



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



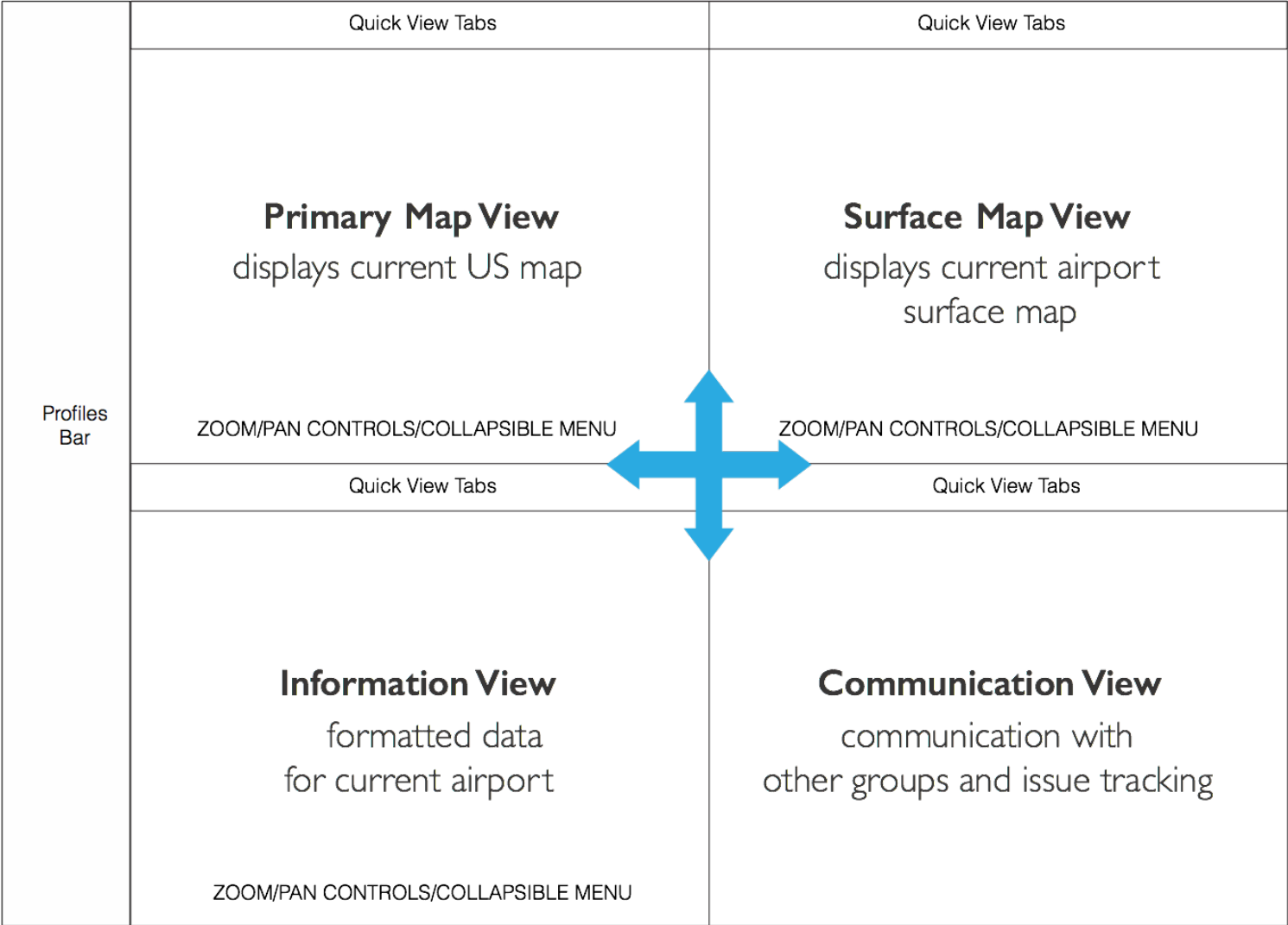
- Weather status and forecasts
- Prediction/reporting of runway closures for snow/ice treatment
- Runway braking action
- Visual display of surface traffic movement at airport
- Hourly arrival and departure rates at specific airports
- Airport runway configuration
- De-icing durations, type of fluid 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



FACT User Interface Design



The screenshot displays the FACT User Interface with three main sections:

- PRIMARY MAP:** A map of the United States with various airports labeled (e.g., SEA, PDX, MSP, DEN, MCI, STL, ORD, MDW, IND, CVG, PIT, EWR, PHL, BOS, LGA, JFK, IAD, DCA, MEM, BNA, RDU, ATL, MCO, TPA, IAH, MIA, FLL, LAS, SAN, PHX, LAX, SFO, SJC).
- SURFACE:** A detailed view of an airport terminal or runway area, highlighted in teal.
- QUEUE:** A list of advisories for Wednesday, 06-10-2015.

