National Aeronautics and Space Administration
NASA
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

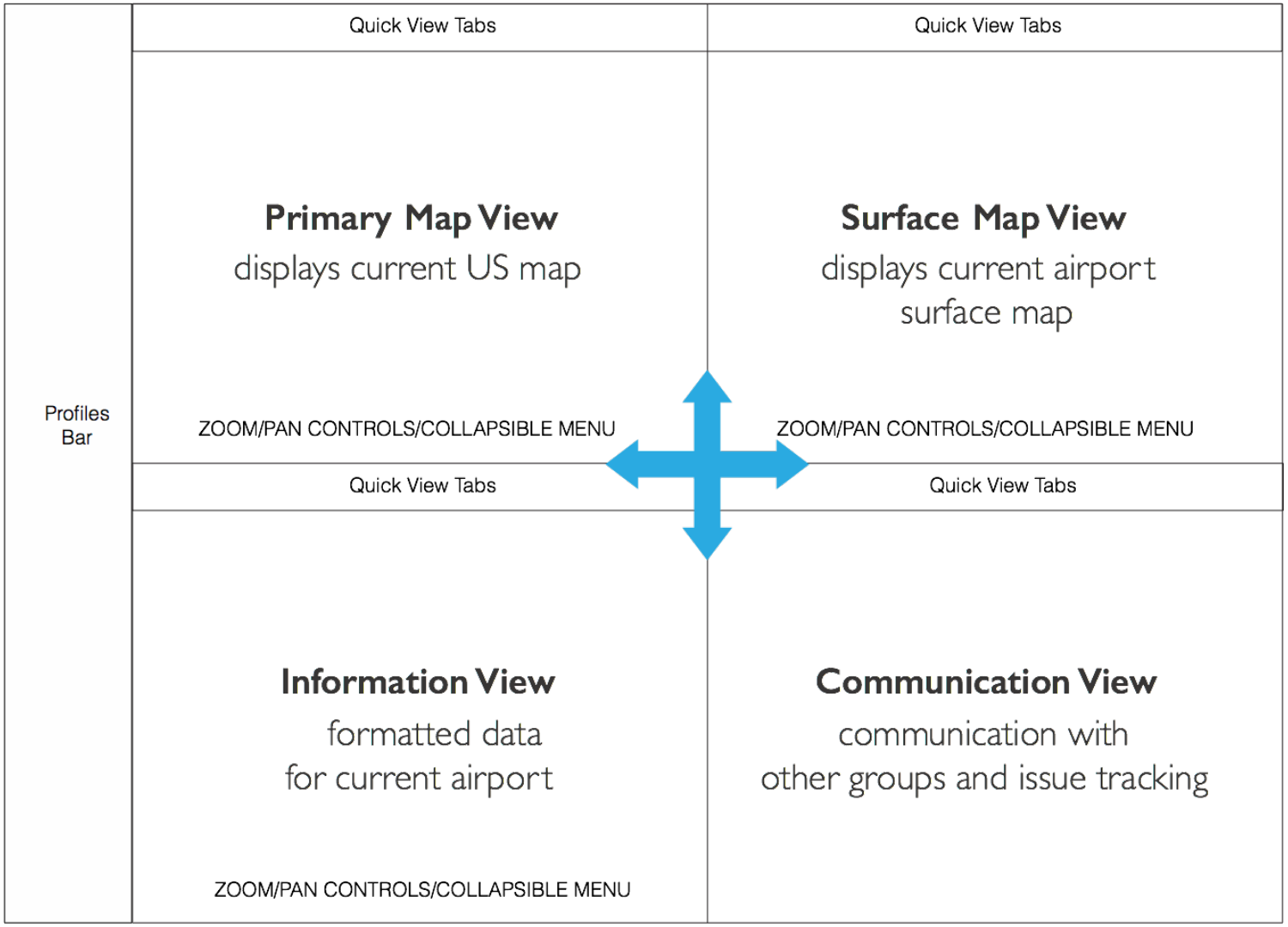
FACT Information

- 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.)

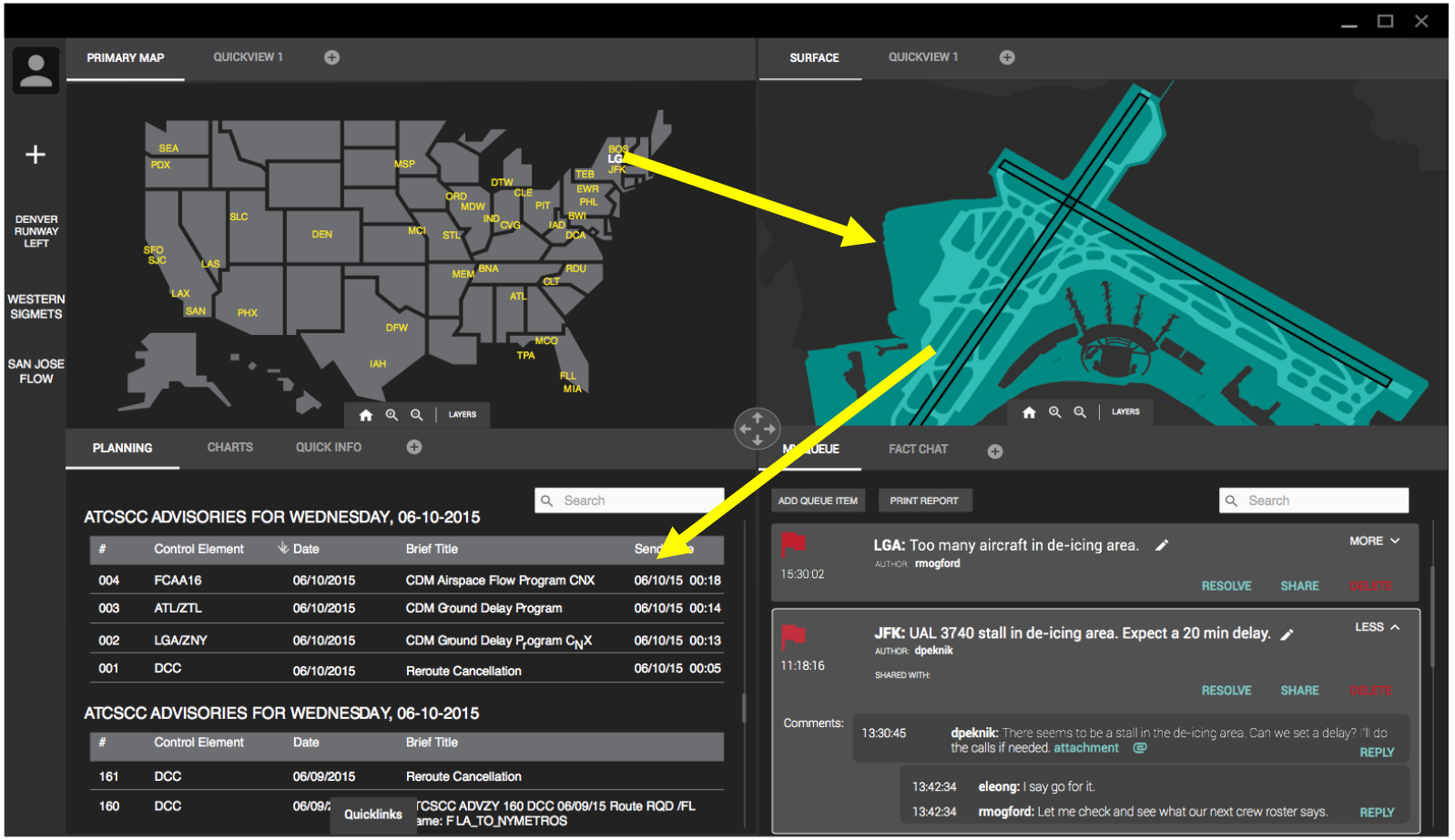
FACT Information

- 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)

