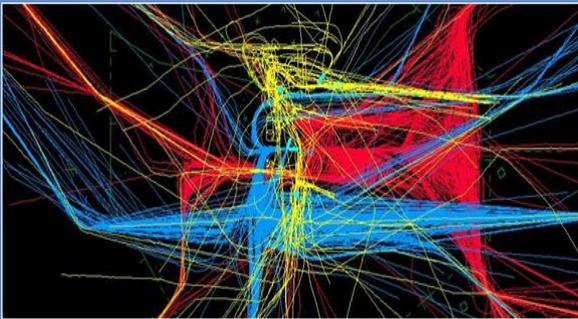


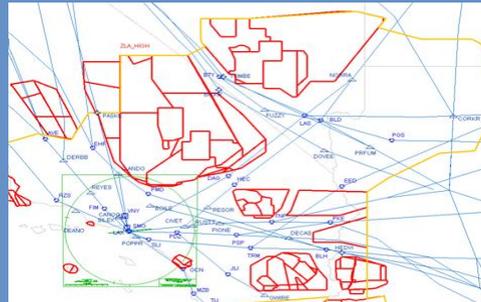


# RNAV and RNP Implementation and Challenges



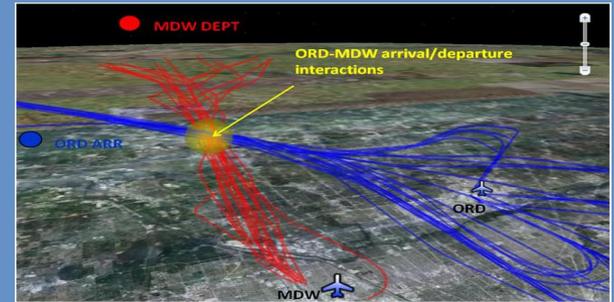
## Takeoff and Departure Challenges

- Complex flows include satellite airport traffic
- Terrain avoidance
- Environmental and noise restrictions
- Operator readiness and approvals
- Training
- Avionics equipage variations



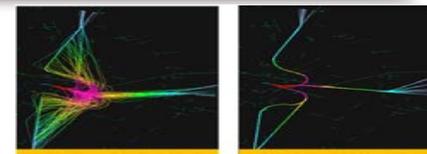
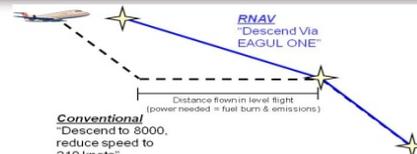
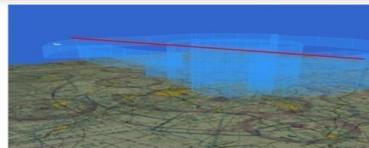
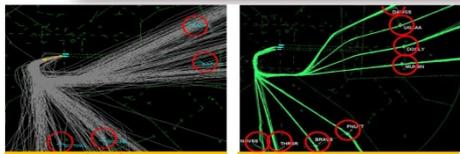
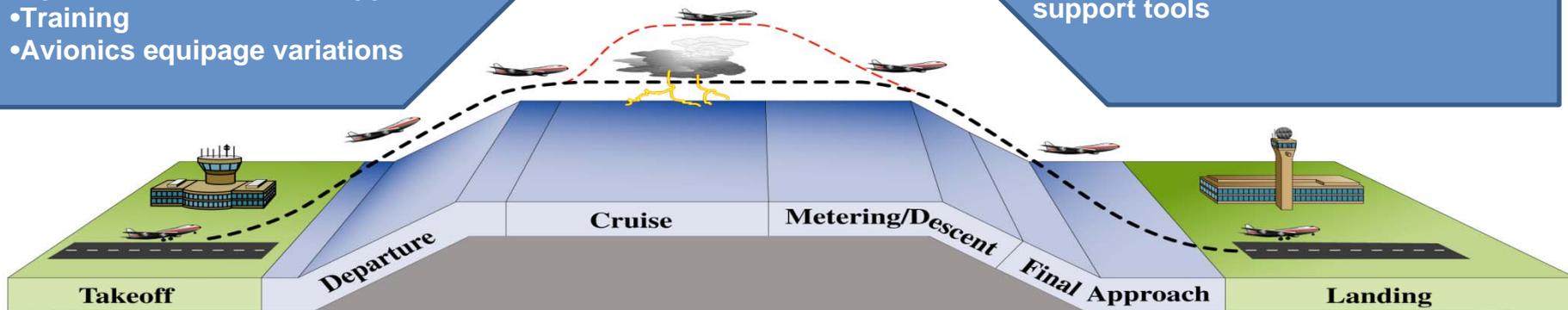
## En Route Challenges

- Multi-facility coordination
- Terminal transitions to/from en-route
- Reducing separation while maintaining safety
- Avoiding restricted airspace
- Integrating with automation