Yellow arrows indicate the flow of information: one arrow points from the BOS/LGA/JFK area on the Primary Map to the LGA advisory in the Queue, and another arrow points from the LGA advisory to the JFK advisory in the Queue.

ATCSCC ADVISORIES FOR WEDNESDAY, 06-10-2015

| # | Control Element | Date | Brief Title | Sent |
|-----|-----------------|------------|-------------------------------|----------------|
| 004 | FCAA16 | 06/10/2015 | CDM Airspace Flow Program CNX | 06/10/15 00:18 |
| 003 | ATL/ZTL | 06/10/2015 | CDM Ground Delay Program | 06/10/15 00:14 |
| 002 | LGA/ZNY | 06/10/2015 | CDM Ground Delay Program CNX | 06/10/15 00:13 |
| 001 | DCC | 06/10/2015 | Reroute Cancellation | 06/10/15 00:05 |

ATCSCC ADVISORIES FOR WEDNESDAY, 06-10-2015

| # | Control Element | Date | Brief Title |
|-----|-----------------|------------|------------------------------------------------------------------|
| 161 | DCC | 06/09/2015 | Reroute Cancellation |
| 160 | DCC | 06/09/2015 | ATCSCC ADVZY 160 DCC 06/09/15 Route RQD /FL ame: FLA_TO_NYMETROS |

QUEUE

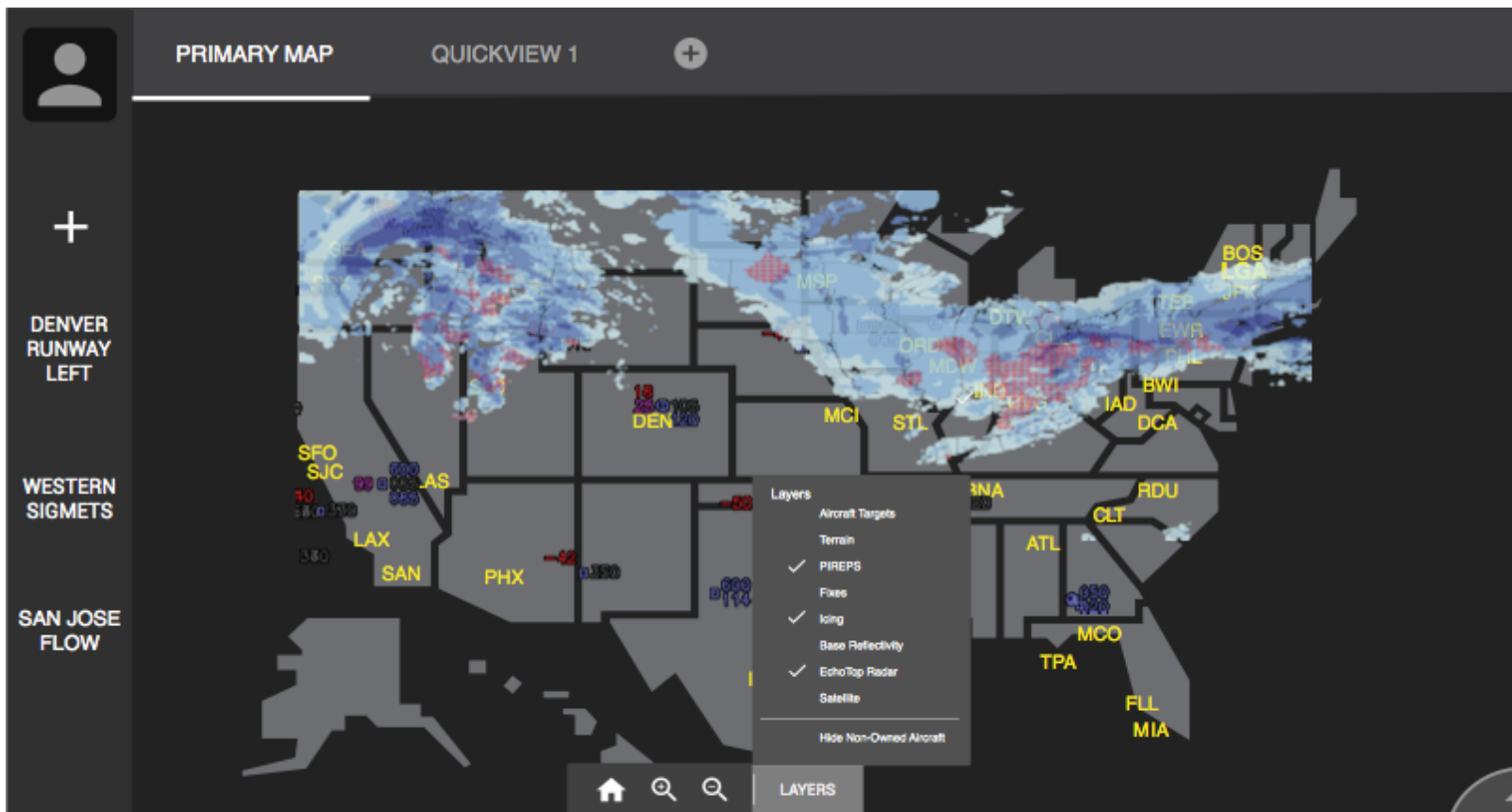
LGA: Too many aircraft in de-icing area. 15:30:02
AUTHOR: mmogford
RESOLVE SHARE DELETE