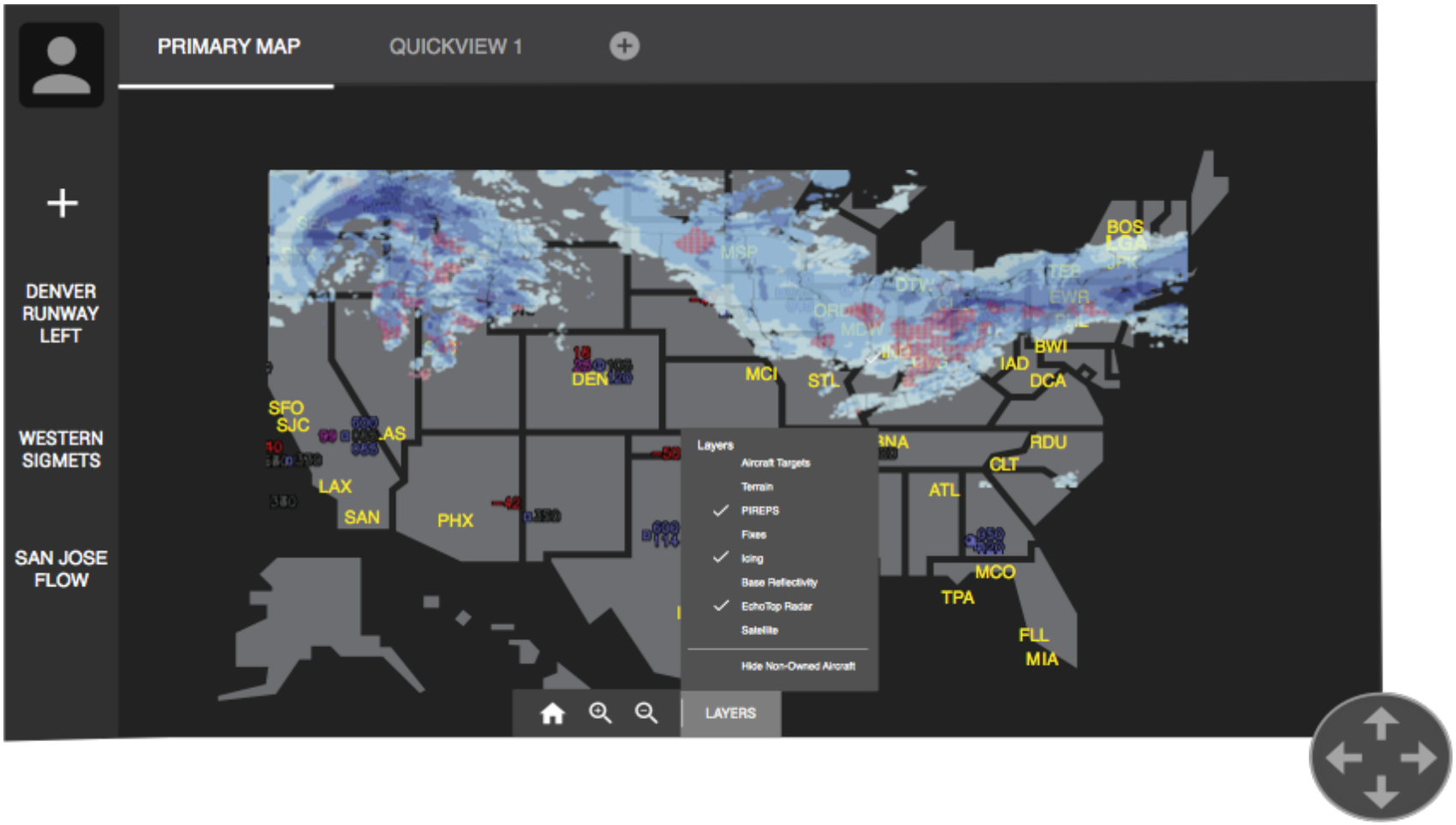
FACT Design


Quick View Tabs
Quick View Tabs
Primary Map View
displays current US map
Surface Map View
displays current airport surface map
Profiles Bar
ZOOM/PAN CONTROLS/COLLAPSIBLE MENU
ZOOM/PAN CONTROLS/COLLAPSIBLE MENU
Quick View Tabs
Quick View Tabs
Information View
formatted data for current airport
Communication View
communication with other groups and issue tracking
ZOOM/PAN CONTROLS/COLLAPSIBLE MENU

