

Emissions Research Roadmap

Summary

To: ASCENT Advisory Board Meeting
By: S. Daniel Jacob, Ph.D.
Emissions Division, AEE-300
Office of Environment and Energy
Date: October 13, 2015



Federal Aviation
Administration

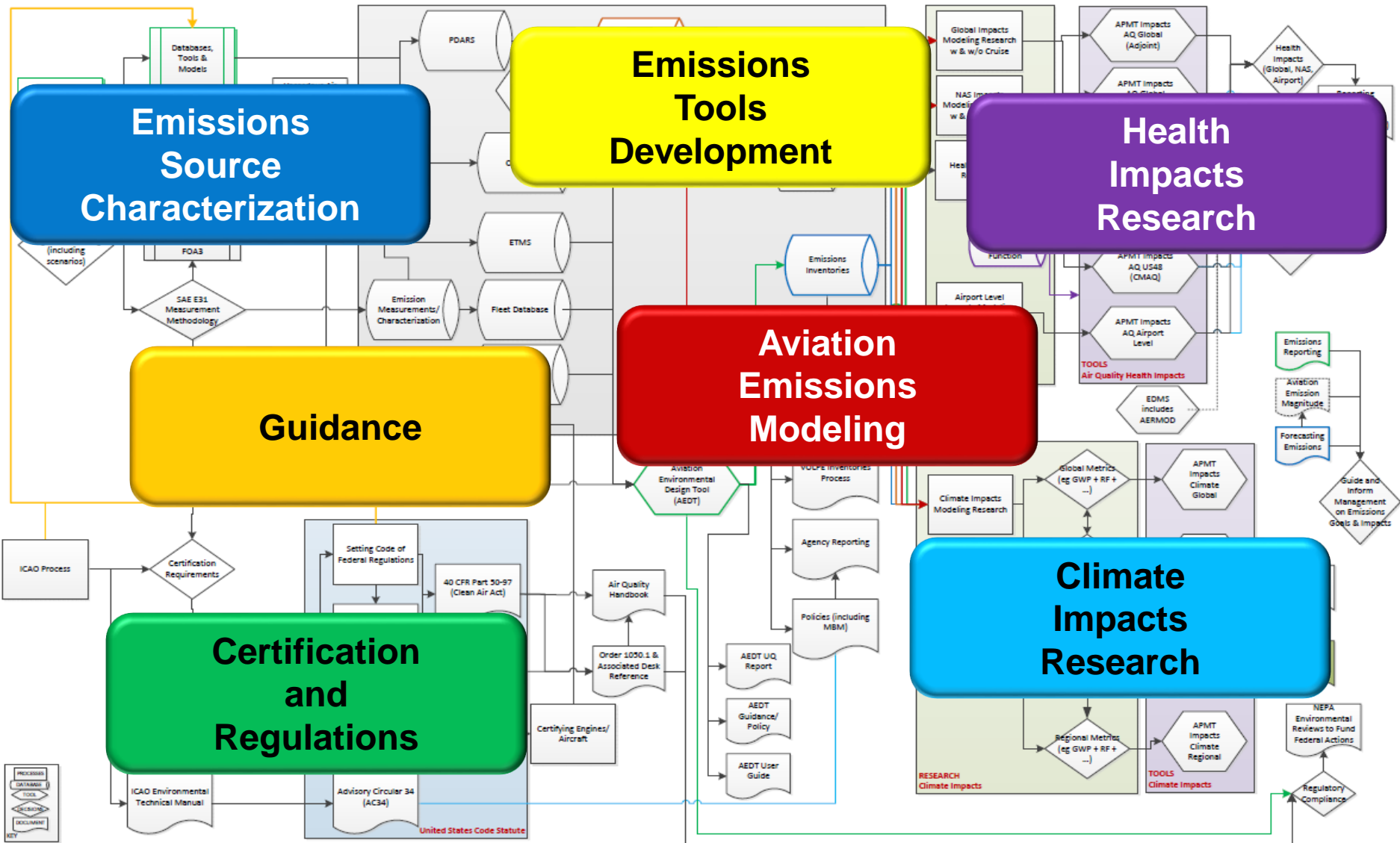


Aviation Emissions Research Questions

- What role do commercial aircraft emissions play in **surface air quality impacts**?
 - What are the incremental health impacts?
 - At different scales: **Airport + National Airspace + Global**
- What role do commercial aircraft emissions play in **climate change**?
 - What are the incremental climate impacts?
 - At different scales: **Regional + Global**



Emissions Research Roadmap – 7 Areas



Current Emissions Research (1/2)

Project	Source Characterization	Emissions Tools Development	Health Impacts	Aviation Emissions Modeling	Cert and Regs	Climate Impacts	Guidance
A2: nvPM Emissions Engine Msrmts.	X	X			X		
A13: ACCESS2 Microphysical Modelling						X	
A14: Aircraft CO2 Emissions Standard				X	X		
A18: Modeling AQ Health Impacts			X	X			
A19: Airport AQ Impacts Modeling		X		X			
A20: Rapid (Adjoint) Global AQ Modeling		X	X	X			
A21: APMT- Impacts Climate Global Tool Dvmt		X				X	
AEC Roadmap Annual Meeting	X	X	X	X	X	X	X

Current Emissions Research (2/2)

Project	Source Characterization	Emissions Tools Developmnt	Health Impacts	Aviation Emissions Modeling	Cert and Regs	Climate Impacts	Guidance
A22: Evaluate FAA Climate Impact Tools		X				X	
A24: Alt Fuels Emissions Data Analysis	X	X					
Update FAA Air Quality Handbook							X
NAS-wide Energy Efficiency Analysis		X		X			
2012 Contrails Observation Database Dev.						X	
2050 Climate Modeling Scenarios						X	
Regional Climate Model Development		X				X	
Piston Aircraft (unleaded) Fuels Initiative	X		X				5

Future Emissions R&D

- **Cruise PM emissions**
 - Measurement and Modeling
- **Alternative Fuels**
 - Emissions Characterization
 - Tools Implementation for Modeling
- **Examine climate impacts that are unique to aviation (e.g. cruise emissions and contrails) to enable development of mitigation solutions**
- **Incorporate high fidelity weather into emissions modeling.**
- **Update HAPS guidance**



Thank you!

Ralph Iovinelli

Emissions Division Manager

FAA Office of Environment and Energy

ralph.iovinelli@faa.gov

202-267-3566 office