JFK: UAL 3740 stall in de-icing area. Expect a 20 min delay. 11:18:16
AUTHOR: dpeknik
SHARED WITH: RESOLVE SHARE DELETE

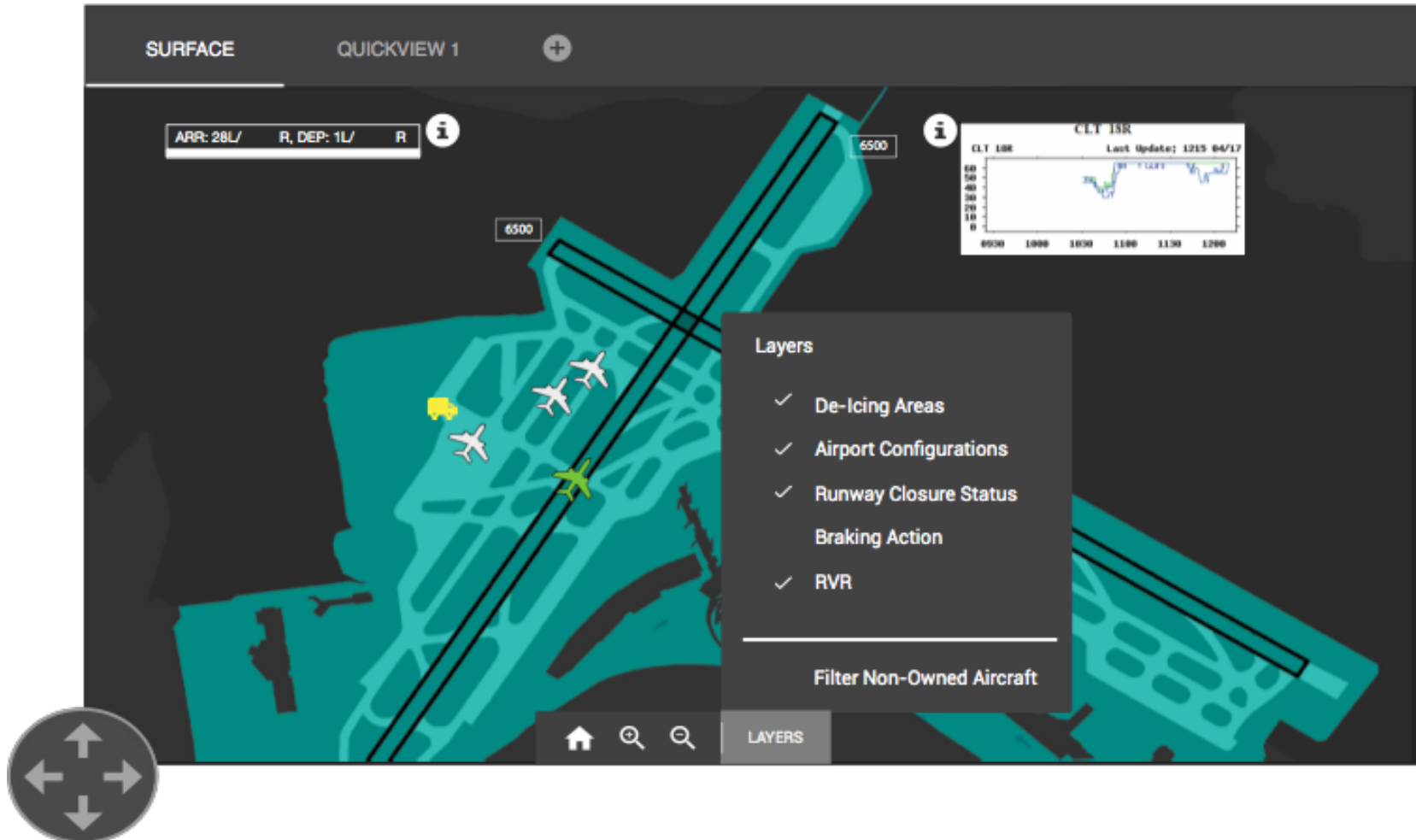
Comments:

- 13:30:45 dpeknik: There seems to be a stall in the de-icing area. Can we set a delay? I'll do the calls if needed. attachment REPLY
- 13:42:34 eleong: I say go for it.
- 13:42:34 mmogford: Let me check and see what our next crew roster says. REPLY

Primary Map View



Surface Map View



Information View



PLANNING CHARTS QUICKVIEW 1 +

Search

ATCSCC ADVISORIES FOR WEDNESDAY, 06-10-2015

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|-----|-----------------|------------|-------------------------------|----------------|
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ATCSCC ADVISORIES FOR WEDNESDAY, 06-10-2015

| # | Control Element | Date | Brief Title |
|-----|-----------------|------------|----------------------------|
| 161 | DCC | 06/10/2015 | |
| 160 | DCC | 06/10/2015 | DCC 06/09/15 Route RQD /FL |

Quicklinks

- FAA OIS
- ✓ Aviation Weather Center
- FAA NOTAMs
- WWACM

Quicklinks Name: FLA_TO_NYMETROS
Constrained area: ZJX/ZMA

Communication View



MY QUEUE FACT CHAT +

ADD QUEUE ITEM PRINT REPORT Search

LGA: Too many aircraft in de-icing area. ✎ MORE ▾
AUTHOR: **rmogford**
15:30:02 RESOLVE SHARE DELETE

JFK: UAL 3740 stall in de-icing area. Expect a 20 min delay. ✎ LESS ▲
AUTHOR: **dpeknik**
11:18:16 SHARED WITH:
RESOLVE SHARE DELETE

Comments:

13:30:45 **dpeknik:** Not sure how to deal with this one, any suggestions?
Here's the procedure. **attachment** 📎 REPLY

13:42:34 **eleong:** That's an old document I believe,.

13:42:34 **rmogford:** I'll update and send a new document to the team. REPLY

Communication View



MY QUEUE

FACT CHAT 6

41 users online

TMC Group

2 LGA Dispatchers

GMTO

AFP Position Managers

4 Information Team

LGA Controllers

JFK Controllers

Hello there..

Richard Mogford 8:56:14 AM

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.