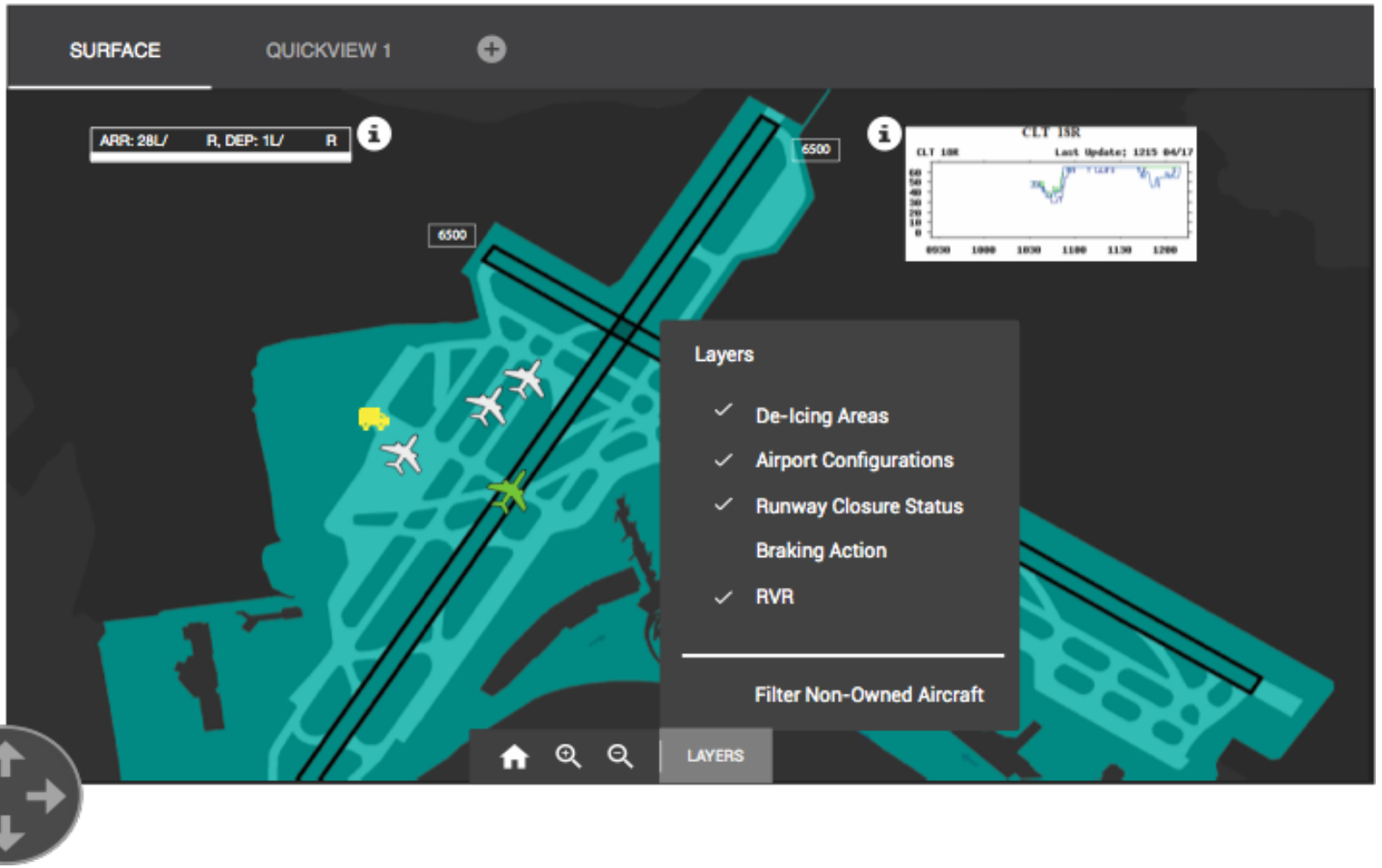
FACT User Interface Design



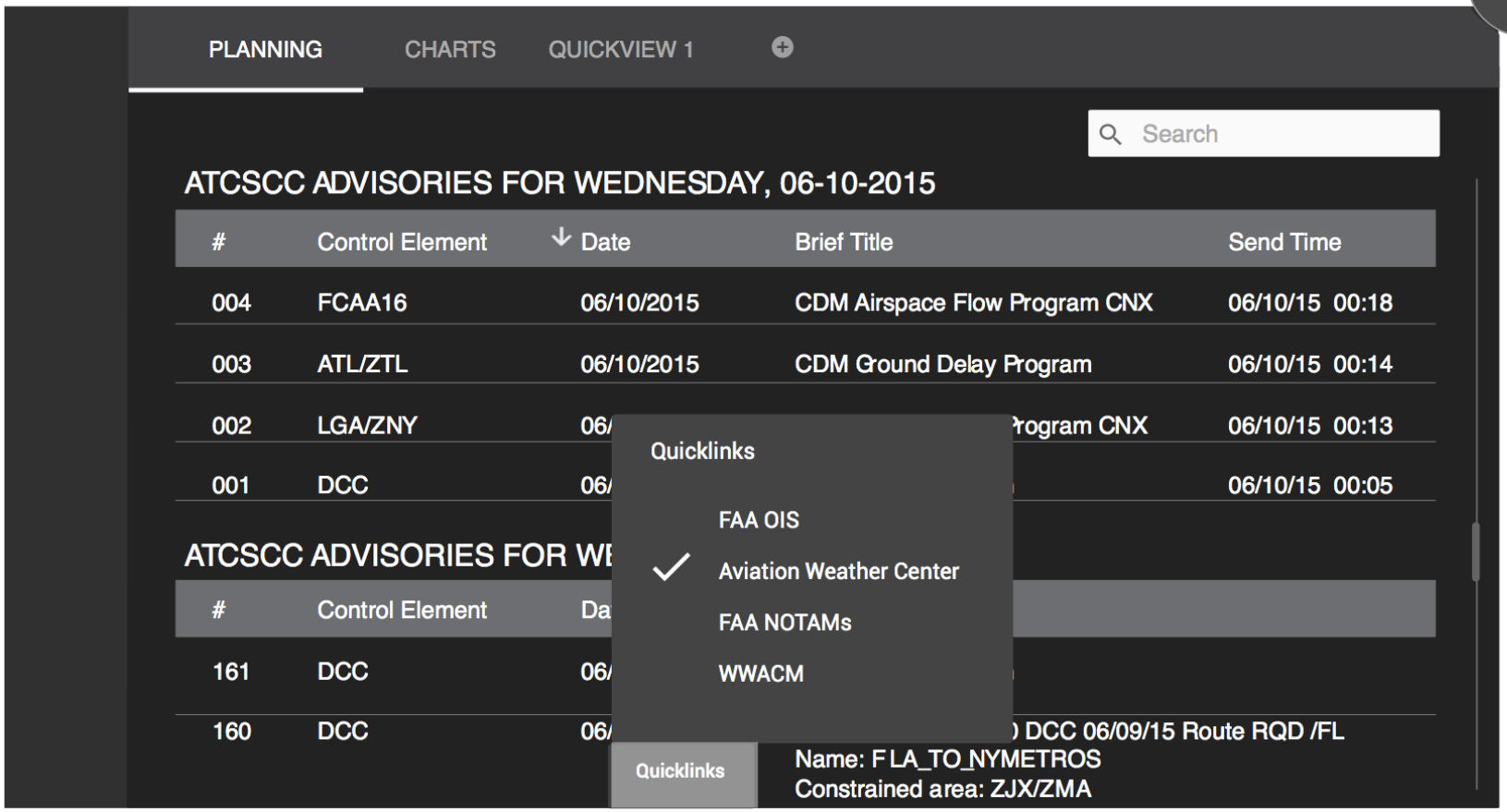
Primary Map View



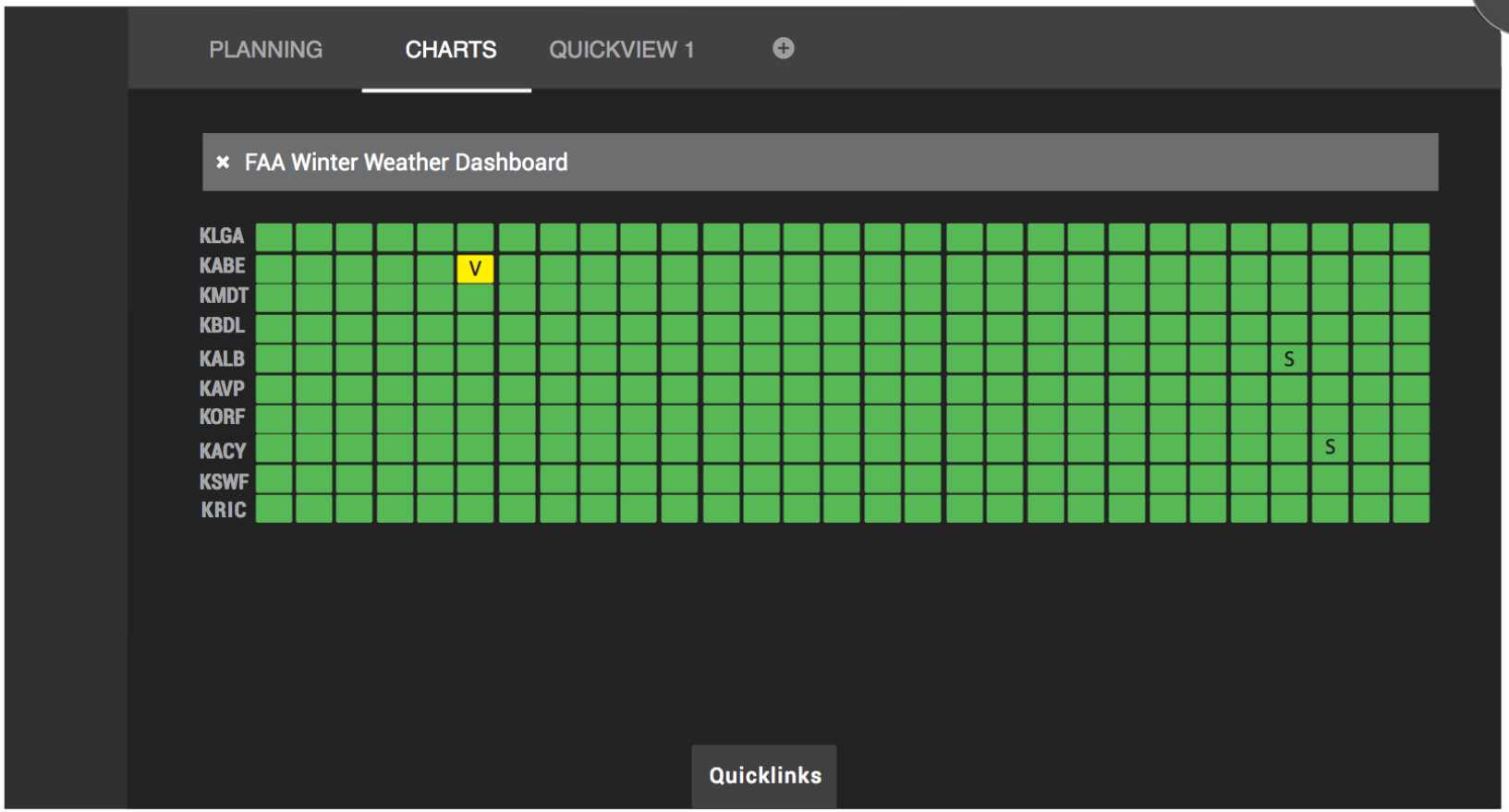
Surface Map View



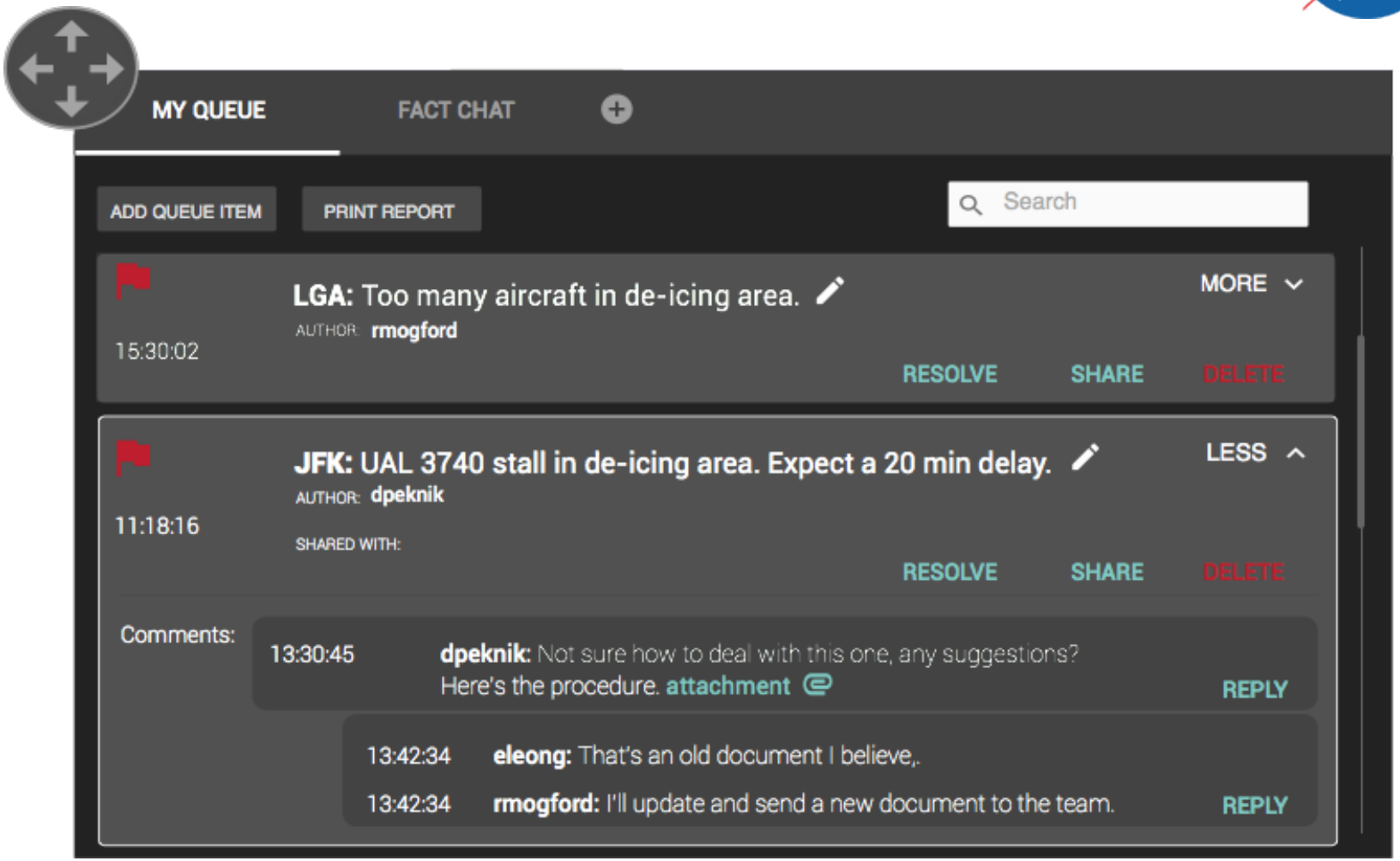
