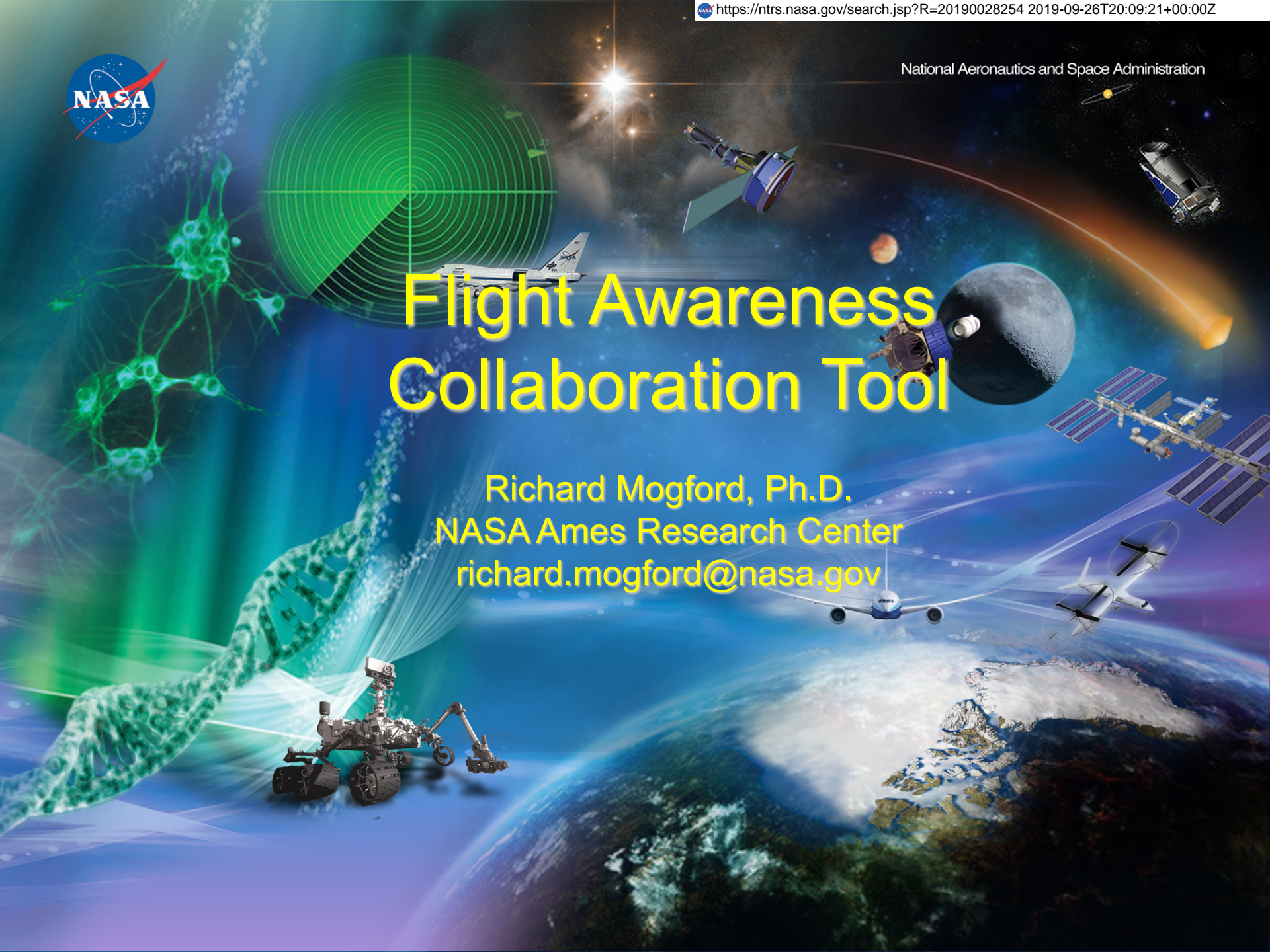




# Flight Awareness Collaboration Tool

Richard Mogford, Ph.D.  
NASA Ames Research Center  
[richard.mogford@nasa.gov](mailto:richard.mogford@nasa.gov)