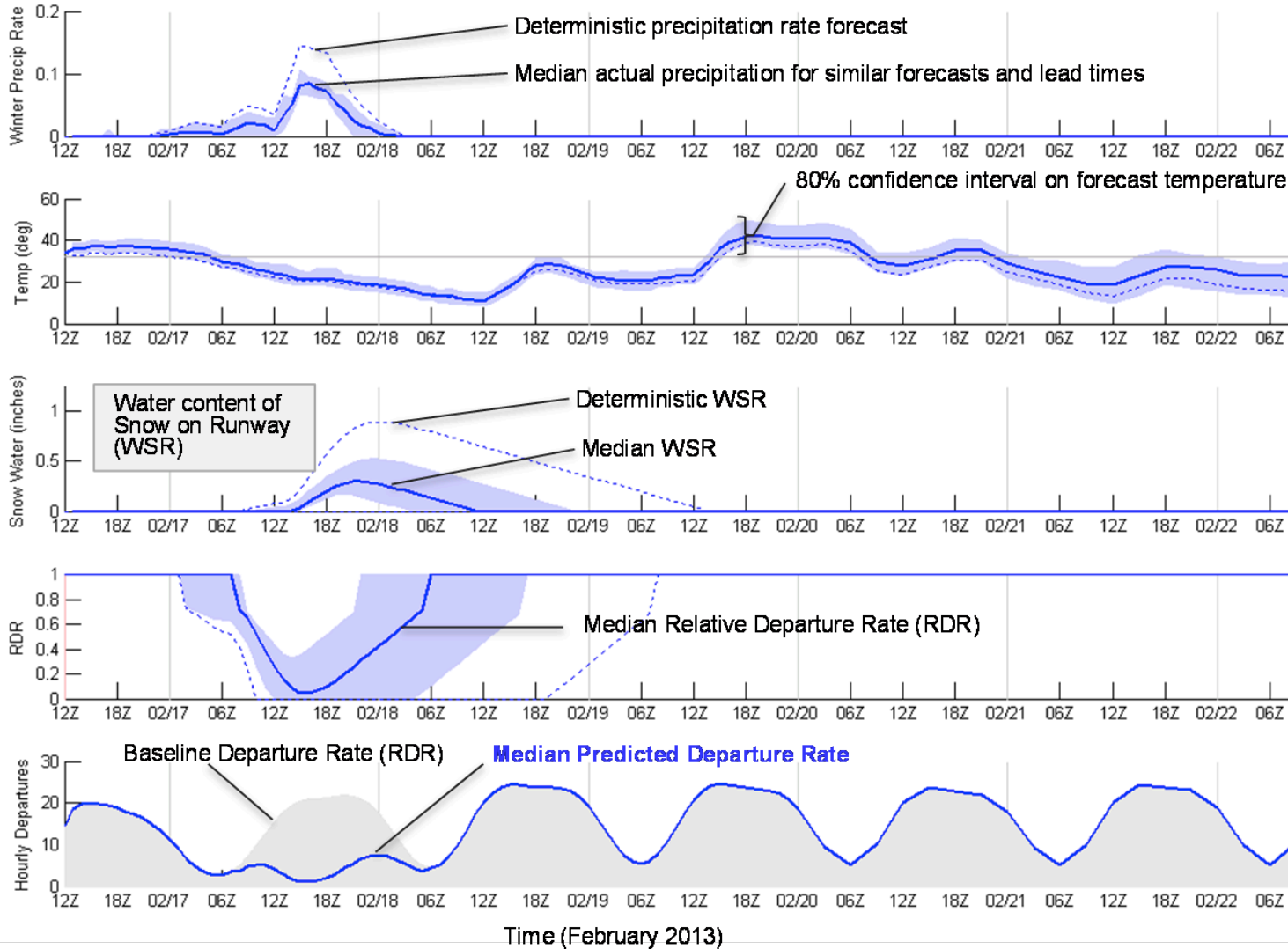
Before I forget, there's another front coming in, so stay tuned for additional info.

Richard Mogford 8:56:14 AM

Type your message here & press Enter or the send icon to submit...