Information View



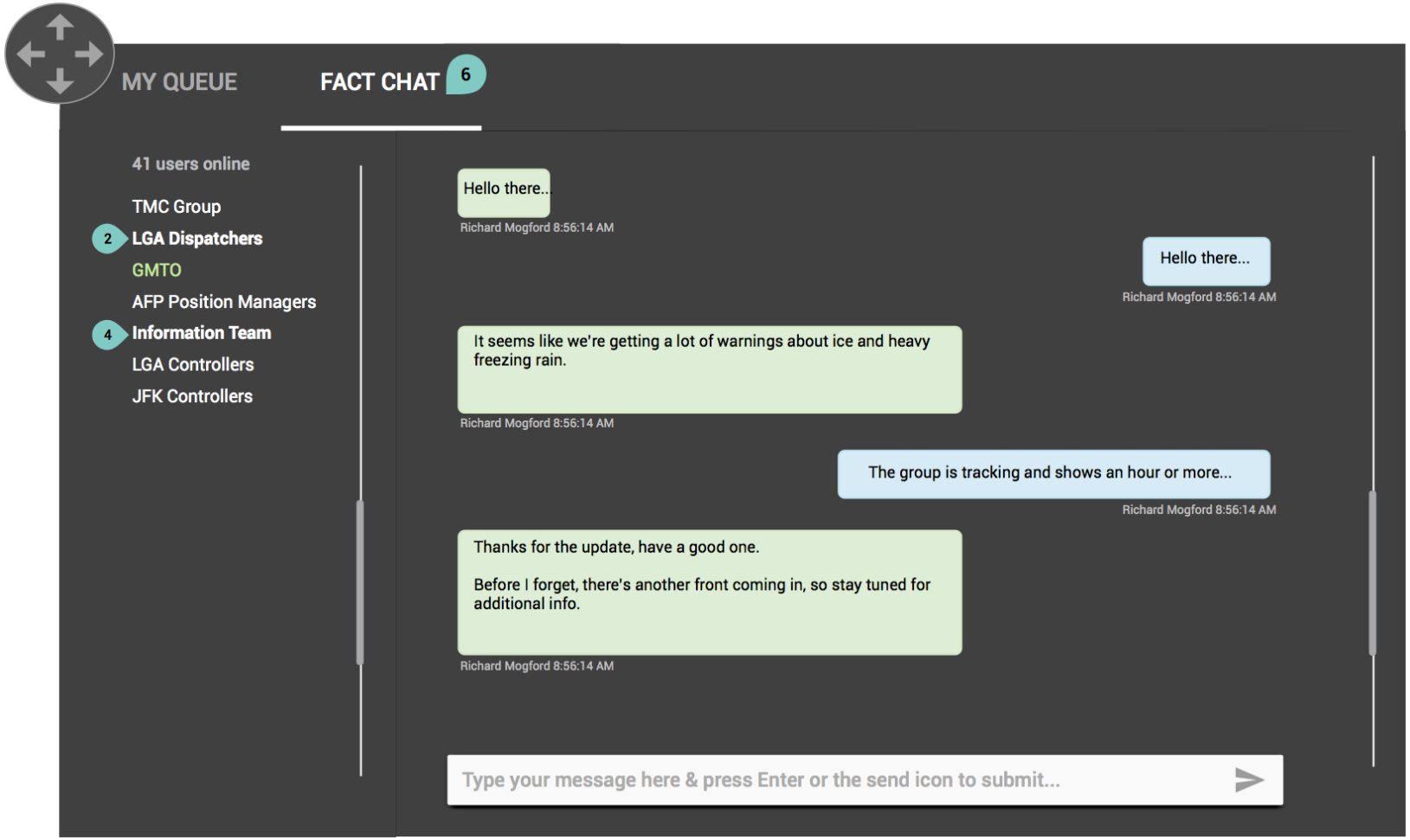
Information View



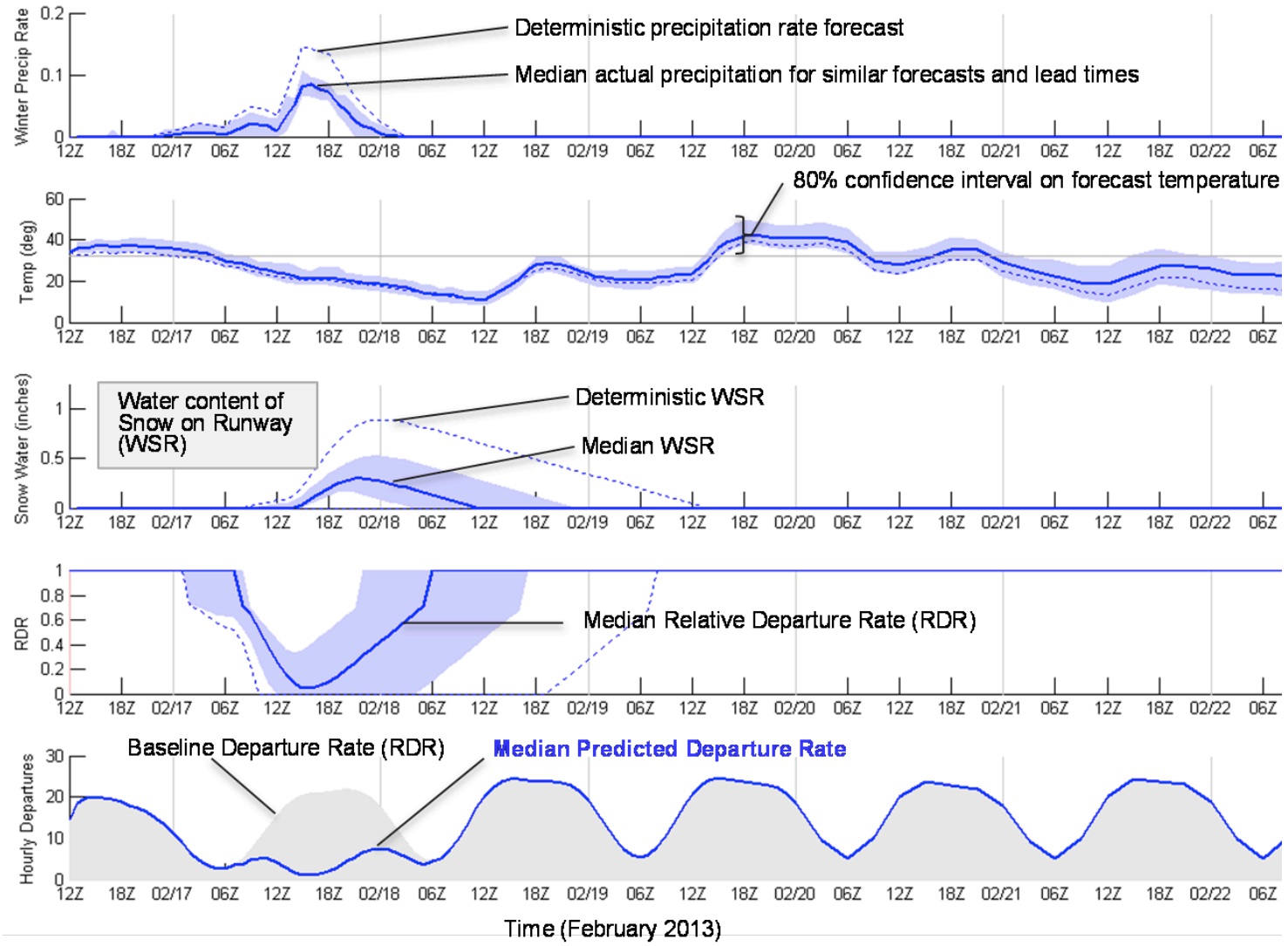
Communication View



Communication View

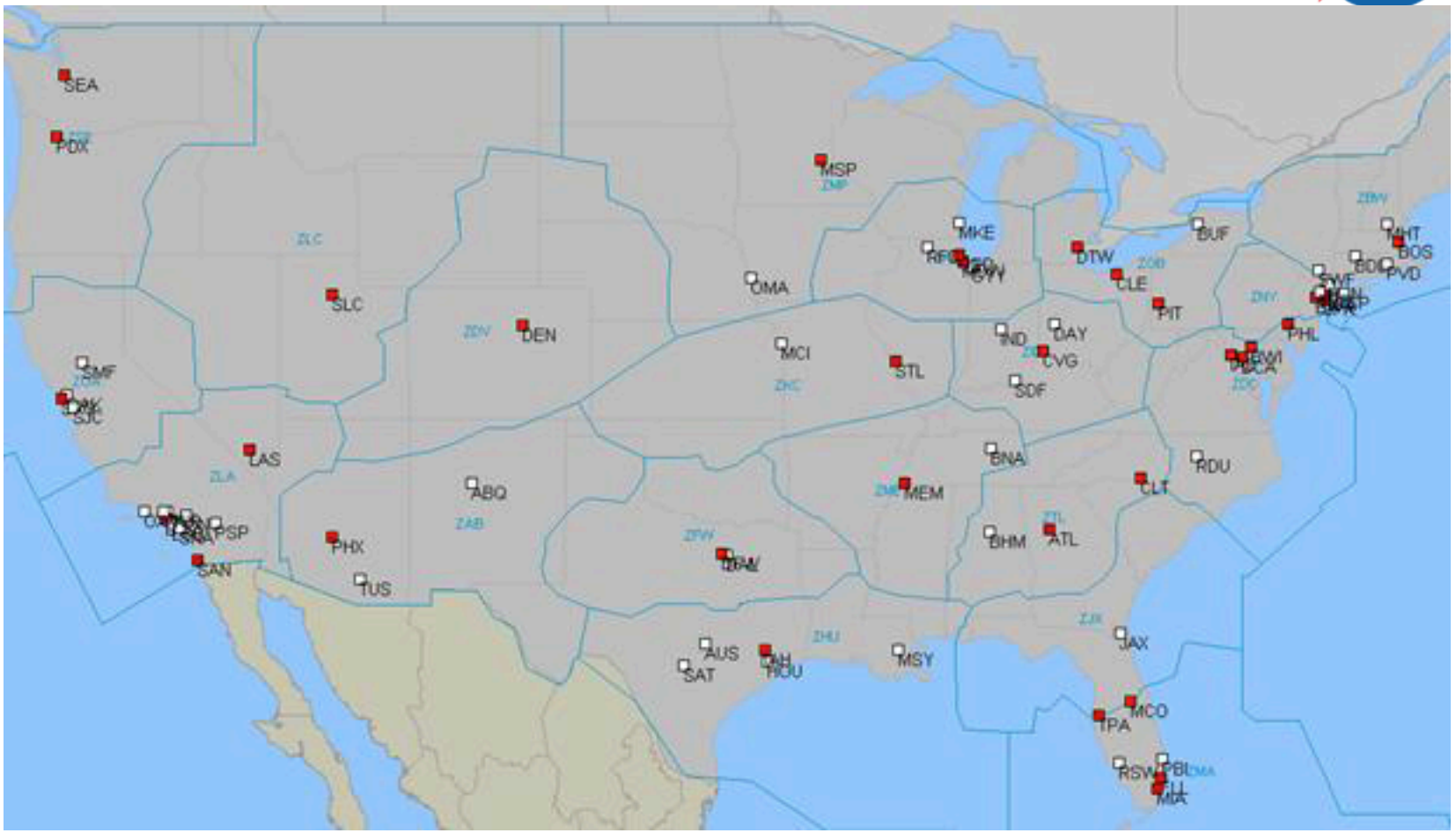


WWACM



