

COE CST Seventh Annual Technical Meeting

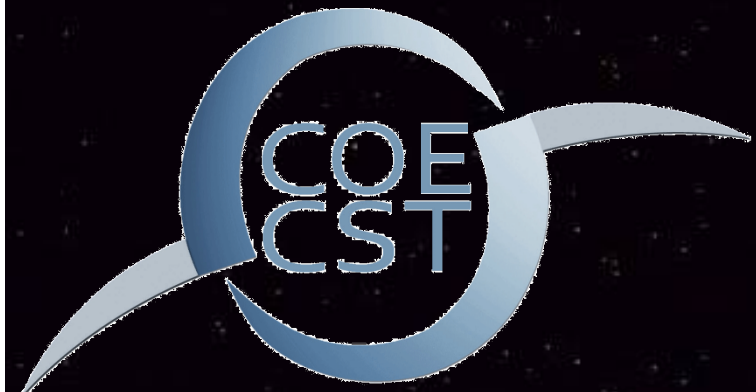
Integrated Aerospace Traffic Management Concepts

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MITRE

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Las Cruces, NM***



Center of Excellence for
Commercial Space Transportation



Agenda

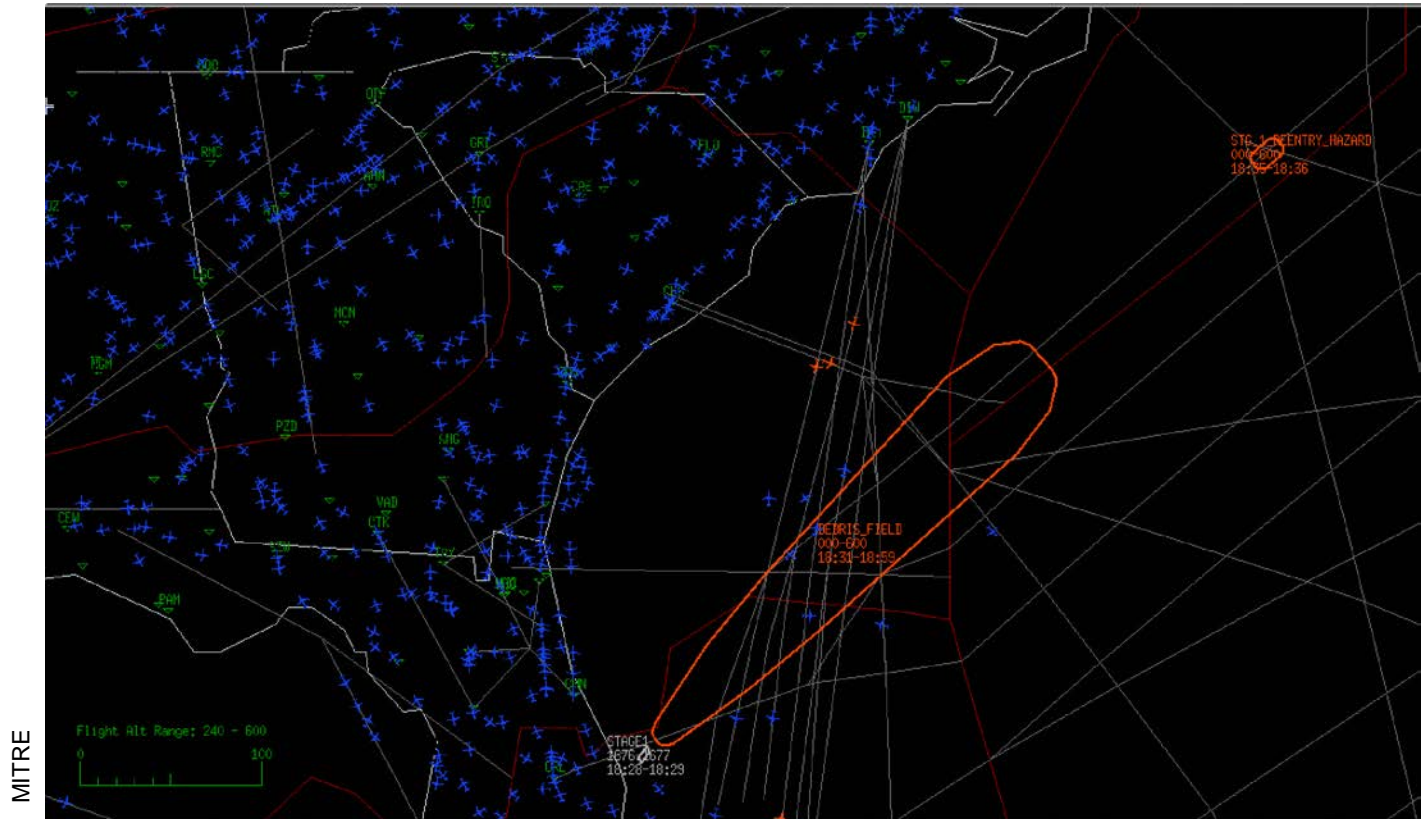
- Team Members
- Task Description
- Schedule
- Goals
- Results
- Conclusions and Future Work