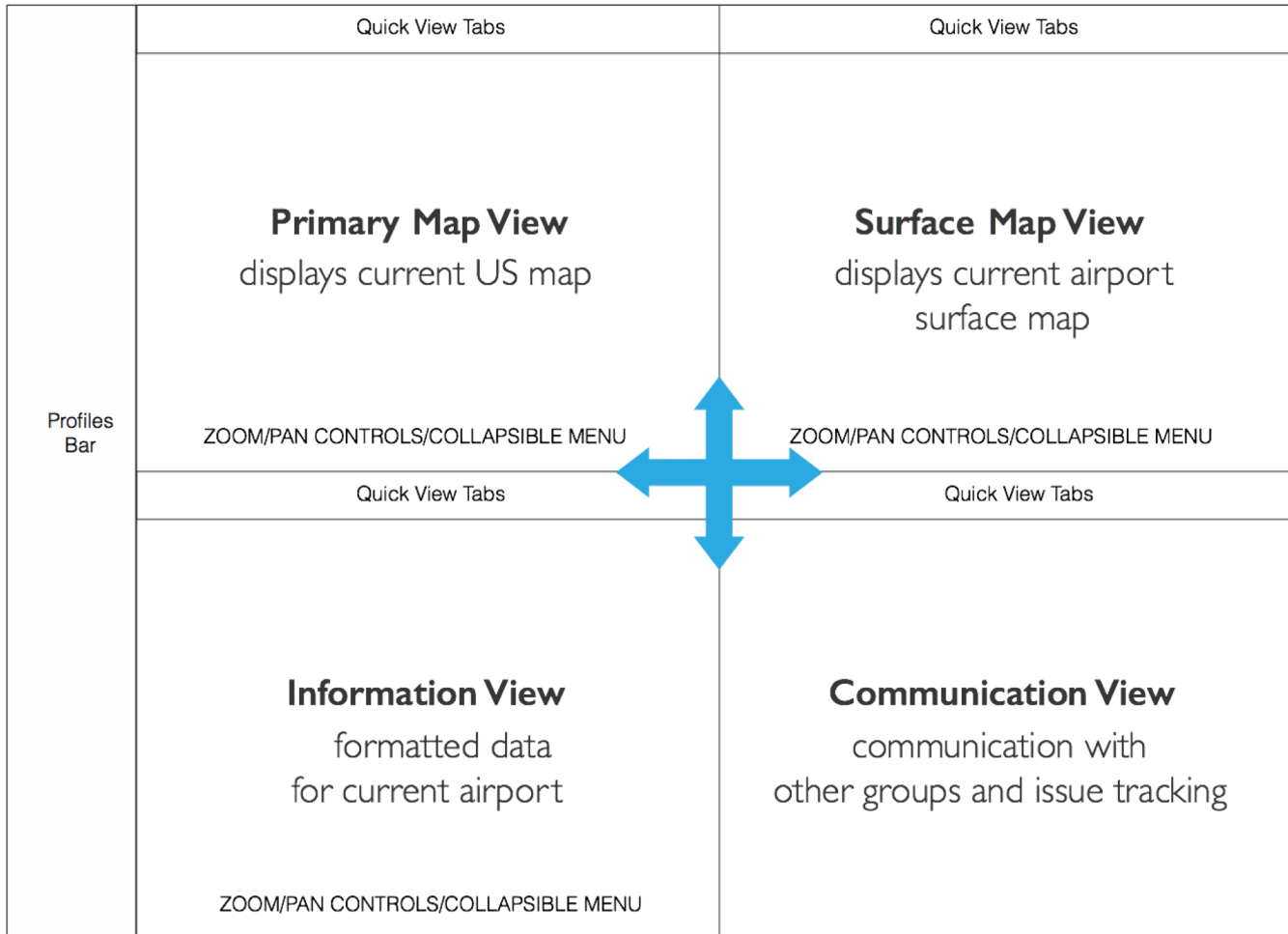


# Flight Awareness Collaboration Tool



- Created the “Flight Awareness Collaboration Tool” (FACT)
- Concentrates information about winter weather events on one display
- Supports collaboration between airline operations center, air traffic control, airport authority, and de-icing operators
- Web-based application
- Includes:
  - Weather status and forecasts
  - FAA data from the System Wide Information Management system
  - Reporting of runway closures for snow/ice treatment
  - Airport runway configuration (capacity)
  - De-icing operations
  - FAA actions (e.g., ground stops, miles-in-trail, etc.)

# FACT Design



# FACT User Interface



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