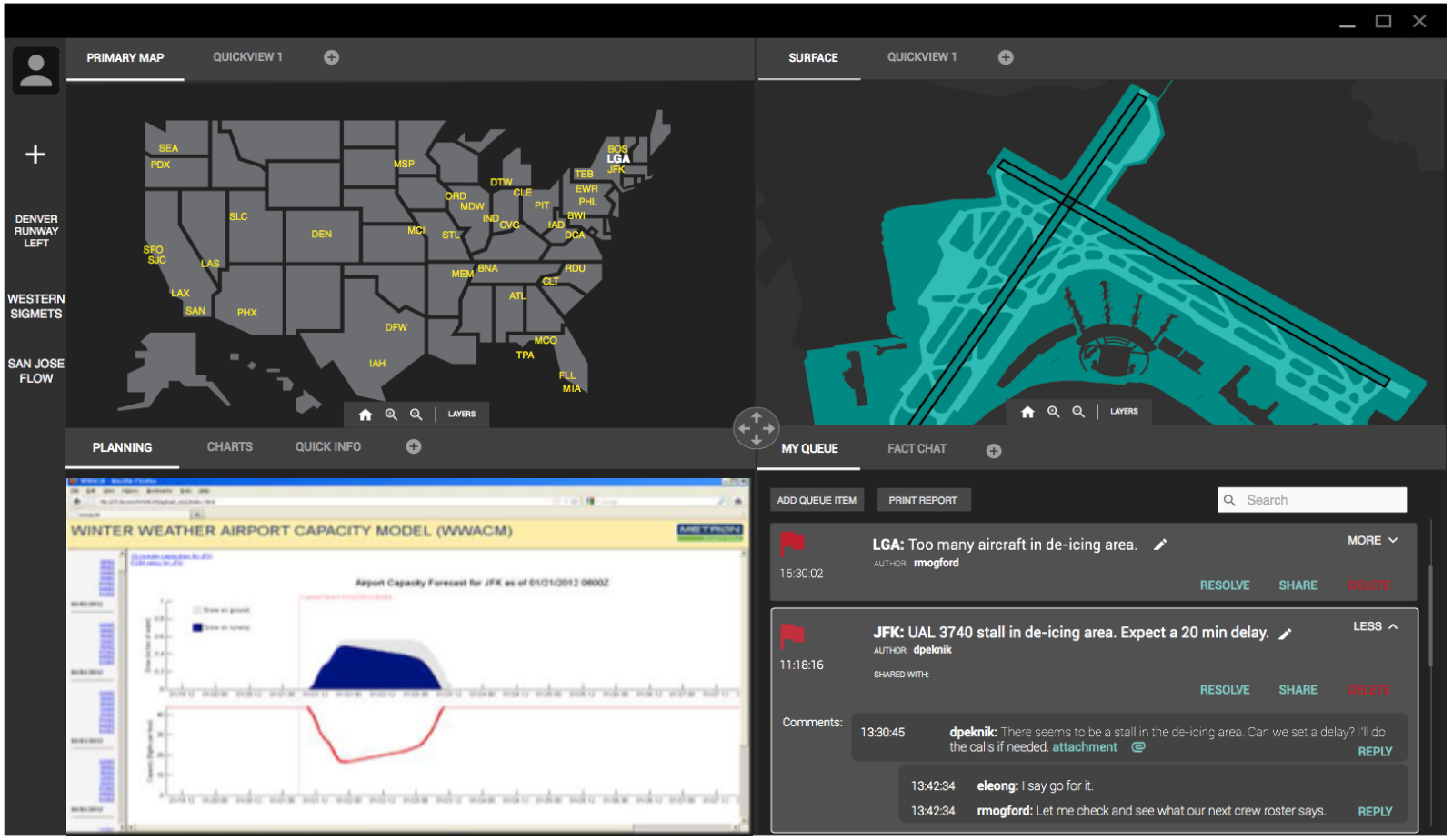
WWACM for BOS for February 16, 2013

WWACM



The 77 airports included in WWACM

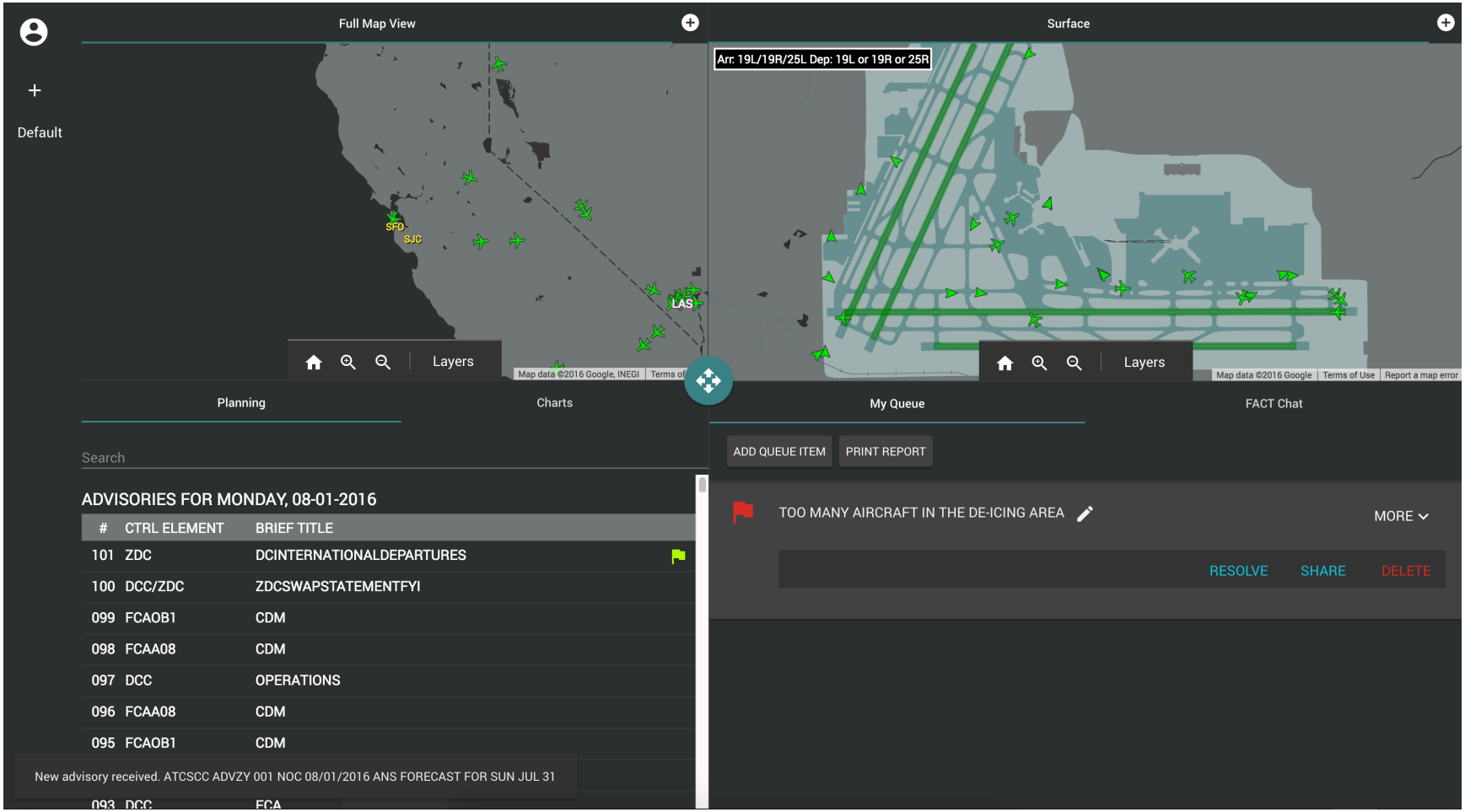
FACT User Interface Design



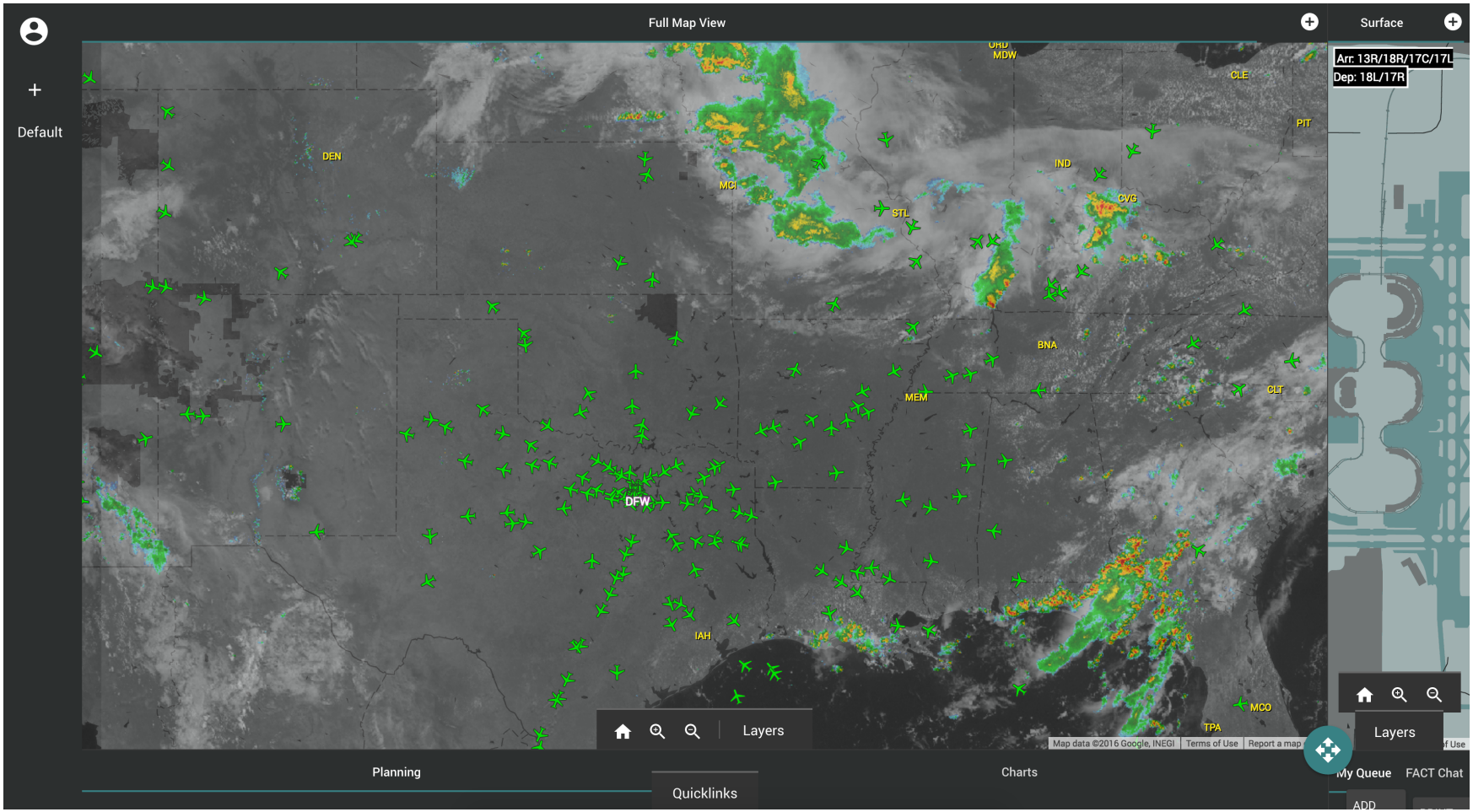