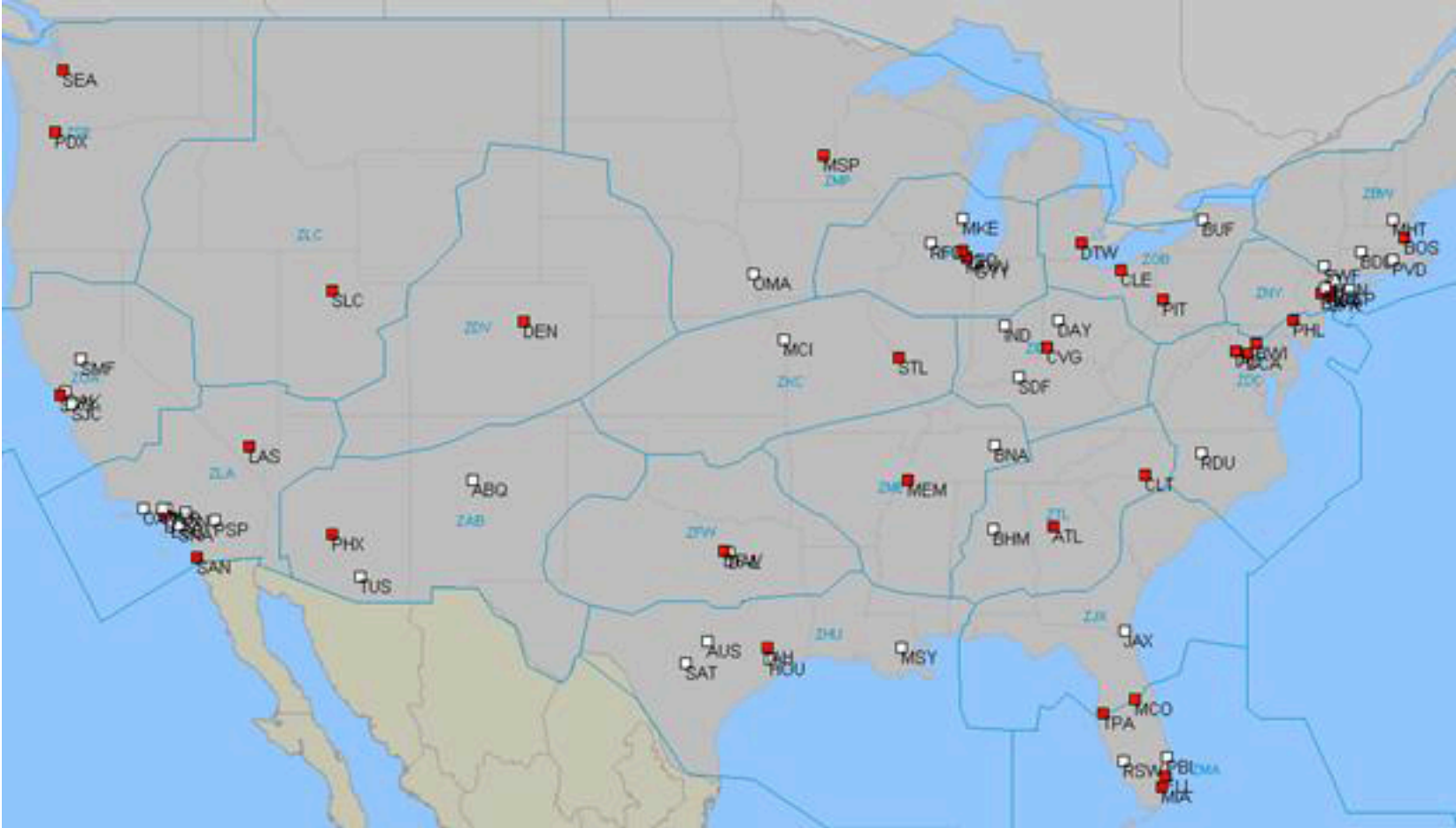


WWACM



WWACM for BOS for February 16, 2013

WWACM



The 77 airports included in WWACM

FACT User Interface Design



The screenshot displays the FACT User Interface, which is divided into several sections:

- PRIMARY MAP:** A map of the United States with various airports labeled (e.g., SEA, PDX, MSP, BOS, LGA, JFK, DEN, MCO, IAH, TPA, RDU, ATL, MEM, BNA, ORD, MDW, IND, CNG, DTW, CLE, PIT, EWR, PHL, IAD, DCA, SFO, SJC, LAS, PHX, SAN, LAX, MIA, FLL). A sidebar on the left lists "DENVER RUNWAY LEFT", "WESTERN SIGMETS", and "SAN JOSE FLOW".
- SURFACE:** A detailed view of an airport terminal and runways, highlighted in teal.
- PLANNING:** A section containing "CHARTS" and "QUICK INFO".
- MY QUEUE:** A section containing "FACT CHAT".

The **FACT CHAT** window is open, showing a list of items and comments:

- Item 1:** "LGA: Too many aircraft in de-icing area." by **mmogford** at 15:30:02. Actions: RESOLVE, SHARE, DELETE.
- Item 2:** "JFK: UAL 3740 stall in de-icing area. Expect a 20 min delay." by **dpeknik** at 11:18:16. Actions: RESOLVE, SHARE, DELETE.
- Comments:**
 - 13:30:45 **dpeknik**: There seems to be a stall in the de-icing area. Can we set a delay? "I'll do the calls if needed." [attachment](#) [REPLY](#)
 - 13:42:34 **eleong**: I say go for it.
 - 13:42:34 **mmogford**: Let me check and see what our next crew roster says. [REPLY](#)

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



Full Map View

Map data ©2016 Google, INEGI | Terms of Use

Surface

Map data ©2016 Google | Terms of Use | Report a map error

Arr: 19L/19R/25L Dep: 19L or 19R or 25R

Planning

Search

ADVISORIES FOR MONDAY, 08-01-2016

| # | CTRL ELEMENT | BRIEF TITLE |
|-----|--------------|---------------------------|
| 101 | ZDC | DCINTERNATIONALDEPARTURES |
| 100 | DCC/ZDC | ZDCSWAPSTATEMENTFYI |
| 099 | FCAOB1 | CDM |
| 098 | FCAA08 | CDM |
| 097 | DCC | OPERATIONS |
| 096 | FCAA08 | CDM |
| 095 | FCAOB1 | CDM |

New advisory received. ATCSCC ADVZY 001 NOC 08/01/2016 ANS FORECAST FOR SUN JUL 31

