Flight Awareness Collaboration Tool

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Winter Weather

- Developing the “Flight Awareness Collaboration Tool” (FACT)
- Concentrates information about winter weather events on one display
- Includes predictive tools
- Supports collaboration between airline operations center, air traffic control, airport authority, and de-icing operation
- User interface developed and coding for a web-based application is underway
- Space Act Agreement with Virgin America
- User group at Detroit airport
FACT Information

• Weather status and forecasts
• Prediction/reporting of runway closures for snow/ice treatment
• Runway braking action
• Visual display of surface traffic movement at airport
• Hourly arrival and departure rates at specific airports
• Airport runway configuration
• De-icing durations, type of fluid needed, anti-ice needed
• Earlier knowledge of Federal Aviation Administration (FAA) actions (e.g., ground stops, miles-in-trail, etc.)
FACT Information

- Notices to Airmen
- Field conditions
- FAA Operational Information System
- Aviation Digital Data Service icing information
- Taxi time (from gate push back to departure, including de-icing)
- Runway visual range
- Tracking of arrival flights in en route airspace to determine if hold or divert will be needed (based on runway closures, braking, arrival rate)
FACT Design

<table>
<thead>
<tr>
<th>Profiles Bar</th>
<th>Quick View Tabs</th>
<th>Quick View Tabs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary Map View</td>
<td>Surface Map View</td>
</tr>
<tr>
<td></td>
<td>displays current US map</td>
<td>displays current airport surface map</td>
</tr>
<tr>
<td>ZOOM/PAN CONTROLS/COLLAPSIBLE MENU</td>
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<td>Quick View Tabs</td>
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<tr>
<td>Information View</td>
<td>Communication View</td>
<td></td>
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<tr>
<td>formatted data for current airport</td>
<td>communication with other groups and issue tracking</td>
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<tr>
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FACT User Interface Design
Primary Map View
Surface Map View
## Information View

### ATCSCC Advisories for Wednesday, 06-10-2015

<table>
<thead>
<tr>
<th>#</th>
<th>Control Element</th>
<th>Date</th>
<th>Brief Title</th>
<th>Send Time</th>
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<tbody>
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<td>06/10/2015</td>
<td>CDM Airspace Flow Program CNX</td>
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<tr>
<td>161</td>
<td>DCC</td>
<td>06/10/2015</td>
<td>DCC 06/09/15 Route RQD/FL</td>
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<tr>
<td>160</td>
<td>DCC</td>
<td>06/10/2015</td>
<td>Constrained area: ZJX/ZMA</td>
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</table>

### Quicklinks

- FAA OIS
- Aviation Weather Center
- FAA NOTAMs
- WWACM
Information View

FAA Winter Weather Dashboard

- KLGA
- KABE
- KMDT
- KBDL
- KALB
- KAVP
- KORF
- KACY
- KSWF
- KRIC

Quicklinks
Communication View

**LGA:** Too many aircraft in de-icing area.
*Author: rmogford*

**JFK:** UAL 3740 stall in de-icing area. Expect a 20 min delay.
*Author: dpeknik*

**Comments:**
- **13:30:45** *dpeknik:* Not sure how to deal with this one, any suggestions? Here's the procedure. [attachment]
- **13:42:34** *rmogford:* I'll update and send a new document to the team.
Communication View

Hello there...
Richard Mogford 8:56:14 AM

It seems like we're getting a lot of warnings about ice and heavy freezing rain.
Richard Mogford 8:56:14 AM

The group is tracking and shows an hour or more...
Richard Mogford 8:56:14 AM

Thanks for the update, have a good one.
Before I forget, there's another front coming in, so stay tuned for additional info.
Richard Mogford 8:56:14 AM

Type your message here & press Enter or the send icon to submit...
Deterministic precipitation rate forecast
Median actual precipitation for similar forecasts and lead times

80% confidence interval on forecast temperature

Water content of Snow on Runway (WSR)
Deterministic WSR
Median WSR

Median Relative Departure Rate (RDR)

Baseline Departure Rate (RDR) Median Predicted Departure Rate

WWACM for BOS for February 16, 2013
The 77 airports included in WWACM
FACT User Interface Design
FACT Details

• FACT is a web-based application
• Receives JAVA messages from the FAA System Wide Information Management data repository
• Surface movement data are from ASDE-X
• Data are acquired from web pages and tailored for the Information View
• Predictive tools will be built into FACT
• First one competed is Metron’s Winter Weather Capacity Model (WWACM)
  • Predicts changes in airport departure rates from weather reports
FACT Prototype
Primary Map
Surface Map
# ADVISORIES FOR MONDAY, 08-01-2016

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<td>101</td>
<td>ZDC</td>
<td>DCINTERNATIONALDEPARTURES</td>
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EVENT TIME 01/1900 020500
CONSTRAINED FACILITIES ZDC
DC METRO INTERNATIONAL DEPARTURES CAN ANTICIPATE PROBABLE USE OF JERES J220 MICAH TRANSITION INTO ZBW FOR FLIGHTS TO NATOTS THIS IS DUE TO WEATHER ANTICIPATED IN EASTERN ZNY AND ZDC FOR THE AFTERNOON EFFECTIVE TIME 01/1637 02/0500 16/08/01 1637 DCCOPS1xstr20

<table>
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<th>100</th>
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FACT Progress

• Web-based prototype will be completed in July 2016
• Plan to demonstrate FACT to airlines and airports to seek feedback
• Will make modifications and improvements
• FACT platform will be used to host automation tools (e.g., predicting airport capacity, managing snow removal)
• Developing AOC simulator at NASA Ames to evaluate FACT
Questions?

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