FACT Details

- 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



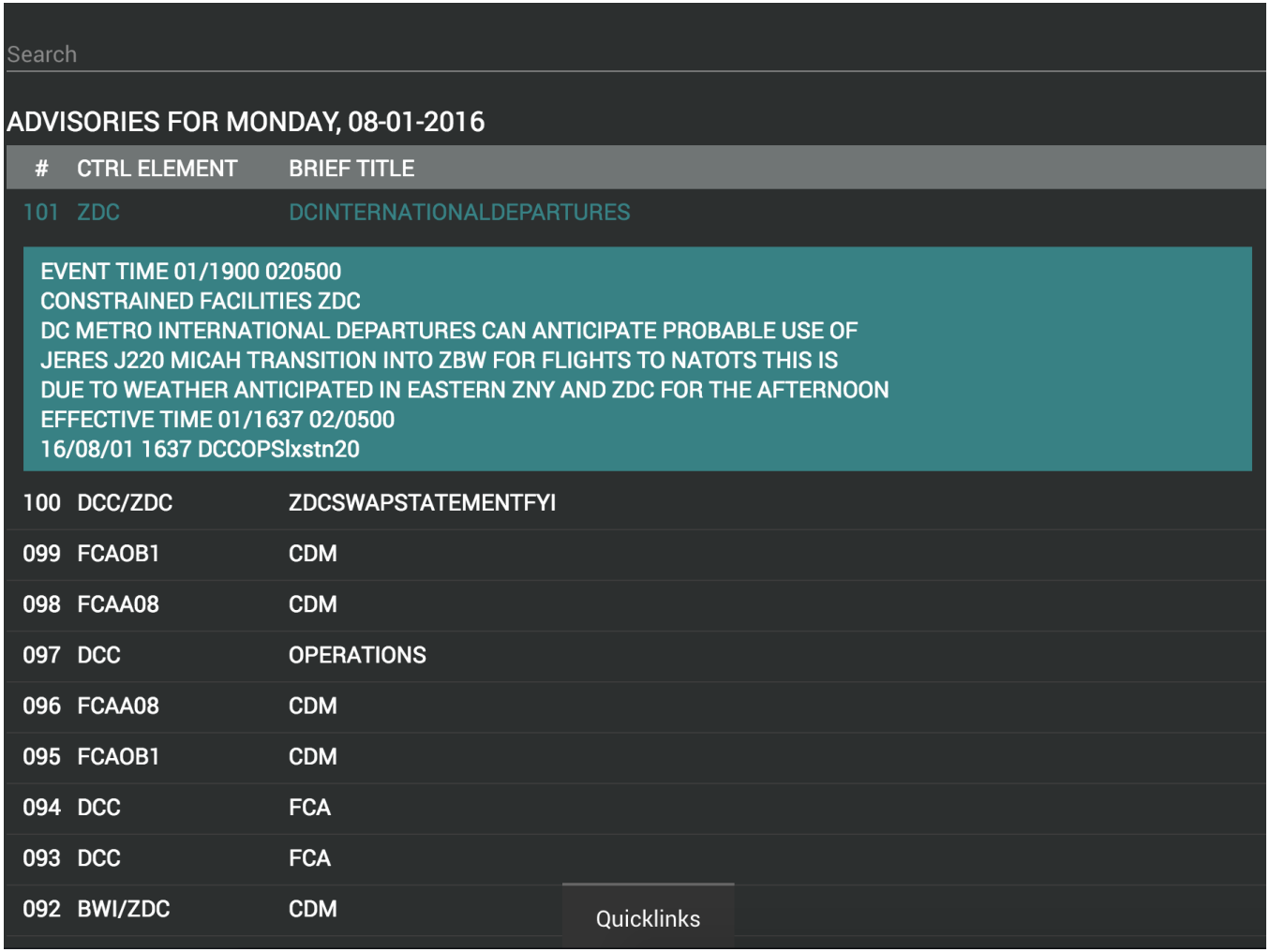
Primary Map


Full Map View
Default
Surface
Arr: 13R/18R/17C/17L
Dep: 18L/17R
DEN
MCI
STL
ORD
MDW
CLE
PIT
IND