093 DCC FCA

My Queue

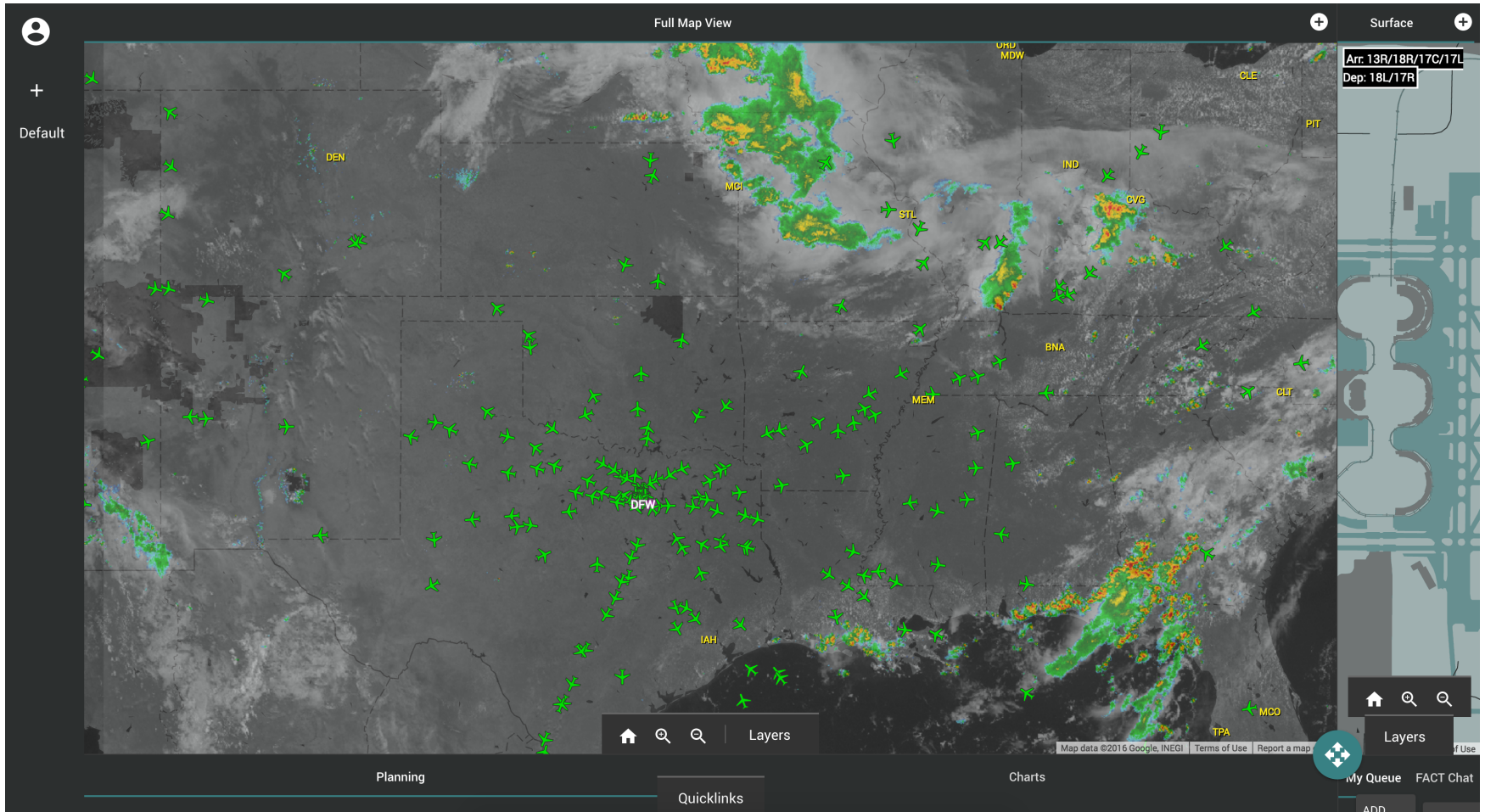
ADD QUEUE ITEM PRINT REPORT

TOO MANY AIRCRAFT IN THE DE-ICING AREA

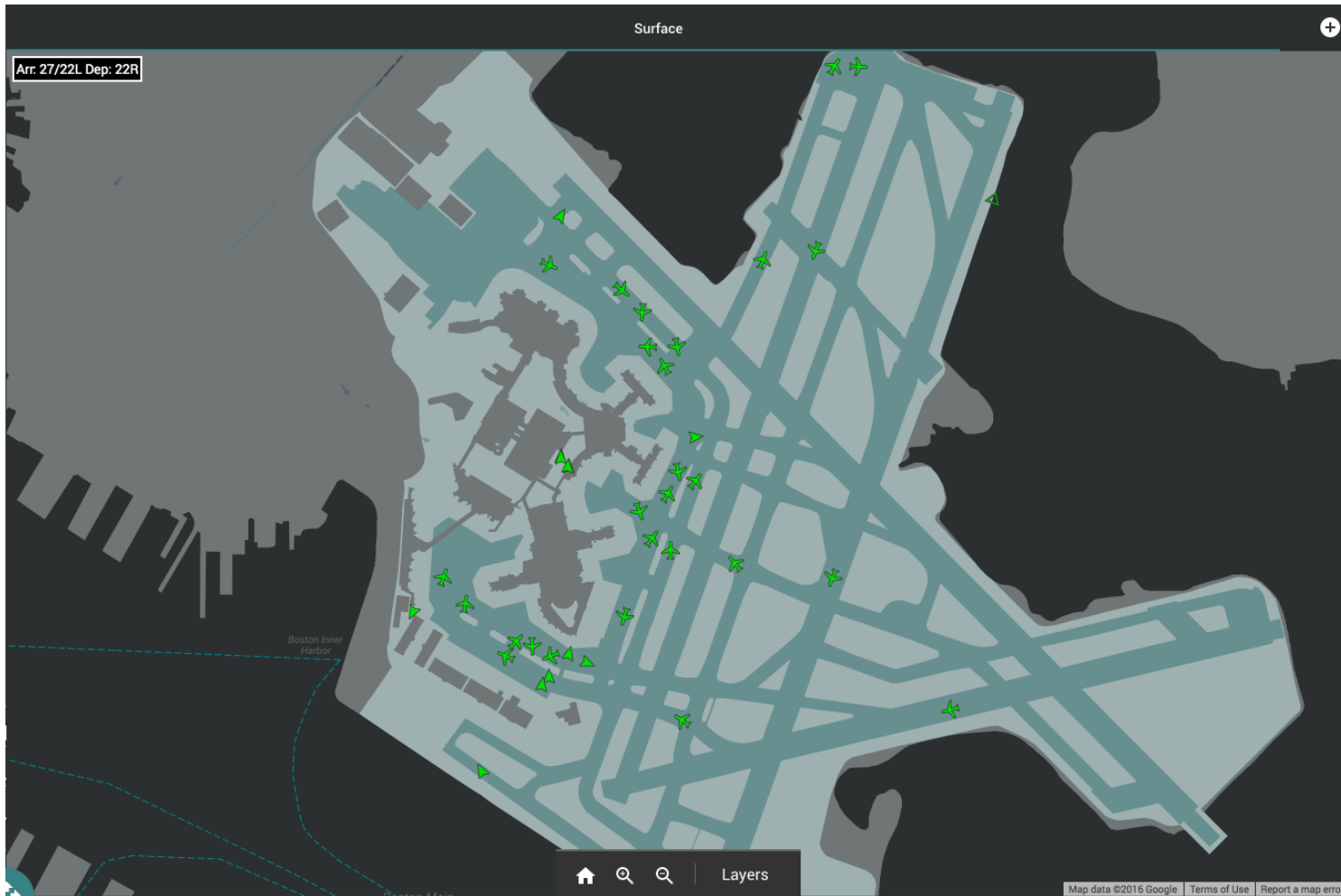
RESOLVE SHARE DELETE

FACT Chat

Primary Map



Surface Map



Information



Search

ADVISORIES FOR MONDAY, 08-01-2016

| # | CTRL ELEMENT | BRIEF TITLE |
|-----|--------------|---------------------------|
| 101 | ZDC | DCINTERNATIONALDEPARTURES |

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 DCCOPSlxstn20

| | | |
|-----|---------|---------------------|
| 100 | DCC/ZDC | ZDCSWAPSTATEMENTFYI |
| 099 | FCAOB1 | CDM |
| 098 | FCAA08 | CDM |
| 097 | DCC | OPERATIONS |
| 096 | FCAA08 | CDM |
| 095 | FCAOB1 | CDM |
| 094 | DCC | FCA |
| 093 | DCC | FCA |
| 092 | BWI/ZDC | CDM |

Quicklinks

Communication



TOO MANY AIRCRAFT IN THE DE-ICING AREA 

LESS 

[RESOLVE](#)

[SHARE](#)

[DELETE](#)

CREATED DATE: 2016-06-14T00:40:02.000Z
MODIFIED DATE: 2016-08-01T16:44:15.297Z
AUTHOR: admin
SHARED WITH:

F.A.C.T

NOTES:

NOTES ARE EMPTY FOR THIS ITEM

COMMENTS:

00:40:27Z admin (Me) test

[REPLY](#)

00:40:34Z admin (Me) test

[REPLY](#)

21:32:56Z admin (Me) asdfasdfasdf

[REPLY](#)

[ADD A COMMENT](#)

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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650-604-1922

