NASA SBIR 2010 Phase I Solicitation

A3.02  Systems Analysis Integration Evaluation (SAIE)

Lead Center: LaRC

Participating Center(s): AFRC, ARC

Atmospheric Hazards

- Common situational awareness between flight deck and ground automation systems for weather avoidance
- Integrating weather products into decision support tools
- Airspace capacity estimation in presence of weather
- Development of wake vortex detection and hazard metric tools

System Level Concepts Development

- System safety assessment, graceful degradation and recovery

Trajectory Modeling and Uncertainty Prediction

- Analysis of growth of uncertainty as a function of look-ahead time on different phases of flight
- Development of methods to determine, for a target concept/system, the TP accuracy needed to be able to achieve the minimum acceptable system/concept performance as well as identify sources of errors
- Development of methods for managing/reducing trajectory uncertainty to meet specified performance requirements
- Identify critical aircraft behavior data for exchange for interoperability

Roles and Responsibilities in NextGen
• Means to measure controller and pilots workloads in order to optimize air-ground functional allocation

• Means to measure controller and pilots workloads in order to optimize human-automation functional allocation

Modeling and Simulation

• Developing probabilistic or dynamic methods of calculating airspace workload capacity