## Arrival and Approach Challenges

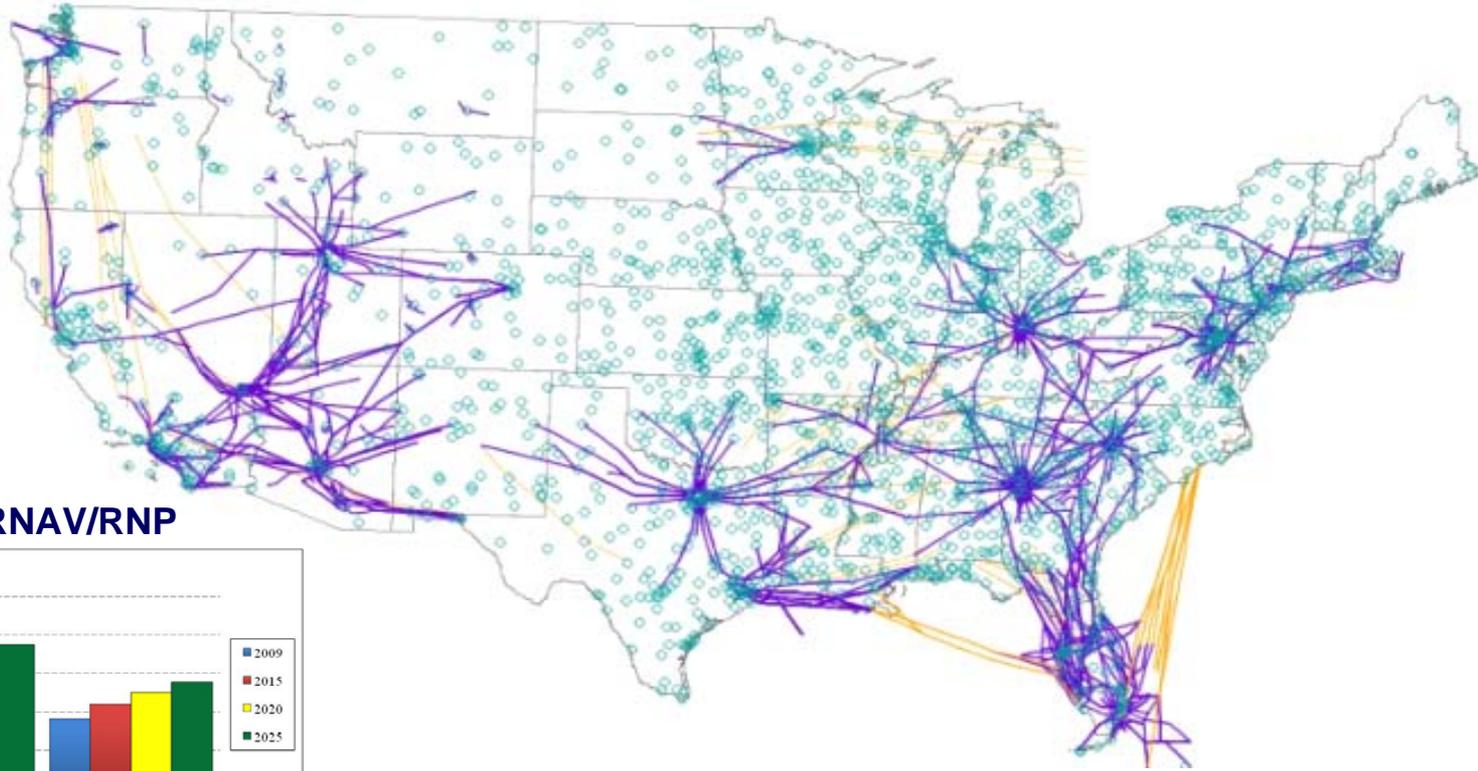
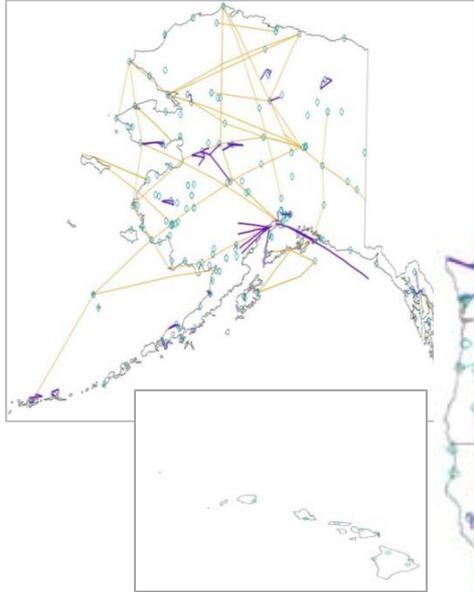
- Adjacent airport flow interactions
- Environmental and noise restrictions
- Controlling and managing a mixed equipage environment
- Availability of controller decision support tools



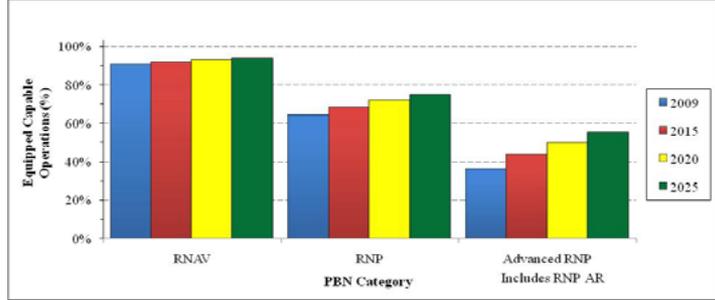


# RNAV and RNP Implementation in the National Airspace System

Purple – RNAV SIDs/STARs  
Yellow – RNAV Routes  
Green – Airports with RNAV or RNP approaches



### % of Operations With RNAV/RNP



## Current FAA Approved RNP SAAAR Operators