Team Members

- Tom St. Clair, PI
- Chris Randell, PhD, Co-PI
- Funded by The MITRE Corporation as part of the MITRE-Sponsored Research Program

Task Description

- Develop a surface-to-space simulation environment to enable future concept exploration



Schedule

- FY17:
 - Developed an initial surface-to-space simulation capability, primarily focused on ATM
- FY18:
 - Using MITRE's Architecture Trade and Sensor Assessment Tool, simulate various surveillance sources, such as the DoD Space Surveillance Network, space-based surveillance, the FAA's Air Route Surveillance Radar, and weather radar, to assess their feasibility to enable ATM tools to improve NAS efficiency
 - Enhance ATM simulation to evaluate multiple variables based on various surveillance sources and various launch and re-entry scenarios, including variables such as vehicle types and configurations, malfunction timing, and geographical location

Goals

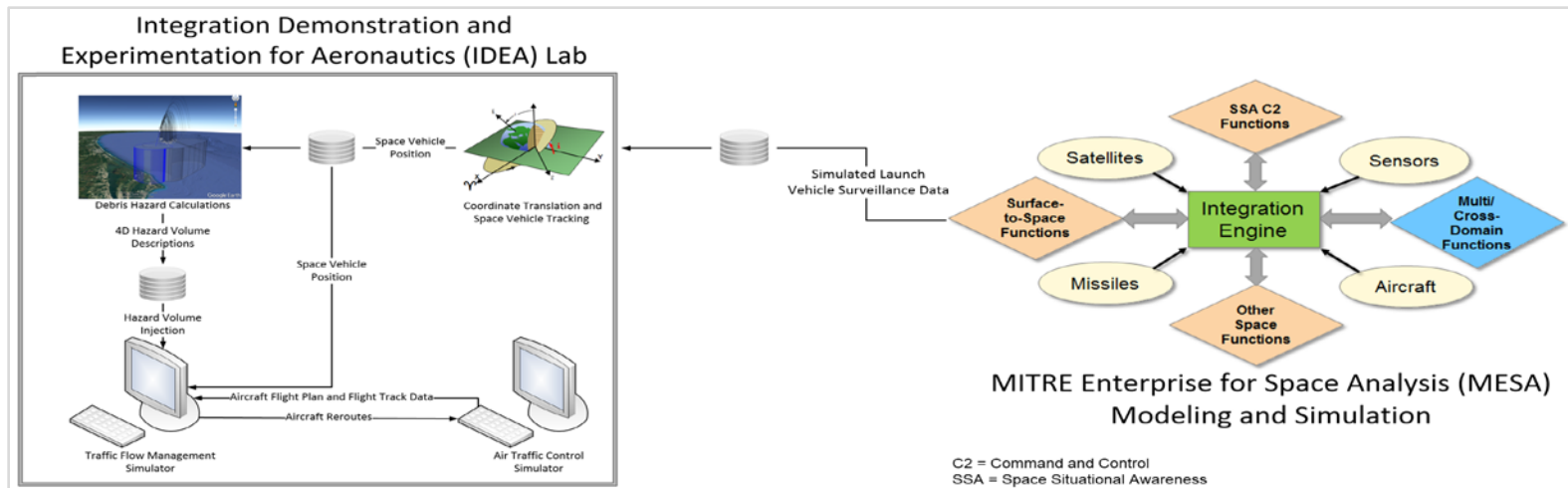
- Simulate various surveillance sources, such as the DoD Space Surveillance Network, space-based surveillance, the FAA's Air Route Surveillance Radar, and weather radar, to assess their feasibility to enable ATM tools to improve NAS efficiency
- Enhance ATM simulation to evaluate multiple variables based on various surveillance sources and various launch and re-entry scenarios, including variables such as vehicle types and configurations, malfunction timing, and geographical location
- Reduce protected airspace size during successful launches by:
 - Protecting for a launch malfunction only when needed
 - Decreasing impact on aviation operators
 - Increasing opportunities for launch and reentry operations

Results



Conclusions and Future Work

- Mature MITRE's surface-to-space simulation environment
- Assess the feasibility of using various surveillance and Air Traffic Management (ATM) alternatives
- Evaluate workload, communication, safety, efficiency, roles and responsibilities
- Provide visual environment to enable parties to collaborate



MITRE Aerospace Traffic Management Simulation Environment