- PRIMARY MAP:** A map of the United States with various airports labeled. A yellow arrow points from the BOS/LGA area to the Surface Map.
- SURFACE:** A detailed view of an airport's surface, showing runways and taxiways. A yellow arrow points from the Primary Map to this view.
- QUEUE:** A list of advisories for Wednesday, 06-10-2015. A yellow arrow points from the 'Send' button in the table to the Queue section.

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

#	Control Element	Date	Brief Title	Send
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 Routes RQD /FL ame: FLA_TO_NYMETROS

**QUEUE**

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

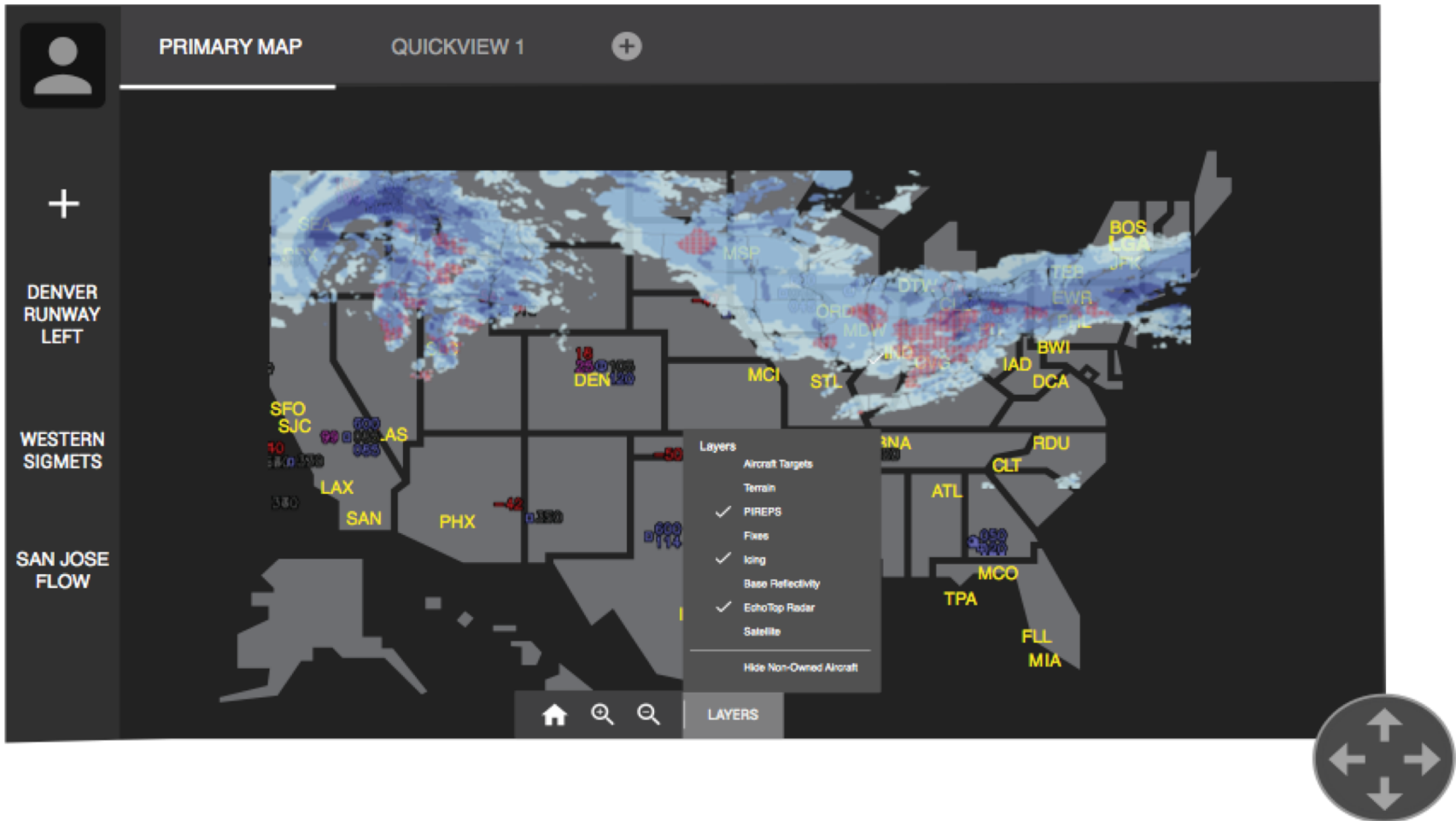
**JFK: UAL 3740 stall in de-icing area. Expect a 20 min delay.** 11:18:16  
AUTHOR: dpeknik  
SHARED WITH: RESOLVE SHARE DELETE

