DRAW
Dynamic Routes for Arrivals in Weather

Concept and Trial Planning Overview

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Chester Gong
NASA Ames Research Center
Today’s Arrival Operations

• Weather is one of the primary reasons for time-based metering to be discontinued

• Current operational system cannot adjust its scheduled times of arrival (STA) for aircraft that need to deviate around weather

• Traffic Managers and Controllers revert to less efficient methods of managing arrival traffic flow in weather
  • Implement conservative alternate routes hours in advance
  • Miles-in-trail (MIT)
What is DRAW?

Traffic management decision support tool that proposes reroutes to improve arrival traffic flow

- Sustain metering operations in the presence of weather
- Find efficient arrival routes
- Balance meter fix demand

DRAW

Traffic Management Unit

90 - 120 min. to Airport

FREEZE HORIZON
(30 - 40 min. to Airport)

ARTCC

Sectors

Meter Fix

TRACON

Airport
DRAWS System

- Planned as future TBFM enhancement
- Integrated Route and Schedule Trial Planner
- Two-hour convective weather forecast updated every five minutes
- Hourly atmospheric updates (e.g., winds)
- ERAM traffic feed from home and adjacent Centers
- Reroute candidate automatically identified and posted on DRAW Advisory List
Route Correction to Avoid Weather and Maintain Accurate Schedule Time of Arrival

Current scheduled times of arrival do not reflect the need to deviate for weather.

Current Flight Plan

Adjusted time of arrival and delay

AC2

AC1

Freeze Horizon

DRAW Route Correction

Meter Fix 1

AC2

AC1

MF1
Time Saving Reroutes to Alternate Meter Fix

Current Flight Plan

Meter Fix 1

Draw Efficient Reroute

Meter Fix 2

Freeze Horizon

Adjusted times of arrival and metering impact

Current scheduled times of arrival and delay

AC1

AC2

AC3

AC4

AC5

MF1

MF2

AC5

AC4

AC3

AC2

AC1

3

3

2

1
Meter Fix Demand Balancing (future capability)

Current Flight Plans

Meter Fix 1

AC8, AC7, AC6

AC5

AC4

AC3

AC1

AC2

Meter Fix 2

Current scheduled times of arrival and delay

- AC8 6 1
- AC7 6 1
- AC6 3
- AC5 3
- AC4 2
- AC3 2
- AC2 1
- AC1

Freeze Horizon

DRAW Offloading Reroute

Adjusted time of arrival and delays

MF1

MF2
# DRAW Advisory List

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<tr>
<th>TL</th>
<th>TP</th>
<th>GP</th>
<th>ACID/TYP</th>
<th>DEP/TRN.STAR.DEST</th>
<th>SAV</th>
<th>TRANS.STAR/AUX</th>
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- **Grouped by Meter Fix**
- **Grouped**

**Individual Advisory**

- **Current Arrival Route**
  - **DEBB**
  - **FEVER**
  - **AAL1184/M682**
  - **AAL2042/A321**
  - **AAL606/A321**
  - **AAL1547/A321**
  - **AAL2207/A321**
  - **AAL2228/M683**
  - **AAL2195/M683**

**Proposed Arrival Route**

- **Ok**
  - Weather Deviation Route
- **ALT**
  - Alternate STAR

**DRAW Status**

- **Ok**: Weather Deviation Route
- **ALT**: Alternate STAR
CIWS*: Corridor Integrated Weather System (precipitation, echo tops)
CWAM*: Convective Weather Avoidance Model (pilot deviation model)

*- Products of MIT Lincoln Laboratory
DRAW Trial Planning
DRAW Trial Planning: Trial Plan Activation
DRAW Trial Planning: Capture Waypoint

Updated Trial ETA, STA, Delay

Capture Waypoints
DRAW Trial Planning: Alternate STAR
DRAW Trial Planning: Transition Fix
DRAW Trial Planning: Auxiliary Waypoint

Auxiliary Waypoint (Click & Drag)
DRAW Trial Planning: DRAW List Activation

**DRAW List Activation (pre-defined route)**
DRAW Trial Planning: Multi-flight Trial Planning
DRAW
Dynamic Routes for Arrival in Weather

Chester.Gong@nasa.gov