Flexible Airspace Management  
  Paul Lee

• The Sector Combining Advisory Algorithm  
  Michael Bloem
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