**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](#)



# FACT Primary Map View





# FACT Surface Map View

The screenshot displays the FACT Surface Map View interface. At the top, there are tabs for "SURFACE" and "QUICKVIEW 1". Below the tabs, a navigation bar shows "ARR: 28L/ R, DEP: 1L/ R" and a plus sign icon. The main map area shows an airport layout with runways, taxiways, and aircraft icons. A yellow truck icon is visible on the left side of the map. A "6500" label is present near the top of the map. In the top right corner, there is a small inset window titled "CLT ISR" with a line graph showing data over time, with the x-axis ranging from 0900 to 1200 and the y-axis from 0 to 60. The graph is labeled "Last Update: 1215 04/17". A "Layers" menu is open in the center-right, listing several options: "De-Icing Areas", "Airport Configurations", "Runway Closure Status", "Braking Action", and "RVR". Below the layers list is a "Filter Non-Owned Aircraft" option. At the bottom left, there is a circular navigation pad with four directional arrows. At the bottom center, there are icons for home, search, and zoom, along with a "LAYERS" button.

# FACT Information View (Text)



PLANNING CHARTS QUICKVIEW 1 +

Search

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

#	Control Element	Date	Brief Title	Send Time
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 Airspace Flow Program CNX	06/10/15 00:13
001	DCC	06/10/2015		06/10/15 00:05

