Control by Exception for Tactical Departure Scheduling, Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

Tactical Departure Scheduling (TDS) is a common activity in Air Traffic Control (ATC) in the National Airspace System (NAS) that requires significant coordination for individual flights and that has the potential to impose delay on impacted flights. Some of the delay that is imposed through the TDS process is necessary, but some of the delay may be unnecessary. The current TDS process is implemented through the Call for Release (CFR) process, which is also referred to as the Approval Request (APREQ) process. In this process, the Traffic Management Unit (TMU) informs the Air Traffic Control Tower (ATCT) that a specific group of flights cannot be cleared by the ATCT to take off until the departure release is approved by the TMU on an individual flight basis. When such CFR programs are in place, an ATC Specialist (ATCS) in the ATCT must contact the TMU via a voice line to request approval for a flight to depart. Once the TMU provides a release time window for the flight, the ATCS in the ATCT must then maneuver the flight to make sure that it takes off within the release time window, or else a new release time must be requested. The purpose of this proposal is to address research and development on the TDS by Exception process, or TDS-E. The TDS-E concept includes a computer automation system that monitors traffic demand in the en route streams of traffic, as well as demand of flights that will depart from airports under the en route stream and climb into the overhead stream. Instead of requiring all such departures to receive individual approval before they take off, under the TDS-E concept, the computer automation system will provide advisories to the TMU and to the ATCT to indicate when CFR procedures are required, and specifically which flights should be subject to CFR. Additional features of the TDS-E capability may provide guidance indicating that some of the normal CFR restrictions can be relaxed.

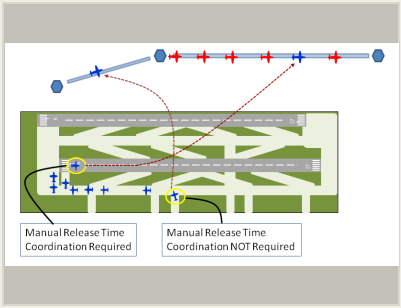

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Table of Contents

Project Introduction 1
Primary U.S. Work Locations and Key Partners 2
Project Transitions 2
Organizational Responsibility 2
Project Management 2
Technology Maturity (TRL) 2
Images 3
Technology Areas 3
Target Destinations 3

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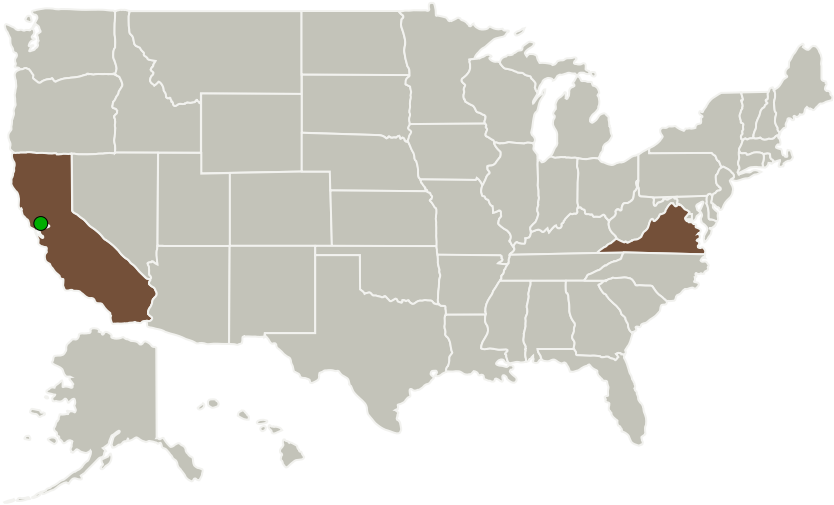
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Mosaic ATM, Inc.	Lead Organization	Industry	Leesburg, Virginia
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Virginia

Project Transitions

May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138061)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Mosaic ATM, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

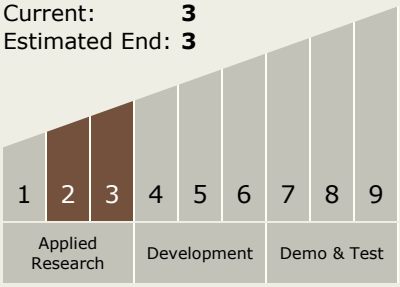
Carlos Torrez

Principal Investigator:

Kevin Day

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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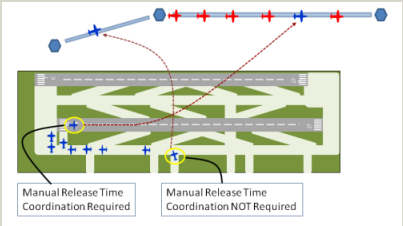
Images



Project Image
Control by Exception for Tactical Departure Scheduling
(https://techport.nasa.gov/image/135471)

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  └ TX16.3 Traffic Management Concepts

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System