CVG
BNA
CLT
MEM
DFW
IAH
MCO
TPA
Layers
Layers
Planning
Quicklinks
Charts
My Queue
FACT Chat
ADD
Map data ©2016 Google, INEGI
Terms of Use
Report a map

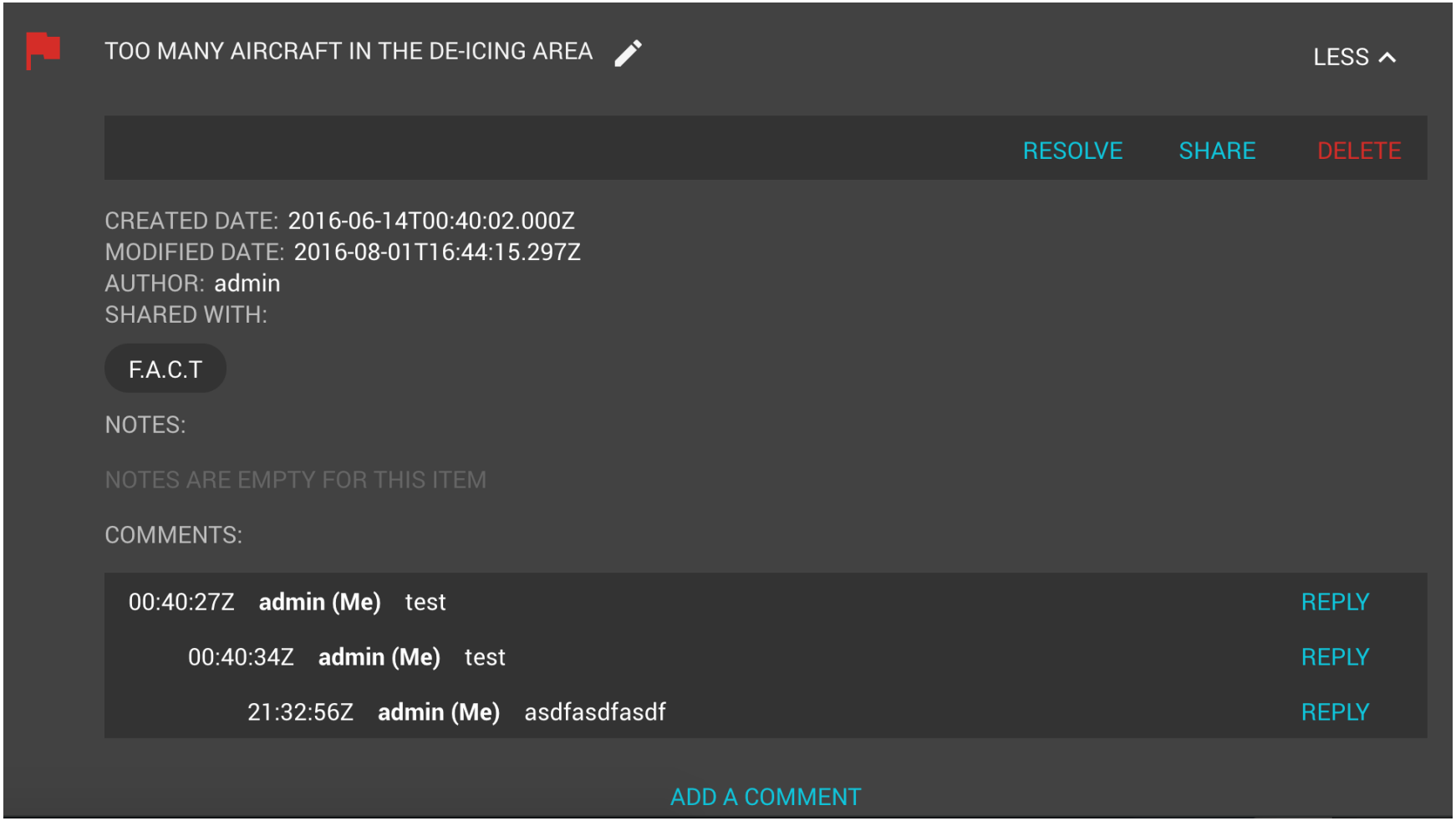
Surface Map

Surface
Arr: 27/22L Dep: 22R
Boston Inner Harbor
Layers
Map data ©2016 Google
Terms of Use
Report a map error

Information



Communication



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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