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

#	Control Element	Date	Brief Title	Send Time
161	DCC	06/10/2015		
160	DCC	06/10/2015		

Quicklinks

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

Quicklinks

Name: FLA\_TO\_NYMETROS  
Constrained area: ZJX/ZMA

# FACT 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

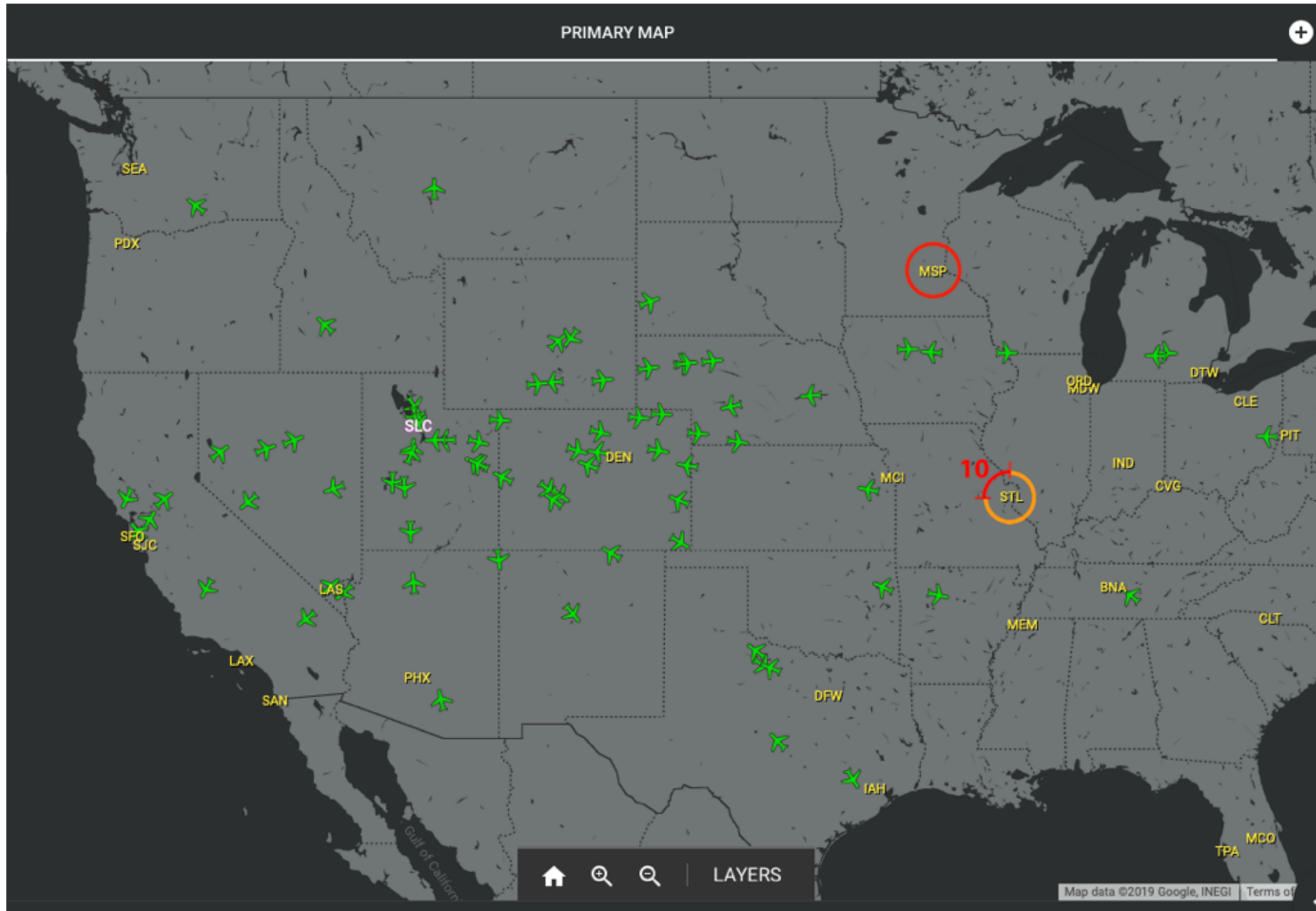




# FACT Automation

- As a winter storm develops, the dispatcher must monitor airport conditions in the path of the weather
- Needs to be aware of upcoming holds and evaluate the need for diversions
  - Fuel reserves must be adequate for the situation
- One measure of imminent airport problems is traffic movement at the target airport
  - Comparison of arrival and departure rates compared to normal airport configuration
  - Assessment of traffic movement on the surface
- FACT will monitor this activity and alert the dispatcher about degrading airport conditions
- Dispatcher can contact the aircraft concerned to make plans for holds or diverts
- Will use the features of FACT to learn more about the problems at the airport

# Airport Alerting





# Current Status

- Patented on March 12, 2019
- Available for licensing from NASA
- Working on predictive algorithms